Draft Environmental Impact Statement and Draft Resource Management Plan Amendments for the TenWest Link Transmission Line Project

Estimated Lead Agency Total Costs Associated with Developing and Producing this EIS
$3,546,000

August 2018

ABSTRACT

In compliance with the National Environmental Policy Act, this Draft Environmental Impact Statement (EIS) evaluates the environmental effects of the construction, operation, maintenance, and decommissioning of the Ten West Link Transmission Line Project (the Project) proposed by DCR Transmission, LLC (DCRT) in Maricopa and La Paz counties in Arizona, and Riverside County, California. The Applicant Proposed Action and Action Alternatives include construction of a 500-kilovolt (kV) electric transmission line, associated appurtenances, and infrastructure; and use of applicant proposed measures, best management practices, and mitigation measures to avoid environmental impacts or minimize the magnitude, extent, and duration of impacts.

The Draft EIS evaluates the Applicant Proposed Action; four Action Alternative routes, multiple sub-alternative routes consisting of one or more segments that can be combined with an alternative route to achieve various objectives; the BLM Preferred Alternative, and the No Action Alternative. Under the Applicant Proposed Action, the transmission line would extend approximately 114 miles from the Arizona Public Service Company (APS) Delaney Substation near Tonopah, Arizona west to the Southern California Edison (SCE) Colorado River Substation near Blythe, California. The Applicant Proposed Action route would be located primarily within designated utility corridors following the existing Devers to Palo Verde No. 1 (DPV1) transmission line and other linear facilities including other transmission lines and natural gas pipelines. Portions of the Project would be located within a designated West-wide Energy Corridor (WWEC). Approximately 97 miles of the Project would be in Arizona and 17 miles would be in California. It would cross 83 miles of Federal land, including lands managed by the Bureau of Land Management (BLM), Bureau of Reclamation (Reclamation), and the United States Fish and Wildlife Service (USFWS)-managed Kofa National Wildlife Refuge (NWR). Portions of the Project outside of designated utility corridors and inconsistent with BLM visual resource management (VRM) class objectives may require amendments to one or more BLM resource management plans (RMPs) in order for the Project to be approved.

Alternative Route 1 would be 110.5 miles long and would generally follow Interstate 10 (I-10). Alternative Route 2 would be 126.1 miles long and would be primarily within existing BLM utility corridors. Alternative Route 3 would be 123.0 miles long and was developed to avoid several areas of concern. Alternative Route 4 would be 121.8 miles long and generally on public lands, avoiding state lands.

The BLM Preferred Alternative would be 124.9 miles long and would consist of Alternative Route 2 utilizing Subalternative 4D.

Under the No Action Alternative, the BLM would not approve the ROW grant on BLM-administered public lands and none of the BLM RMPs would be amended. The 500kV transmission line would not be constructed across Federal lands as proposed by DCRT.

ROW decisions are to be made by the affected Federal agencies, with the BLM as the lead Federal agency and the BLM's Colorado River District (CRD) as the lead office. The decision to issue a ROW to DCRT on land administered by the BLM is the responsibility of the BLM's CRD Manager. The BLM Arizona State Director and California State Director would each issue separate decisions on any required RMP amendment based on the findings of the EIS.

The California Public Utilities Commission (CPUC) is a cooperating agency with responsibility for issuing a Certificate of Public Convenience and Necessity to the Project. This discretionary decision is subject to environmental review pursuant to the California Environmental Quality Act (CEQA). To make their determination, the CPUC may use the EIS to assess the environmental impacts under CEQA that may result from construction, operation, and maintenance of portions of the Project within California. Other cooperating agencies will be responsible for issuing separate approvals or decisions.

Ten West Link 500kV Transmission Line Project
Draft Environmental Impact Statement and
Draft Resource Management Plan Amendments

(X) Draft **( ) Final**

Lead Agency:	U.S. Department of the Interior Bureau of Land Management Colorado River District Office
Cooperating Agencies:	Bureau of Reclamation; California Public Utilities Commission (CPUC); Environmental Protection Agency (EPA); Department of Defense (DOD), Yuma Proving Ground (YPG); U.S. Fish and Wildlife Service (USFWS); Western Area Power Administration (WAPA); Arizona Game and Fish Department (AGFD); Arizona State Land Department (ASLD); Maricopa Association of Governments (MAG); La Paz County (Arizona); Town of Quartzsite, Arizona
Counties Directly Affected:	Maricopa and La Paz Counties, Arizona; Riverside County, California
Date DEIS Filed with EPA:	Same as date of publication in the Federal Register
Comments on the DEIS can be directed to:	Eddie Arreola BLM Arizona State Office One North Central Avenue, Suite 800 Phoenix, Arizona 85004 Blm_az_azso_10WestLink@blm.gov
Comments must be received by:	90 days after publication in the Federal Register

Authorized Officers Responsible for the Environmental Impact Statement:

Raymond Suazo
State Director, Arizona State Office

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William Mack, Jr.
District Manager, Colorado River District Office

United States Department of the Interior

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In Reply Refer To:
(AZA036819)

Dear Reader:

Enclosed is the Ten West Link Draft Environmental Impact Statement (DEIS) prepared by the Bureau of Land Management (BLM). The BLM has prepared this document in consultation with several cooperating agencies and accepted input from the public through the scoping process. Comments on the Draft EIS will be accepted during the 90-day review period starting on the date the U.S. Environmental Protection Agency published the Notice of Availability of the Draft EIS in the Federal Register.

On September 14, 2015, Delaney Colorado River Transmission (DCRT), LLC filed a right-of-way (ROW) application (SF-299) with the BLM proposing to construct, operate, maintain, and decommission an electric transmission project in western Arizona and eastern California. BLM, in its role as the National Environmental Policy Act (NEPA) lead agency, prepared the Draft Environmental Impact Statement (EIS) to analyze potential environmental impacts of granting this ROW. The portion of the project located within the State of California will also require approval from the California Public Utilities Commission (CPUC). The CPUC approval would be a discretionary action, and therefore must comply with the requirements of the California Environmental Quality Act (CEQA). The CPUC has worked with the BLM in preparation of the Draft EIS and CEQA Equivalent Appendix (Appendix 1C Supplemental CEQA Information) that would also fulfill the requirements of CEQA per CEQA Guidelines, Section 15221.

The public was provided a 45-day scoping comment period to express their issues or concerns with the potential project. Scoping comments were used to help identify potential effects, develop mitigation strategies, and prepare alternatives to the proposed action. The Draft EIS is being released to inform the public of potential impacts associated with implementing the proposed project. The BLM will accept comments on the Draft EIS to improve the adequacy of the document before preparing the Final EIS. The Final EIS will be used to inform the BLM's final decision on whether to grant a ROW permit. All substantive comments received within the 90-day comment period will be addressed in the Final EIS. A substantive comment is one that questions the accuracy of the information or analysis presented in the Draft EIS, provides new information relevant to the proposed project, or proposes a new alternative that is not analyzed in the Draft EIS. Comments can be submitted by mail or email to the following locations:

Mail: Ten West Link Project
c/o Eddie Arreola
BLM Arizona State Office
One North Central Ave. Suite 800
Phoenix, AZ 85004

Or Email:

Blm_az_azso_10WestLink@blm.gov

Before including your address, phone number, e-mail address, or other personal identifying information in your comment, you should be aware that your entire comment--including your personal identifying information--may be made publicly available at any time. While you can request in your comment to withhold your personal identifying information from public review, we cannot guarantee that we will be able to do so.

The Draft EIS, including Appendix 4A CEQA Analysis and all supporting information, is available for review on the BLM website at https://go.usa.gov/xU6Be and the CPUC website at http://www.cpuc.ca.gov/environment/info/dudek/CNF/CNF.htm. In addition, copies of the Draft EIS and appendices (either as hardcopies or on CD) are available for review at the following locations in Arizona and California:

Environmental Document Repositories

Location	Address
BLM Offices	
BLM Desert District Office	22835 Calle San Juan De Los Lagos, Moreno Valley, CA 92553
BLM Palm Springs-South Coast Field Office	1201 Bird Center Drive, Palm Springs, CA 92262
BLM Yuma Field Office	7341 E. 30th Street, Yuma AZ 85365
BLM Arizona State Office	One North Central Ave. Suite 800 Phoenix, AZ 85004
Libraries	
Palo Verde Valley Library	125 W Chanslorway, Blythe CA 92225
Palm Springs Library	300 S. Sunrise Way, Palm Springs, CA 92262
Quartzsite Public Library	465 N Plymouth Quartzsite, AZ 85346
Buckeye Public Library Downtown	310 N 6th St. Buckeye, AZ 85326
Parker Public Library	1001 Navajo Ave. Parker, AZ 85344

The BLM will host public meetings in Phoenix and Quartzsite, Arizona and Blythe, California to provide the public an opportunity to ask questions and learn more about the proposed project. The public meetings will be announced in the local newspapers at least 15 days prior to the meeting. The BLM appreciates your participation in this review period of the Ten West Link Draft EIS.

Sincerely,

Raymond Suazo
State Director, Arizona State Office

Jerome E. Perez
State Director, California State Office

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William Mack, Jr.
District Manager, Colorado River District Office

Table of Contents

Table of Contents

List of Tables

List of Figures

Appendices

Executive Summary

EXECUTIVE SUMMARY

ES-1 INTRODUCTION

The Ten West Link Transmission Line Project (the Project) proposed by DCR Transmission, Limited Liability Corporation (DCRT) would consist of a single-circuit, series-compensated, 500 kilovolt (kV) transmission line between the Arizona Public Service (APS) Delaney Substation in Maricopa County, Arizona and the Southern California Edison (SCE) Colorado River Substation in Riverside County, California. The Project would be designed with a conductor capacity to transmit 3,200 megawatts (MW) and provide interconnection capability for new energy projects located in the region.

The Bureau of Land Management (BLM) is the lead Federal agency responsible for preparing this Environmental Impact Statement (EIS) and associated analyses. This EIS also addresses the requirements of the California Environmental Quality Act (CEQA) for use by the California Public Utilities Commission (CPUC) and, as applicable, other California state and local agencies in connection with the Project. The CPUC and ten other cooperating agencies have participated in the preparation of this EIS, including the Environmental Protection Agency (EPA); Department of Defense, Yuma Proving Ground; Bureau of Reclamation (Reclamation); U.S. Fish and Wildlife Service (USFWS); Western Area Power Administration (WAPA); Arizona Game and Fish Department (AGFD); Arizona State Land Department (ASLD); Maricopa Association of Governments, Arizona; the town of Quartzsite, Arizona, and La Paz County, Arizona.

ES-2 BLM'S PURPOSE AND NEED FOR ACTION

The purpose of the BLM action is to respond to DCRT's request for a right-of-way (ROW) across public land to construct, operate, maintain, and decommission the Project over an estimated 50-year life of Project. The need for the BLM action is established by the BLM's responsibility under the Federal Land Policy and Management Act (FLPMA) of 1976 and the Energy Policy Act of 2005 to respond to applications that promote grid reliability and renewable energy development.

Portions of the Proposed Action and/or Action Alternatives would not be in conformance with the Yuma Resource Management Plan (RMP), Lake Havasu RMP, or the California Desert Conservation Area Plan of 1980, as amended (CDCA Plan). Therefore, BLM must consider amending these plans in connection with its consideration of DCRT's ROW application.

ES-3 DECISIONS TO BE MADE AND OTHER AUTHORIZING ACTIONS

BLM

The BLM will decide whether to issue a ROW grant to DCRT on land administered by the BLM, and if so, what terms and conditions should be applied. If the selected alternative does not conform to one or more of BLM RMPs, the Project would require a RMP amendment before it could be approved.

RECLAMATION

Reclamation will decide whether to issue a land use authorization for DCRT to construct, operate, maintain, and decommission the Project on Reclamation land.

USFWS

The USFWS determined that the Project would not be an appropriate use within the Kofa NWR on January 26, 2017, and therefore the USFWS will not authorize a ROW for the Project across the Kofa NWR.

WAPA

WAPA needs to consider DCRT's application for funding under §301 of the Hoover Power Plant Act of 1984 and the Transmission Infrastructure Program. Additionally, WAPA is considering whether to take an ownership interest in fiber optic communication links over the Project's fiber optic overhead ground wire.

CPUC

DCRT has filed an application for a Certificate of Public Necessity and Convenience (CPCN) to site the Project's transmission infrastructure in California. The CPUC will decide whether to approve or deny DCRT's CPCN application.

ES-4 PUBLIC INVOLVEMENT

Public and agency input was solicited to identify the range or scope of issues to be addressed during the environmental analysis and in the EIS. Initiation of the EIS process and the public scoping meetings for the EIS were announced through the *Federal Register*, Volume 81, No. 56, Page 15556 on March 23, 2016; BLM news releases and a Legal Notice in Arizona and California media; signs posted along the proposed route; and postings on the BLM's ePlanning website for the Project[1].

The BLM sent scoping letters and/or emails to 778 potentially interested members of the public and 219 interested agency and tribal representatives. Three public scoping meetings were held to inform the public of the proposed Project and solicit feedback and comments. The meetings were held in Tonopah, Arizona, Quartzsite, Arizona, and Blythe, California. An agency-only scoping meeting was held in Phoenix, Arizona. An Economic Strategies Workshop was held in Quartzsite, Arizona to identify potential social and economic issues and potential opportunities that might enhance or expand the social and economic goals of area communities.

[1] https://eplanning.blm.gov/epl-front-office/eplanning/planAndProjectSite.do?methodName=renderDefaultPlanOrProjectSite&projectId=59013&dctmId=0b0003e880af08fd

ES-5 APPLICANT PROPOSED ROW ACTIONS AND BLM PLAN AMENDMENTS

APPLICANT PROPOSED ROW ACTIONS

The Proposed Action route would be 114 miles long with approximately 97 miles in Arizona and 17 miles in California. Of the total length, 83 miles would be on Federal land. The Proposed Action route would parallel the existing SCE DPV1 500kV line and, in some areas, other linear corridors such as transmission lines and natural gas pipeline ROWs.

DCRT proposes to acquire a 200-foot-wide ROW for construction, operation, and maintenance of the 500kV line. This ROW has been designed to allow for the safe movement and operation of equipment during construction and maintenance, the safe construction of the Project facilities, and to allow for sufficient clearance between conductors and the ROW edge as required by the National Electrical Safety Code (2012). DCRT has requested an initial 30-year grant from the BLM for the purposes of constructing, operating, maintaining, and decommissioning the Project. In addition to the BLM, ROWs would need to be acquired from other Federal, state, and local entities, as well as private landowners.

BLM PROPOSED PLAN AMENDMENTS

AMENDMENT OF THE YUMA AND LAKE HAVASU RMP

The Yuma and Lake Havasu RMPs designate visual resource management (VRM) classes for lands managed within the boundaries of the Yuma and Lake Havasu Field Offices. Portions of the Proposed Action do not conform to the VRM classes on some segments; these segments would require an amendment to the RMPs. In addition, the Yuma RMP would require an amendment to establish a ROW for any segment outside designated BLM utility corridors.

AMENDMENT OF THE CDCA PLAN

The CDCA Plan would be amended to authorize construction of the Project within 0.25-mile of occurrences of Harwood's eriastrum (*Eriastrum harwoodii*), provided that a Rare Plant Linear ROW Protection Plan for Harwood's eriastrum is developed and approved by the BLM California State Director. The Rare Plant Linear ROW Protection Plan would meet the CDCA Plan's goal to promote ecological processes in the BLM Decision Area that sustain Focus and BLM Special Status Species and their habitat.

ES-6 ALTERNATIVES

The EIS analyzes the Applicant Proposed Action, four Action Alternative routes consisting of combinations of Proposed Action segments and Alternative segments, 36 Subalternatives to the Action Alternatives, the BLM Preferred Alternative, and the No Action Alternative (Figures ES-1 and ES-2). The Action Alternative routes were formed by combining proposed and alternative segment combinations that linked together logically, while meeting certain objectives of the BLM, cooperating agencies, and stakeholders; and addressing public concerns. The Action Alternatives represent the best combination of segments to achieve these objectives.

ALTERNATIVE 1: I-10 ROUTE

Alternative 1 would be 111.5 miles long and would generally follow I-10. This alternative route was developed to utilize BLM utility corridors while avoiding the Kofa NWR, Johnson Canyon, YPG, Copper Bottom Pass area, and the area of dense cultural resources associated with the Mule Mountains south of Blythe; and also meet public requests for a route that follows I-10 and minimize crossings of VRM Class II land.

ALTERNATIVE 2: BLM UTILITY CORRIDOR ROUTE

Alternative 2 would be 126.1 miles long and would be primarily within existing BLM utility corridors. This alternative route was developed to emphasize the use of BLM utility corridors while avoiding the Kofa NWR, Johnson Canyon, Ehrenberg Sandbowl area, the area of dense cultural resources associated with the Mule Mountains south of Blythe, and residential and other development south of Blythe; minimize impacts to the Colorado River Indian Tribes (CRIT) reservation and use of private land in California; and place the majority of route crossing VRM Class III.

ALTERNATIVE 3: AVOIDANCE ROUTE

Alternative 3 would be 123.0 miles long and was developed to avoid Kofa NWR, Johnson Canyon, the CRIT reservation, the Town of Quartzsite, Ehrenberg Sandbowl area, biologically important backwaters of the Colorado River, the southern end of Blythe, and the area of dense cultural resources associated with the Mule Mountains south of Blythe; and place the majority of the route crossing VRM Class III.

ALTERNATIVE 4: PUBLIC LANDS EMPHASIS ROUTE

Alternative 4 would be 121.8 miles long and generally is on public lands, minimizing state lands. This alternative route was developed to avoid the Kofa NWR, state land along I-10, the CRIT reservation, the Ehrenberg Sandbowl area, the southern end of Blythe, and the area of dense cultural resources associated with the Mule Mountains south of Blythe; and also maximize use of BLM utility corridors in the Copper Bottom Pass area, while placing the majority of route crossing VRM Class III.

BLM PREFERRED ALTERNATIVE

The BLM has identified Alternative 2, the BLM Utility Corridor Route, utilizing Subalternative 4D, as the BLM Preferred Alternative route for the Project, to include the alternative Series Compensation Station (SCS) location closest to the Preferred Alternative route (Figure ES-2); along with design features, AMPs, BMPs and mitigation measures, with modifications, as necessary. Modifications could consist of minor pole placement deviations for micrositing of structures or adjustments of segments at the time of route engineering to minimize impacts to visual and other sensitive resources, as indicated in the mitigation measures.

NO ACTION ALTERNATIVE

Under the No Action Alternative, the BLM would not approve the ROW grant on BLM-administered public lands and no BLM RMP would be amended. The 500kV transmission line would not be constructed across Federal lands as proposed by DCRT.

ES-7 PROPOSED FACILITIES AND INFRASTRUCTURE

Transmission structures are proposed to be comprised of steel lattices of various configurations or monopoles. The structures would be between 72 and 195 feet in height, depending on the span length required and topography, with most being shorter than 130 feet. Span lengths between structures would vary from 600 to 2,100 feet, depending upon terrain conditions, current land use, structure type used, and to achieve site-specific mitigation objectives.

The conductors are the wire cables strung between transmission line structures over which the electric current flows. The conductors are typically spaced approximately 18 inches apart in an equilateral triangle configuration. The bundle configuration would be designed to provide adequate current-carrying capacity while minimizing interference from audible noise and radio operations. The minimum conductor height above ground for the transmission line would be 30 to 40 feet for most of the route and 50 feet for the Colorado River crossing. Insulators would be used to suspend the conductors from each structure to inhibit the flow of electrical current from the conductor to the ground, the structure, or another conductor. To protect conductors from lightning strikes, two overhead ground wires would be installed on top of the structures that would transfer current from lightning strikes through the ground wires and structures into the ground. Other hardware, such as bird flight diverters, not associated with the transmission of electricity may be installed as part of the Project. This hardware may include aerial marker spheres or aircraft warning lighting, as required for the conductors or structures by FAA regulations.

The Project would require a transmission line SCS located at the approximate midpoint of the route. Under the Proposed Action, a new SCS system would be located within the 200-foot-wide ROW parallel to the existing SCS associated with the DPV1 line, approximately 47 miles from the APS Delaney Substation. Two alternative locations for the SCS have also been identified. Specifications for the alternative location SCS would be the same regardless of the route selected or SCS location. The SCS would be fenced and access would be restricted.

Access to the ROW would be provided by existing roads and trails, such as those associated with the DPV1 transmission line and nearby pipelines, to the extent practicable. Five types of access would be used for this transmission line: existing maintained public or private roads, upgraded existing roads, new centerline access, spur roads, and helicopter access. The existing roads would be used in their present condition without improvements, unless improvements are required or are deemed to be in the Project's best interest and for future use. Where existing roads can be used to access the ROW, only spur roads to each structure site would be required. Roads for access into the transmission lines would be also utilized for access to the SCS, given that the roads are adequate for the transport of materials and equipment necessary at the SCS.

ES-8 PROPOSED OPERATION, MAINTENANCE, AND DECOMMISSIONING

After construction, Project operation and maintenance would be an ongoing activity including ROW safety requirements, transmission line inspections, preventative and emergency maintenance, vegetation management including trimming and removal of vegetation within the ROW, SCS maintenance, substation maintenance, and long-term access to the ROW through general road maintenance and installation of signs and markers.

Should the ROW and facilities no longer be needed, the transmission lines and associated facilities would be decommissioned and removed. All areas of long-term disturbance would be reclaimed in accordance with a Decommissioning Plan to be developed by the ROW grant holder and approved by the BLM prior to issuance of the ROW grant. A reclamation bond would also be required per BLM bonding policy to ensure performance of reclamation activities. Access routes and other sites disturbed during decommissioning would be reclaimed and revegetated in accordance with the Decommissioning Plan.

ES-9 MONITORING AND MITIGATION

In addition to the Project design features, DCRT's applicant proposed measures (APMs), and BLM-required best management practices (BMPs) (which are included as part of the Applicant Proposed Action, BLM Preferred Alternative, and Action Alternatives), additional monitoring and mitigation measures may be necessary. These additional measures would be in response to potential environmental impacts identified in Chapter 4. Additionally, WAPA would require preparation of a Mitigation Action Plan.

ES-10 ENVIRONMENTAL SETTING AND ENVIRONMENTAL CONSEQUENCES

ENVIRONMENTAL SETTING

The Project Area extends across southwestern Arizona into southeastern California. It is within the North American Deserts Ecoregion (Level I division) (Commission for Environmental Cooperation n.d.) and the Sonoran Basin and Range subdivision (Level III division) (EPA 2013a), which is distinguished by palo verde-cactus vegetation including saguaro, cholla, and agave cacti. This ecoregion contains scattered low mountains and has large tracts of federally owned lands. Winter rainfall decreases from west to east, while summer rainfall decreases from east to west (EPA 2013b).

The Project Area is within the Basin and Range Physiographic Province. The climate of the province is characterized by being the driest in the US. The topography is characterized by mountain ranges that are roughly parallel. The basins between the ranges are relatively flat plains with gentle slopes next to the mountains (Fenneman 1931). The Project Area is in the Sonoran Desert subdivision of the physiographic province. The subdivision is characterized by being approximately 20 percent mountains and 80 percent plains. The mountains vary from hills and

buttes up to mountains rising 4,000 feet above sea level (asl). The desert plains mostly lie below 2,000 feet asl (Fenneman 1931).

The economy of the region has historically been based on irrigated agriculture, livestock grazing, and mining (Commission for Environmental Cooperation 1997). Today Federal and state land uses include commercial, recreational, and livestock. Private land users include residential, commercial, and industrial. The primary type of land within the analysis areas and adjacent to the Project Area are undeveloped natural areas.

ENVIRONMENTAL CONSEQUENCES

Resources that were not key to distinguishing between alternatives or the decision-making process were briefly described in Chapter 4. Non-key resources include air quality and climate change, geology and minerals, paleontological resources, grazing and rangeland, special designations, noise, hazards and hazardous materials, public health and safety, traffic and transportation, and water resources. The environmental consequences of key resources are summarized below.

SOIL RESOURCES

Direct impacts to soil resources as a result of construction activities include the loss of soil productivity due to the removal of soils during new surface disturbance. Clearing vegetation and topsoil, as well as grading, could result in newly exposed, disturbed soils that could be subject to accelerated erosion by wind and water. Any soil removal associated with development of structure foundations and at the SCS would be long-term and would be a loss of soil productivity. One of the primary impacts of concern for construction is disturbance to soil biological crusts. During operations, the primary concern to soils is the interference with sand transport and dune formation. Because of the open design of lattice structures that would be used in areas of active windblown deposits, impacts to sand transport would be negligible to minor depending on the location of the Project.

Indirect impacts associated with topsoil removal may include invasive plant colonization, soil erosion, and reduction of soil water retention. Implementation of APMs, BMPs, reclamation, and other conservative measures would minimize loss of topsoil and soil productivity to short-term and minor to moderate.

Project-related construction (and, to a far lesser extent, operation) fugitive-dust emissions could include emissions of spores from a soil dwelling fungus (*Coccidioides immitis* and *C. posadasii*) that causes a condition called valley fever. The risk of valley fever would be highest for construction workers or others in proximity to soil disturbance activities associated with construction of the Project. APMs and BMPs would minimize the risk of exposure to valley fever and asbestos for workers and the public. These soil hazard impacts would be negligible to minor and short term.

Overall, when combined with past, present, and reasonably foreseeable projects, there would be negligible to minor cumulative effects to soils, except in the case of sand transport areas. When combined with past, present, and reasonably foreseeable projects, such as solar facilities, these could have a minor to major cumulative effect on the transport of sand.

BIOLOGICAL RESOURCES

Biological resources include vegetation communities, general wildlife, special status species of plants and wildlife, Wildlife Habitat Management Areas, wildlife waters, and other features that are important for conserving biodiversity in and near the Project.

Vegetation, including Noxious and Invasive Weeds, and Special Status Plants

The Project would involve the removal of vegetation during construction activities, resulting in the direct reduction in the representation of plant communities. Vegetation removal and disturbance of soils could have a variety of effects on vegetation communities, ranging from changes in community structure and species composition to alteration of soil moisture or nutrient regimes. Removal of protective vegetation would also expose soil to potential wind and water erosion. Fugitive dust from construction traffic has the potential to affect photosynthetic rates and decrease plant productivity. Clearing and grading could also result in the alteration of soil conditions, including the loss of native seed banks and change in topography and drainage of a site such that the capability of the habitat to support native vegetation is impaired. Though portions of each alternative pass through developed agricultural areas at the east and west ends of the Project, the majority of each alternative is within the Sonoran desertscrub community. Trimming or removal of tall vegetation for conductor clearance would alter some of the more robust plants within the vegetation community and can leave these plants more susceptible to disease and possibly result in the death of those plants. The vegetation communities and plant associations within the Sonoran Desert are very slow to re-grow perennial species following disturbance, often taking decades to recover, if at all.

The Project would remove native vegetation and disturb soils at structure construction sites, storage areas, along access roads, and wherever heavy equipment is used, providing suitable conditions for infestation by non-native plants. Project implementation would have direct and indirect impacts on the spread of noxious and invasive plant species within areas disturbed by construction activity and these invasive species would directly and indirectly impact native plant communities and special status plants. These potential impacts would be minimized through implementation of various APMs and BMPs.

No plant species listed under the Federal Endangered Species Act (ESA) are known or expected in the Project Area. However, in Arizona more than 200 species protected by the Arizona Native Plant Law, and, in California, as many as 16 plant species considered rare by the California Native Plant Society and one plant species considered sensitive by the BLM (Harwood's eriastrum) have the potential to be impacted by Project activities. Except for Harwood's eriastrum, the Project could have direct and indirect impacts on special status plant species located within areas disturbed by construction activity; however, these potential impacts would be either eliminated or minimized through implementation of various APMs and BMPs.

Based on the distribution of potentially suitable habitat, Harwood's eriastrum is expected to be present along all Project alternatives crossing the Palo Verde Mesa. Therefore, the CDCA Plan would be amended to allow Project construction to proceed, provided a Linear Right-of-Way Rare Plant Protection Plan with the appropriate BMPs for Harwood's eriastrum is developed. Implementation of BMPs would be required to achieve the objectives of this plan.

Wildlife, Including Special Status Wildlife & Migratory Birds

Direct impacts on wildlife anticipated as a result of the Project includes removing vegetation that would result in the long-term loss of wildlife habitat, displacing and/or killing resident wildlife species, especially those that are less mobile such as snakes, lizards, and small mammals; and altering, displacing, or disrupting the breeding and foraging behavior of wildlife. Construction may also result in fragmentation and degradation of adjacent native habitats due to use and development of access roads, noise, vibration, dust, increased human presence, increased vehicle traffic, exhaust emissions from heavy equipment, and possible spillage of fuels and other hazardous substances. Use of and improvements to existing roads, and creation of new roads to access construction sites and support long-term Project maintenance provides opportunities for increased human presence and disturbance to wildlife habitat by recreationists, especially by off-highway vehicle (OHV) enthusiasts. These potential impacts would be minimized through implementation of various APMs and BMPs, and spills managed through implementation of a Spill Countermeasures and Containment Plan (SPCC).

Special status species include the Sonoran desert tortoise and Sonoran pronghorn in Arizona and the Mojave desert tortoise and Mojave fringe-toed lizard in California. Project activities could impact these species in much the same way as discussed for common wildlife species. The amount of habitat that would be impacted by Project activities would be small in comparison to available habitat, and the loss of individuals would not impact local populations. Indirect impacts to specific special status wildlife range from negligible to major depending upon the segments. The APMs and BMPs identified for general wildlife would minimize Project-related impacts (as well as applicable mitigation measures [MMs]).

While there are many foreseeable cumulative impacts to wildlife, the Project, when combined with other past, present, and reasonably foreseeable future actions, would not be the cause of a significant degradation of vegetation or wildlife resources (including special status species) or affect the potential to sustain current population levels. The Project's relatively short construction period (e.g., duration of disturbance), limited acres of long-term habitat loss, and implementation of APMs/BMPs would be expected to result in generally minor effects limited to individual plants and animals within a localized area (i.e., no measurable population level impacts). The degree of change on a cumulative basis would be negligible once MMs have been implemented and disturbed areas are restored.

CULTURAL RESOURCES

Based on the scope of the Project, the BLM has determined that the development of a Project-specific Programmatic Agreement (PA) in consultation with interested Tribes, land-managing and permitting agencies, and other stakeholders is required. The PA would refine the Area of Potential Effect based on design plans for the selected alternative. The Project's analysis area for cultural resources in this document is the ROW itself, defined as a 200-feet wide, centered on the ROW centerline for all alternatives, where the construction of Project elements such as structures, access and spur roads, and other ancillary elements would occur. Direct impacts due to construction could range between negligible (if eligible sites could be avoided by Project design) and major (if eligible sites could not be avoided by Project design). Potential adverse effects to historic properties would be mitigated in accordance with the provisions of the PA. Avoidance of cultural resources by final design and construction would be the preferred form of mitigation.

Indirect effects to historic properties could occur in areas where the construction of new roads into the Project Area would provide improved access into previously inaccessible areas. Improved access could lead to site damage by OHV and recreational use of these areas. Such damage could consist of vehicular damage to surface archaeological sites and vandalism to sensitive areas. Measures to mitigate potential adverse effects to historic properties as a result of improved access would be included in the PA.

Indirect visual impacts could occur from the presence of structures in sight of National Register of Historic Places (NRHP)-listed historic properties or properties eligible for inclusion in the NRHP under Criterion A, B, or C by altering the setting of the properties. Resolution measures to minimize the potential adverse effects of visual intrusions would be contained in the PA and Historic Properties Treatment Plan (HPTP) and implemented by Project design. If effects to NRHP qualities are measurable this would constitute a permanent cumulative effect.

CONCERNS OF INDIAN TRIBES

Ground disturbance during construction may affect areas of Indian tribal concern. Specific Indian tribal concerns include: limitations to Tribal access, degradation of Native infrastructure and cultural landscapes, new development in areas that are predominantly pristine, degradation of Traditional Cultural Properties (TCPs), and how the inadvertent discovery of human remains would be treated.

Measures to mitigate potential adverse effects to areas of Indian concern as a result of Project construction would be contained in the PA. Avoidance of impacts by final design and construction would be the preferred form of mitigation.

Indirect effects to cultural resource sites of tribal concern would be similar to those described under cultural resources. Indirect impacts would occur from the presence of structures in sight of TCPs and other areas of Indian concern by altering their setting. The number and types of historic properties affected would vary by alternative. MMs to minimize the potential adverse effects of visual intrusions would be contained in the PA and implemented by Project design.

Past and present development has had the effect of substantially altering the native landscape of affiliated Indian tribes. In particular, the DPV1 transmission corridor crosses the viewshed of the NRHP-listed Mule Mountains Petroglyph and Intaglio District. Additional structures in the line of sight of this resource would continue to cumulatively affect the viewshed. The increase in visual degradation, combined with all previous disturbances and developments, may result in a moderate to major cumulative impact on the Mule Mountains Petroglyph and Intaglio District.

Future projects in the western portion of the Project Area include large solar facilities, all of which cumulatively affect issues of concerns to Indian tribes. These cumulative effects are manifest in terms of the loss of pristine environment, erasure of the tribal footprint on the landscape, vandalism of archaeological sites due to increased OHV traffic and visitation, potential restriction to areas of elevated spiritual importance for Indian tribal ceremonies, and the disruption of Native infrastructure. The development of the Project further contributes to these cumulative effects.

LAND USE

The implementation of the Project would not alter existing land ownership. Temporary use areas would be returned to their existing condition in accordance with BLM standards following construction. BLM-authorized ROWs such as roadways, transmission lines, utilities, and pipelines; oil, gas, solar energy, and mining leases; and other permits, leases, and easements may be temporarily affected by changes in access, but there would be no long-term impact to these ROWs. For non-BLM lands, ROWs would be obtained as easements or leases, as appropriate. Other authorized land uses, such as grazing and recreation, may experience minor displacement during construction but no long-term impacts are expected. The primary land use change associated with the Project would be the development of currently natural or undeveloped land for a new transmission line and ancillary facilities (i.e., SCS, access roads).

The analysis area is located within 14 Federal, state, and local planning areas; the Project would be in compliance with these plans except for the Yuma RMP, Lake Havasu RMP, CDCA Plan, La Paz County Zoning Plan, and Town of Quartzsite General Plan.

In terms of cumulative effects, an increase in development would contribute to changes in land use and the modification of the character of the cumulative effects area. As development occurs, the rural environment would become increasingly more residential, commercial, and industrial. The cumulative effects of past, present, and reasonably foreseeable projects to land use would be minor to moderate, although this Project would contribute only negligibly to this overall cumulative effect.

RECREATION

Construction of the Project would not permanently preclude the use of, or access to, any existing recreation opportunities or activities; however, some temporary effects to these resources would occur during the construction phases of the Project. Temporary signs advising recreation users of construction activities and directing them to alternative recreation routes, as appropriate, would be posted on both sides of all recreation route intersections or as determined through DCRT coordination with the respective jurisdictional agencies. This may cause adjacent recreation areas not directly impacted by the construction, whether developed and/or available for dispersed recreation, to become temporarily more crowded while construction in the area is active.

Dispersed recreation activities would be temporarily affected as construction noises, visual disturbances, vehicle and equipment travel, and/or the presence of other humans within approximately one mile of a recreation area or opportunity could detract from these recreation opportunities and activities. For segments traversing Johnson Canyon, the unavoidable adverse effect on the Arizona Peace Trail in Johnson Canyon would be reduced to minor by constructing the Project outside of the peak OHV season (between the months of July and September).

The presence of a transmission line after construction would not be likely to eliminate a recreational use or access to recreation but the quality of, or experience associated with a recreational use may be altered. In particular, the effect of the Project on segments not already occupied by the DPV1 or other transmission lines would be greater than on segments within existing transmission ROWs, and this effect would be negligible to moderate and long term.

Unavoidable adverse effects would result from the presence of the Project within the Dome Rock Camping Area or La Posa long-term visitor area (LTVA). The presence of the Project within the Dome Rock Camping Area would be an unavoidable, major, adverse, long-term effect on this recreation area. The effect to the La Posa LTVA from segments crossing this area would also be unavoidable, adverse, and long term but would be less because the La Posa LTVA is approximately five times larger than the Dome Rock Camping Area, so access would be less affected and the presence of the Project would be a less substantial feature.

The quality of the recreational setting and desired experiences could be degraded by the loss of undeveloped landscape character and visual intrusion on the landscape as a result of the cumulative impact of the Project construction and the past, present, and reasonably foreseeable actions. The cumulative impact of this alteration of the recreation setting would be minor since recreation settings would be available in adjacent settings, and other cumulative actions would be far-removed and would not affect adjacent lands along the entire ROW. Operation and maintenance activities of the Project would result in minor cumulative effects, since the Project would already be constructed and standard operation and maintenance activities would be so periodic as to not affect recreation opportunities, experiences, or desired settings.

SOCIOECONOMICS

During construction, the Project would provide several hundred jobs for both local workers and workers from outside the local area; make purchases locally of materials and services; have a negligible impact on local services and housing; and have a positive impact on governmental revenues through property taxes and sales and use taxes. These impacts would all be considered short-term, beneficial, and of minor to moderate intensity.

In contrast to the large workforce and expenditures required for construction, ongoing operations and maintenance would require few workers and have relatively little direct economic impact in the project area. There is some evidence that transmission lines can lower residential property values in the immediate vicinity by a minor to moderate amount; this effect, where it occurs, seldom exceeds 15 percent.

Ongoing operations and maintenance should have little or no long-term effect on the tourism- and recreation-related economy. It has been widely demonstrated that impacts from visual disturbance dissipate quickly with distance from transmission lines; given the vast area available for high-quality recreation the transmission line and its associated facilities should have negligible impact on the recreation and tourism economy.

Increased property taxes would be an ongoing benefit. By improving the reliability of the electrical grid in California and Arizona, the Project would increase the ability of the grid to meet demand growth in the region and facilitate potential energy generation development in the region. The long-term economic impacts from these impacts would be beneficial.

Given the current workforce in the area and the amount of available housing, cumulative impacts as a result of construction workers on the local housing market are considered to be negligible to moderate during Project construction. Construction of the Project transmission line in conjunction with energy generation projects would facilitate the transmission of energy to consumers and may encourage additional development of energy sources. The Project in conjunction with reasonably

foreseeable energy, utility, and other infrastructure projects could support population increases in the area in the foreseeable future.

ENVIRONMENTAL JUSTICE

Low-income or minority populations (environmental justice populations) would likely experience disproportionate adverse effects on a localized basis from construction, operation, and maintenance of the Project. These impacts would include construction noise and other disruptions and impacts to visual resources and property values during operations. Any impacts would likely be negligible to minor due to the predominantly low-density rural setting and the presence of existing transmission and utility lines nearby. Also, the Proposed Action route and all Action Alternative routes are adjacent or nearly adjacent to existing transmission lines, interstate highways, or other utility corridors as a means of minimizing new disturbance to either the natural or human environment. Consequently, these adverse effects are all expected to be minor. Low-income and minority populations may also be positively affected by the benefits of the Project, including the short-term economic stimulus from construction activities and expenditures, short-term and longer-term increases in tax revenues, and added capacity and reduced congestion for electricity transmission.

There would be no short- or long-term displacement of low-income or minority businesses or residents under the Project to contribute to potential cumulative effects on minority populations. The health and safety of these populations would be protected during both construction and operation at the same levels as other populations by implementing the safety measures described in the APMs, BMPs, and other protocols, as well as other resource-specific plans, such as the Hazardous Materials Management Plan. It is assumed that future projects would be required to address any significant impacts on these populations; therefore, cumulative impacts on minority and low-income populations as a result of the Project in combination with reasonably foreseeable future projects also would be minimal.

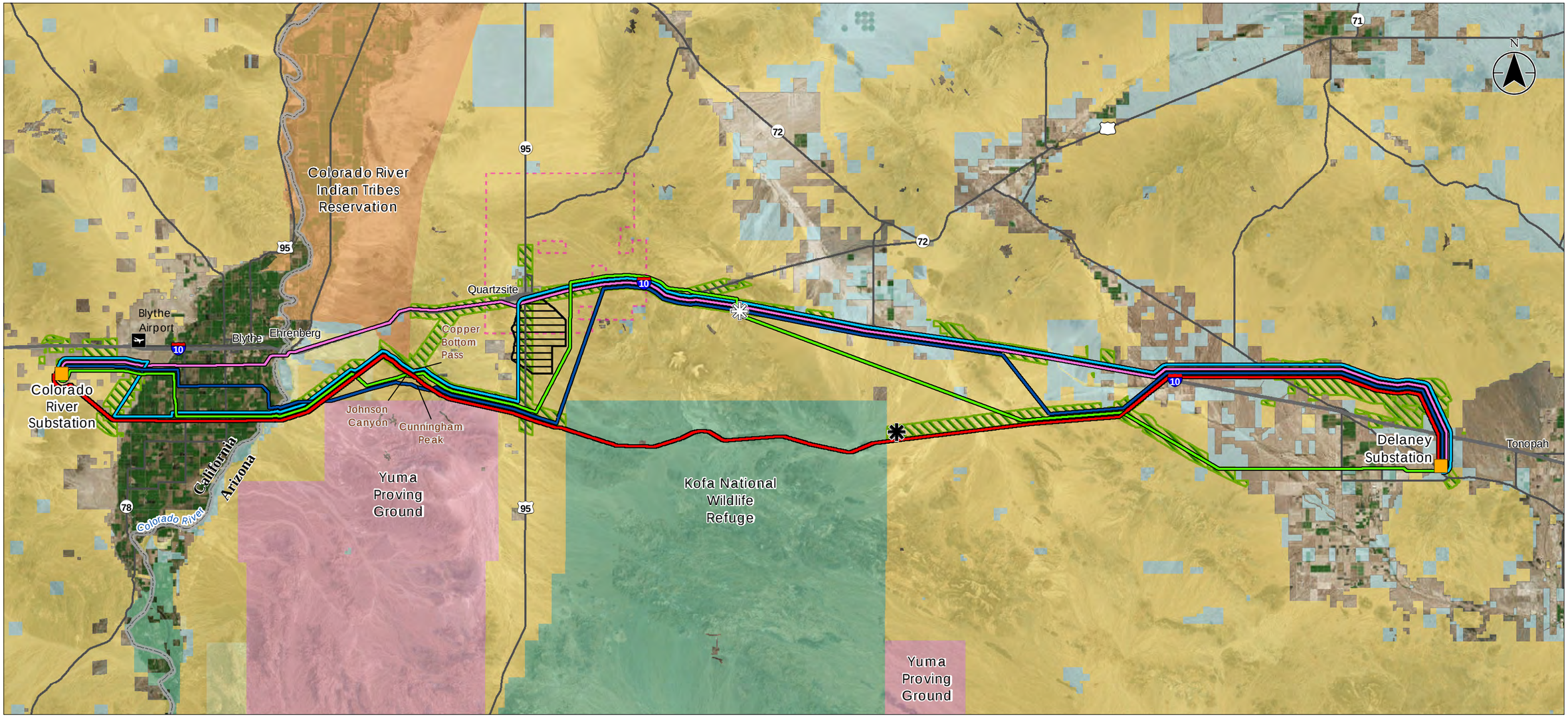
VISUAL RESOURCES

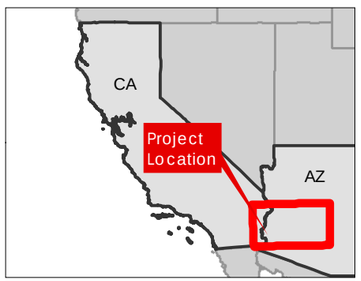
During construction, visual impacts would result from the introduction of construction vehicles, equipment, and construction materials within staging areas, access roads, and within the transmission line ROW. The presence of work crews, vehicles and other equipment, and dust generated by construction activities would be visible in views toward the Project Area from the surrounding area at varying distances depending on local conditions. Motion, dust, and activity would attract attention in certain circumstances. Where the Project would be in closer proximity to viewers and there is a lack of intervening topography or vegetation, ground disturbance from access routes and at structure bases could be visible to observers.

Disturbance resulting from construction would be temporary and largely short in duration, and visible effects from active construction would diminish subsequent to clean up and reclamation of the temporary staging areas and access roads. Reclamation of desert vegetation can take years to complete and conditions in areas of disturbance are expected to change over the years as reclamation takes place. Because of the small scale of vegetation disturbance required, there would be minimal visible contrasts that would be reduced over time.

Sensitive viewers would be affected in the short term by the Project construction impacts. The transmission line structures would cause a major, long-term change to scenery. Landform modification would be noticeable and create visual contrast within the viewshed. This reduction in scenic quality would vary across the Proposed Action route and Action Alternative routes according to the number of sensitive viewers and the current scenic rating of the units.

Cumulatively, the Project would add to the change in visual character in undeveloped or rural areas when combined with visual impacts of other past, present, and reasonably foreseeable projects.





Notes
1. Coordinate System: World Mercator
2. Data Source(s): Project data - HDR; Land Status - BLM
3. Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

- Substation
- Proposed Series Compensation Station
- Alternative Series Compensation Stations (2 possible site locations; ~75' feet apart)
- Proposed Action*
- Alternative 1: I-10 Route*
- Alternative 2: BLM Utility Corridor*
- Alternative 3: Avoidance Route*
- Alternative 4: Public Lands Emphasis Route*
- BLM Utility Corridor^
- BLM Long-term Visitor Area
- Quartzsite Planning Area

Land Status
- Bureau of Land Management
- Bureau of Reclamation
- Local or State Parks
- Indian Lands
- Military
- Private
- State
- USFWS

0 9 18 Miles

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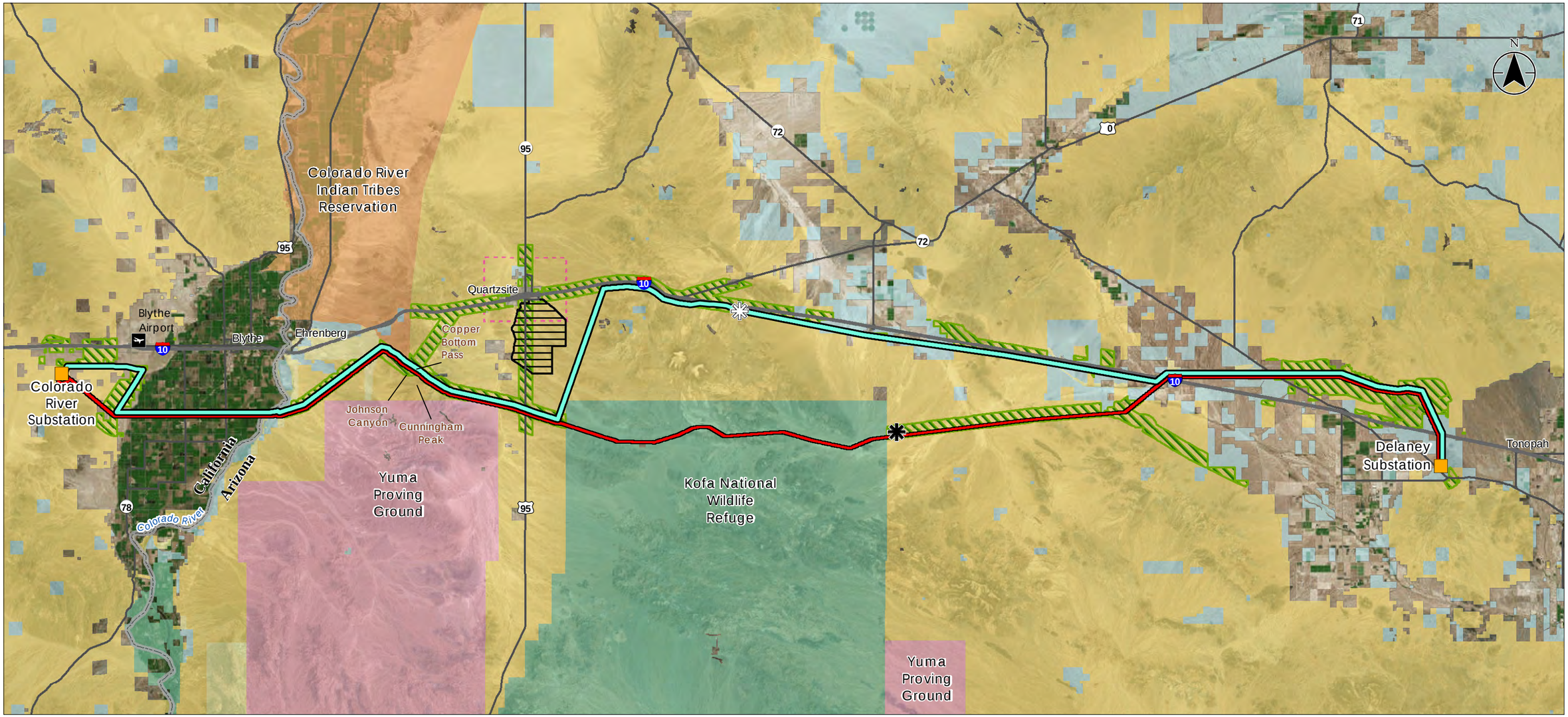
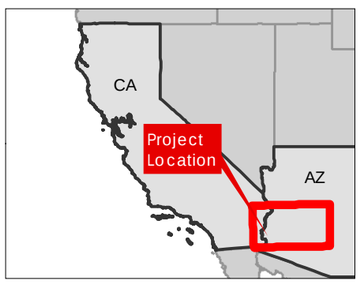
^ = BLM Utility Corridors were clipped to a 2-mile study area.
* = Routes depicted on this map are cartographically offset up to 1200 meters for display purposes. In some instances, the route turns were modified to represent the overall intent of the route design.

Figure **ES-1**
Ten West Link
Full Route Alternatives
to the Proposed Action





Notes
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- Substation
- Proposed Series Compensation Station
- Alternative Series Compensation Stations (2 possible site locations; ~75' feet apart)

- Proposed Action*
- BLM Preferred Alternative
- BLM Long-term Visitor Area
- BLM Utility Corridor^
- Quartzsite Planning Area

Land Status
- Bureau of Land Management
- Bureau of Reclamation
- Local or State Parks
- Indian Lands
- Military
- Private
- State
- USFWS

0 9 18 Miles

1:570,240 (At original document size of 11x17)

^ = BLM Utility Corridors were clipped to a 2-mile Project study area.
* = The Proposed Action is offset 600 meters to the South for display purposes.

Figure **ES-2**
Ten West Link
BLM Preferred Alternative

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Chapter 1 Introduction, Purpose, and Need

CHAPTER 1 INTRODUCTION, PURPOSE AND NEED

1.1 INTRODUCTION

DCR Transmission (DCRT), Limited Liability Corporation filed a right-of-way (ROW) application (SF-299) with the Bureau of Land Management (BLM) in September 2015, to construct, operate, maintain, and decommission a series-compensated, 500 kilovolt (kV) alternating current (AC) overhead transmission line traversing approximately 114 miles in western Arizona and eastern California (the Project). The Project, also referred to as the Ten West Link Transmission Line Project, is designed to transmit 3,200 megawatts (MW), provide connection capability for new energy projects in the region, and would require new ROWs or easements on a combination of Federal, state, and private lands. Because ROWs over public lands would be needed for the Project, the action triggers the National Environmental Policy Act (NEPA). To comply with NEPA, the BLM determined that an Environmental Impact Statement (EIS) needs to be prepared for the Project, and that the BLM should analyze the effects of the entire Project, including portions sited on non-public lands.

This EIS was prepared to satisfy requirements of NEPA for use by the BLM and, as applicable, other Federal agencies in connection with the proposed Project. This EIS also addresses the requirements of the California Environmental Quality Act (CEQA) for use by the California Public Utilities Commission (CPUC) and, as applicable, other California state and local agencies in connection with the Project.

References, Acronyms, Abbreviations, Glossary, and Index are located in Appendix 6. All figures not contained in the EIS chapters are contained in Appendix 7.

1.2 PROJECT BACKGROUND, OVERVIEW, AND LOCATION

1.2.1 Project Overview and Location

The Project would begin at the Arizona Public Service Company (APS) Delaney Substation near Tonopah, Arizona, and terminate at the Southern California Edison (SCE) Colorado River Substation near Blythe, California. The Project would be located in Maricopa and La Paz Counties in Arizona, and Riverside County in California (Figure 1-1). The applicant-proposed route would parallel an existing transmission line and other linear facilities[1], primarily within designated utility corridors.

Approximately 97 miles of the Project would be in Arizona, and 17 miles would be in California; the majority of the route would cross Federal land, including lands managed by the BLM, Bureau of Reclamation (Reclamation), and the United States Fish and Wildlife Service (USFWS)-managed Kofa National Wildlife Refuge (NWR or "the Kofa"). The Project also would include a requisite transmission line series compensation station (SCS), including an overhead 12kV electric distribution line to service the SCS, located approximately in the middle of the route. The proposed

[1] In 1982, SCE constructed the Devers to Palo Verde No. 1 (DPV1) transmission line between the Devers Substation (near Palm Springs, California) and the Palo Verde Nuclear Generating Station (PVNGS) (near Tonopah, Arizona)

SCS would be placed parallel to an existing SCS for DPV1 south of Vicksburg, Arizona (Figure 1-1).

The portions of the Project outside of designated utility corridors or that would otherwise be inconsistent with BLM resource management plans (RMPs) would require RMP amendments in order for the Project to be approved.

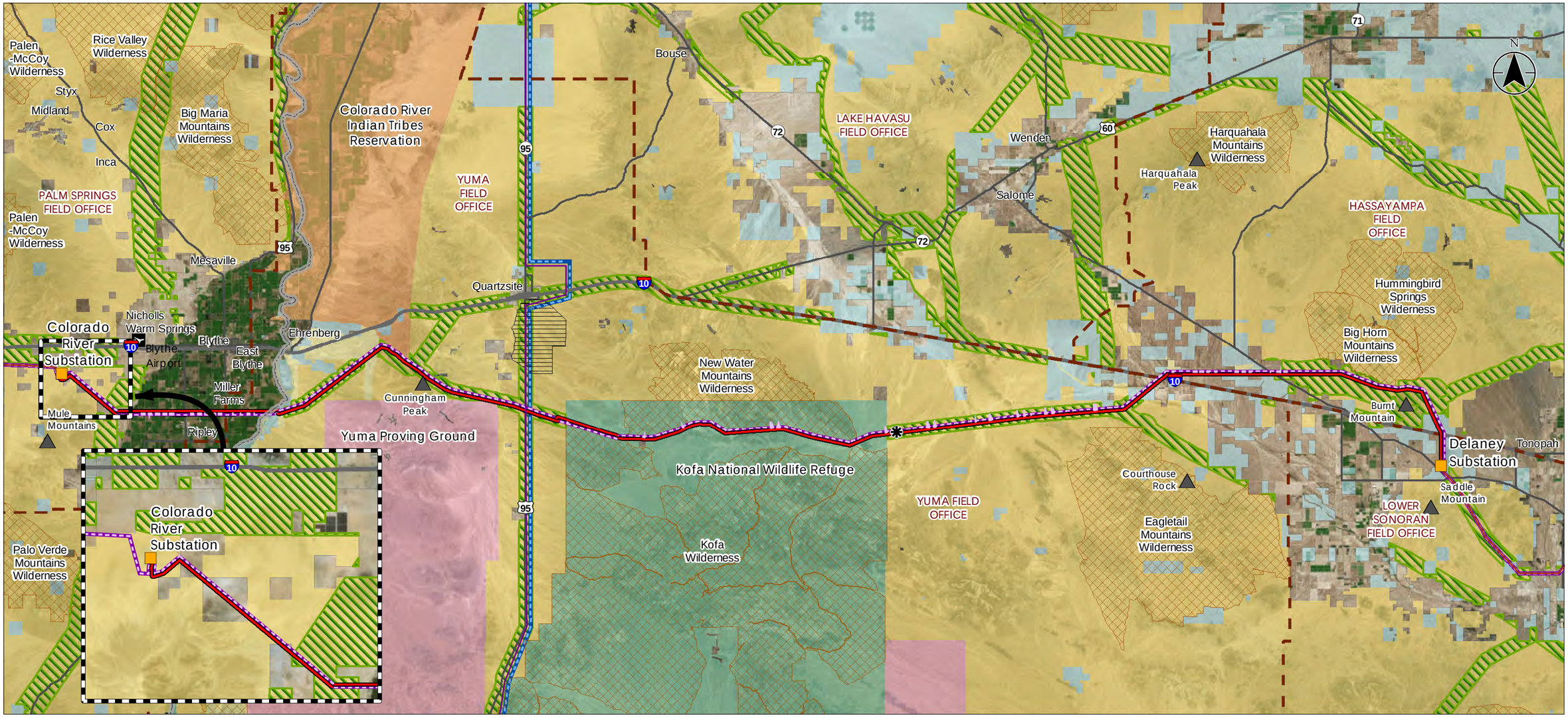
An initial ROW term of 30 years would be required to construct, operate, and maintain the transmission line and associated infrastructure. A 20-year renewal of the ROW may be required.

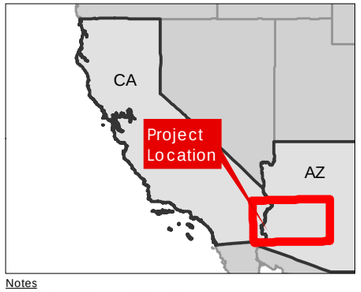
1.2.2 Applicant's Project Objectives

In 2014, the California Independent System Operator (CAISO), an independent non-profit electricity grid operator for California, identified that an additional high-voltage transmission connection between the Delaney and Colorado River substations was needed for reliability and efficiency of the California and western electricity grid, and for renewable energy resources in support of state policy. Through a competitive bid process, CAISO selected DCRT to construct, operate, and maintain the Project, maximizing the use of existing or expanded transmission line ROWs.

The Project would:

- Respond to the CAISO's request to increase capacity by connecting the Delaney and Colorado River substations.
- Facilitate development of new renewable energy: The Project would create new transmission infrastructure needed to interconnect future renewable energy resources in both Arizona and California to the bulk transmission grid. Additionally, the solar Investment Tax Credit supports development of solar energy projects in the U.S. that start construction prior to December 31, 2021.
- Use existing developed transmission or utility corridors wherever possible, thereby minimizing impacts while maximizing the use of existing access roads and infrastructure.
- Improve system economics: The Project would increase the capability of the system to deliver energy. The increase in cost-effective transfer of energy enhances competition among energy suppliers and reduces energy costs to customers.
- Enhance operational flexibility: The Project would create a diverse transmission network serving Arizona and California that would afford the transmission system operators the operational flexibility to redirect the power flows under normal and emergency conditions, improving system reliability and deferring transmission upgrades.
- Improve regional collaboration: This interstate transmission line would facilitate efficient and increased sharing of generation resources; it would enable both Arizona and California to better integrate renewable resources, share reliability services, and increase supply diversity under normal and emergency conditions.





Notes
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3. Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

- Substation
- Proposed Series Compensation Station
- Proposed Action*
- Existing DPV1 Transmission Line*
- Existing WAPA 161kV Transmission Line
- BLM Long-term Visitor Area
- BLM Utility Corridor
- Peak
- BLM Field Office Boundary
- Wilderness Area

Land Status
- Bureau of Land Management
- Bureau of Reclamation
- Local or State Parks
- Indian Lands
- Military
- Private
- State
- USFWS

0 9 18 Miles

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* = Existing DPV1 follows the Proposed Action. DPV1 and the Proposed Action are cartographically offset for display purposes. Because the routes are cartographically offset, in some cases, the routes do not precisely depict the estimated TWL alignment.

Figure 1-1
Ten West Link
Proposed Action
Overview

- Strengthen regional reliability and enhance system efficiency: The Project would strengthen the regional transmission system in Arizona and California by adding additional capacity and alleviating grid congestion. The Project would improve transmission line reliability in compliance with the North American Electric Reliability Corporation (NERC) and Western Electricity Coordinating Council (WECC) standards.
- Contribute to the regional economy: The Project would provide economic benefits through spending on goods and services during construction activities, payment of ROW fees, and property tax revenues.
- Benefit Arizona electric consumers: As the Project would be paid for by the CAISO customers, the Arizona electric consumers would receive system benefits without long-term capital responsibility for the critical infrastructure.

1.3 BLM'S PURPOSE AND NEED FOR ACTION

The purpose of the BLM action is to respond to DCRT's request for a ROW across public land to construct, operate, maintain, and decommission a 114 mile, 500kV transmission line between the APS Delaney Substation in Maricopa County, Arizona, and the SCE Colorado River Substation in Riverside County, California.

The need for the BLM action is established by the BLM's responsibility under Federal Land Policy and Management Act (FLPMA) of 1976 and the Energy Policy Act of 2005 to respond to applications that promote grid reliability and renewable energy development, and to designate corridors for electricity transmission and distribution facilities.

Portions of the Proposed Action and/or Action Alternatives would not be in conformance with the Yuma RMP and the California Desert Conservation Area (CDCA) Plan. Therefore, BLM must consider amending these plans in connection with its consideration of DCRT's ROW application.

1.4 LEAD AND COOPERATING AGENCIES

The BLM is the lead Federal agency responsible for preparing this EIS. The Colorado River District Office is the lead BLM office, responsible for consultations required by Section 7 of the Endangered Species Act of 1973 (ESA), as amended, and the National Historic Preservation Act of 1966 (NHPA, 54 USC 300101 et seq.), as amended (referred to hereafter as Section 106 of the NHPA).

The following agencies have formally agreed to be cooperating agencies as part of the NEPA process for the Project:

- Environmental Protection Agency (EPA)
- Department of Defense (DOD), Yuma Proving Ground (YPG)
- USFWS
- Reclamation
- Arizona Game and Fish Department (AGFD)
- CPUC
- Arizona State Land Department (ASLD)

- Maricopa Association of Governments (MAG)
- La Paz County (Arizona)
- Town of Quartzsite (Arizona)
- Western Area Power Administration (WAPA)

1.5 DECISIONS TO BE MADE AND AUTHORIZING ACTIONS

1.5.1 BLM

The BLM will decide whether to issue a ROW to DCRT on land administered by the BLM, and if so, what terms and conditions should be applied. The BLM Colorado River District Manager is the authorized officer for ROW actions for the Project.

If the selected alternative does not conform to one or more of BLM RMPs, the Project would require a RMP amendment before it could be approved. The BLM Arizona and California State Directors are the authorized officers for adoption of their respective RMP amendments associated with the Project.

1.5.2 Bureau of Reclamation

The Lower Colorado Regional Director for Reclamation will decide whether to issue a land use authorization for DCRT to construct, operate, maintain, and decommission the Project on Reclamation land.

1.5.3 USFWS

The USFWS first determines if the Project would be considered an appropriate use within the Kofa NWR. The USFWS determined that the Project would not be an appropriate use within the Kofa NWR on January 26, 2017, and therefore the USFWS cannot authorize a ROW for the Project across the Kofa NWR (USFWS 2017) (Appendix 1A).

1.5.4 WAPA

DCRT filed an application with WAPA for funding to construct the Project, in whole or in part, under the authority granted by WAPA by § 301 of the Hoover Power Plant Act of 1984 (Public Law 98-381), as amended (§ 301, "Western Area Power Administration Borrowing Authority").

WAPA needs to consider DCRT's application for funding under § 301 and the Transmission Infrastructure Program. Section 301 authorizes WAPA to borrow funds from the U.S. Treasury to construct, finance, facilitate, plan, operate, maintain, and/or study construction of new or upgraded electric power transmission lines and related facilities. These transmission lines and related facilities must have at least one terminus within the area served by WAPA and deliver or facilitate the delivery of power generated by renewable resources. Those decisions constitute a Federal action requiring NEPA review and are the basis for WAPA's involvement in this EIS process as a cooperating agency. Additionally, WAPA is considering whether to take an ownership interest in fiber optic communication links over the Project's fiber optic overhead ground wire.

1.5.5 CPUC

The CPUC regulates privately owned electric, natural gas, telecommunications, water, railroad, rail transit, and passenger transportation companies in California. The CPUC serves the public interest by protecting consumers and ensuring the provision of safe, reliable utility service and infrastructure at just and reasonable rates, with a commitment to environmental enhancement and a healthy California economy. The CPUC regulates utility services, stimulates innovation, and promotes competitive markets, where possible (CPUC 2017).

DCRT has filed an application for a Certificate of Public Convenience and Necessity (CPCN) to site the Project's transmission infrastructure in California. The CPUC approval or denial of DCRT's CPCN application is a discretionary decision. Under California law, the CPUC would be required to comply with CEQA before issuing the CPCN.

In April 2016, the BLM and CPUC entered into a Memorandum of Understanding (MOU, Appendix 1B) whereby the BLM, as the Lead Agency under NEPA, will coordinate with the CPUC to assist with CPUC's compliance with CEQA. Information specific to the CEQA process, CPUC decisions, and analysis specific to CEQA requirements are contained in Appendix 1C and will not be discussed further in the body of this document.

1.5.6 Other Agencies

Several other Federal, state, and local agencies will rely on the information in this EIS to inform their decisions regarding issuance of specific authorizations and permits related to the Project. Tables 1.5-1 and 1.5-2 (Appendix 1) list the tribal, Federal, state, and local agencies' authorizations and permits that would be required for the Project.

1.6 ENVIRONMENTAL REVIEW PROCESS

This EIS analyzes and discloses the environmental impacts of the Proposed Action, 45 route segments that have been combined into alternatives to the Proposed Action, and the No Action Alternative. The EIS analyzes the Proposed Action, compares it to the full route Action Alternatives, and identifies an Agency Preferred Alternative. Additionally, the EIS describes Applicant Proposed Measures (APMs), BLM-required Best Management Practices (BMPs), and mitigation measures (MMs) that have been identified to avoid and/or reduce environmental consequences of the Proposed Action or Action Alternatives.

1.7 RELATIONSHIP TO FEDERAL, STATE, AND LOCAL POLICIES, PLANS, PROGRAMS, AND LAWS

1.7.1 Federal Policies, Plans, and Programs

1.7.1.1 West-wide Energy Corridors

In 2008, the U.S. Department of Energy (DOE), the BLM, the U.S. Forest Service (USFS), and U.S. DOD issued a Final Programmatic Environmental Impact Statement (PEIS) that evaluated issues associated with the designation of energy corridors, known as West-wide Energy Corridors

(WWECs) or Section 368 corridors (after the section of the Energy Policy Act of 2005 that required agencies to designate them), on Federal lands in 11 western states, including Arizona and California. The PEIS identified energy transportation corridors for oil, gas, and hydrogen pipelines and electricity transmission and distribution facilities, and developed interagency operating procedures applicable to planning, construction, operation, and decommissioning of such projects. The Secretaries of the Interior and Agriculture signed Records of Decision (RODs) in 2009 designating Section 368 corridors on BLM and USFS-managed lands in the 11 western states. Based upon the Project route alternatives being considered, a portion of the Project would be within WWEC corridor 30-52.

1.7.1.2 BLM Resource Management Plans

The following RMPs provide management direction for the public lands administered by the BLM that may be crossed by the Project or full route Action Alternatives. While the RMPs allow for multiple uses of public lands, amendments to the RMPs may be necessary to accommodate the Project. Section 3.7 addresses the conformance with the applicable plans. Section 4.7 addresses the environmental consequences associated with applicable plan amendment(s).

- Lower Sonoran Resource Management Plan (BLM 2012a)
- Bradshaw-Harquahala Resource Management Plan (BLM 2010b)
- Lake Havasu Resource Management Plan (BLM 2007)
- Yuma Resource Management Plan (BLM 2010a)
- California Desert Conservation Area Plan (BLM 1980) as Amended by the Desert Renewable Energy Conservation Plan (BLM 2016a)

1.7.1.3 Kofa National Wildlife Refuge Management Plan

The Kofa NWR and Wilderness and New Water Mountains Wilderness Interagency Management Plan provides long-term management direction for the USFWS-managed Kofa NWR (BLM, USFWS, and AGFD 1996). The New Water Mountains Wilderness is now managed under the Yuma RMP. The Kofa NWR utilizes USFWS policies on appropriateness (USFWS 2006a) and compatibility (USFWS 2000) when processing ROW applications.

1.7.1.4 Yuma Proving Ground Integrated Natural Resources Management Plan

The Yuma Proving Ground Integrated Natural Resources Management Plan guides and documents how the YPG will sustain the military mission while maintaining the health of natural resources. Natural resources management is integrated into the YPG environmental program and military testing and training. The plan's goals and objectives promote sound land management; protection of the environment; and compliance with all relevant laws, regulations, and applicable state and Federal management plans (YPG 2012).

1.7.2 Applicable Federal Laws, Statutes, and Executive Orders

The Proposed Action and Action Alternatives must comply with numerous Federal laws, statutes, executive orders (EO), and regulations as outlined in Tables 1.7-1 through 1.7-3 in Appendix 1.

1.7.3 Relationship to State and Local Policies, Plans, Programs, and Laws

1.7.3.1 Arizona

By Arizona state law, public service utilities are regulated monopolies given the opportunity to earn a fair and reasonable return on their investments (ACC 2014). The Arizona Corporation Commission (ACC) has jurisdiction over the quality of service and rates charged by public service utilities.

The ACC's Renewable Energy Standard and Tariff Rules (ACC R14-2-1801–1815), along with other renewable energy mandates, call on the state's electric utilities to produce 15 percent of their electricity from renewable sources by 2025 (ACC 2006). Additional export and scheduling capability is necessary to facilitate delivery of proposed renewable energy to load centers in Arizona; therefore, the Proposed Action and Action Alternatives would assist the state's electric utilities in meeting this goal and would be consistent with the State of Arizona objectives related to renewable energy development. The Project could carry energy from current and future renewable energy projects facilitating renewable energy development and assisting with meeting the state's renewable energy goals.

The ACC, which governs electrical transmission line siting, requires environmental analysis to be performed for new transmission lines. The Arizona Power Plant and Transmission Line Siting Committee and the ACC are responsible for the environmental review on state lands in Arizona. Pursuant to Arizona Revised Statute (ARS) 40-360 et seq., the ACC will conduct the environmental review of the Arizona portion of the Project.

1.7.3.2 California

The California Renewable Energy Transmission Initiative (RETI) Version 2.0 is a statewide planning process that builds off the science, data, and analysis efforts of the original 2008 RETI process to identify the transmission projects needed to accommodate California's renewable energy goals. Phases 1 and 2 of the 2008 RETI project resulted in the identification and refinement of Competitive Renewable Energy Zones (CREZ), which are areas determined to hold the greatest potential for cost-effective and environmentally responsible renewable energy development. The terminus of the Project (Colorado River Substation) is located within the Riverside East CREZ (California Energy Commission 2008). Therefore, the Proposed Action and Action Alternatives would assist the state in meeting its renewable energy goals.

1.7.3.3 County and Local

Each of the local jurisdictional plans reviewed for this EIS are listed below. Other planning documents were reviewed for additional context or information related to the future uses that were identified in the general plans.

- Riverside County General Plan (Riverside County 2015d, e, and f)
- Riverside County Palo Verde Area Plan (Riverside County 2014a)
- Maricopa County Comprehensive Plan (Maricopa County 2016)
- Tonopah/Arlington Area Plan (Maricopa County 2000)
- La Paz County Zoning Plan (La Paz County Zoning Regulations, last updated in 2012)
- City of Blythe General Plan 2025 (City of Blythe 2007a)
- City of Blythe Colorado River Corridor Plan (City of Blythe 2007b)

1.8 TRIBAL CONSULTATION AND COORDINATION

The BLM has initiated government-to-government consultation with Indian tribes with jurisdiction or interest in the Project, which is ongoing. NHPA Section 106 consultation letters, scoping invitation letters (Section 5.4.1), and Economic Strategies Workshop (Section 5.4.2.1) invitation letters were mailed to the following tribes between February and May 2016:

- Agua Caliente Band of Cahuilla Indians
- Ak Chin Indian Community
- Augustine Band of Cahuilla Indians
- Cabazon Band of Mission Indians
- Chemehuevi Tribe
- Cocopah Tribe of Arizona
- Colorado River Indian Tribes (CRIT)
- Fort McDowell Yavapai Nation
- Fort Mojave Tribe of Arizona
- Quechan Tribe
- Gila River Indian Community
- Hopi Tribe of Arizona
- Morongo Band of Mission Indians
- Salt River Pima-Maricopa Indian Community
- San Manual Band of Mission Indians
- Soboba Band of Luiseño Indians
- Torres Martinez Desert Cahuilla Indians
- Twenty-Nine Palms Band of Mission Indians
- Yavapai-Apache Nation
- Yavapai-Prescott Indian Tribe

1.9 ISSUES IDENTIFIED DURING SCOPING

Scoping and public involvement activities are described in detail in the Ten West Link 500kV Transmission Line Project Scoping Report (Stantec 2016a; project record) and in Section 5.4.

Comments received during the scoping period were used to develop issues to be addressed in the EIS and were also used to refine and/or create alternatives to the Proposed Action that are addressed in the EIS. Forty-four responses were received with 389 substantive issues within the scope of this EIS identified and categorized into 44 main issue categories (Table 1.9-1 in Appendix 1).

The issues help to make reasoned choices between the alternatives and to ensure impacts are addressed in the EIS.

Chapter 2 Description of the Proposed Action and Alternatives

CHAPTER 2 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

2.1 INTRODUCTION

This chapter describes the Proposed Action – the requested 200-foot-wide ROW for a 114-mile long transmission line, and associated features along the route proposed by DCRT – and the Action Alternatives.

DCRT has estimated a centerline and infrastructure requirements for the Proposed Action. The Action Alternatives take into account topography, existing development, and other identified design challenges. The possible alignment ROW for the Proposed Action and all Action Alternatives would include 100 feet on either side of the centerline totaling 200-feet-wide. In some areas the ROW width may need to be wider or narrower to accommodate terrain, slope, and/or other facilities. However, all efforts would be made to maintain a 200-foot wide ROW. While the possible alignment centerline and ROW would likely be further adjusted as a result of final engineering, the anticipated adjustments would be minimal. Duration of Project disturbance has been described in terms of short-term (during construction, projected to be approximately 2 years, and up to 10 years) and long-term (life of Project anticipated to be up to 50 years).

Detailed information specifically referenced in the sections below is located in Appendix 2.

2.2 PROPOSED ACTION AND ALTERNATIVES

2.2.1 ROW Actions

DCRT proposes to acquire a 200-foot-wide ROW for construction, operation, and maintenance of the 500kV line. This ROW has been designed to allow for the safe movement and operation of equipment during construction and maintenance, the safe construction of the Project facilities, and to allow for sufficient clearance between conductors and the ROW edge as required by the National Electrical Safety Code (NESC) (2012). DCRT has requested an initial 30-year grant from the BLM for the purposes of constructing, operating, maintaining, and decommissioning the Project. In addition to the BLM, ROWs would need to be acquired from other Federal, state, and local entities (Section 1.4), as well as private landowners.

2.2.2 Proposed Action

The Proposed Action route is shown on Figure 1-1 and Table 2-1 provides a breakdown of land jurisdictions crossed by the Proposed Action. A description of the proposed facilities, infrastructure, and construction is provided in Section 2.2.4.

Table 2-1 Land Jurisdictions Crossed by the Project

JURISDICTION	MILES
BLM	56.8
USFWS	24.9
Reclamation	1.5
Arizona State	8.0
California State	1.4
Private	21.4
TOTAL	114.0

The Proposed Action route is divided into 19 segments (Table 2.2-1 in Appendix 2 and Figure 2-1) to effectively evaluate the Proposed Action in relation to the Action Alternatives. The segment names of the Proposed Action route carry the letter "p" as an identifier, then each segment is numbered sequentially east to west from the APS Delaney Substation to the SCE Colorado River Substation. Division of the Proposed Action route into segments allows for the potential combination of Proposed Action segments with other Action Alternative segments.

2.2.2.1 Amendment of the Yuma RMP

Portions of the Proposed Action route that do not conform to the Visual Resource Management (VRM) Classes for lands designated by the Yuma RMP, would require an amendment of the RMP. These potential RMP amendments are detailed in Table 2-2 and Figure 2-2.

Table 2-2 Proposed Yuma RMP VRM Class Amendments

SEGMENT*	LENGTH	VRM CLASS	AMENDED VRM CLASS	LENGTH AMENDED (MILES)
p-06	35.8	III	IV	0.6**
p-07	2.1	II	IV	2.1
p-08	0.7	III	IV	0.7
p-09	6.9	III	IV	6.9
p-10	1.2	II	IV	1.2
p-11	4.0	III	IV	3.9
p-12	2.6	III	IV	1.1
p-13	3.5	III	IV	3.5

*Segments only listed if an RMP amendment is needed for VRM Class within the YFO.

**Only the portion of Segment p-06 west of the Kofa NWR would be amended.

2.2.2.2 Amendment of the CDCA Plan

The LUPA-BIO-PLANT-2 CMA would apply to the Project, due to known occurrences of Harwood's eriastrum (*Eriastrum harwoodii*) within all alternatives in the California section. LUPA-BIO-PLANT-2 states, "Implement an avoidance setback of 0.25 mile for all Focus and BLM Special Status Species occurrences. Setbacks will be placed strategically adjacent to occurrences to protect ecological processes necessary to support the plant Species (see Appendix Q, Baseline Biology Report, in the Proposed LUPA and Final EIS [2015a], or the most recent data and modeling)."

The purpose of the LUPA-BIO-PLANT-2 CMA is to protect the ecological process of special status plant species in order to sustain viable, healthy populations. Ecological processes include, but are not limited to, pollinator access and movement, habitat change and movement (sand movement in the case of Hardwood's eriastrum), response to climate change, and gene flow. While LUPA-BIO-PLANT-2 prescribes a specific buffer to occurrences, it can be shown that the Project can avoid impacts to the ecological processes that support Harwood's eriastrum populations by incorporation of certain minimization measures (Best Management Practices [BMPs]) into the Project design.

Section II.4.2, Conservation and Management Action LUPA-BIO-PLANT-2 is proposed to be amended to state:

The CDCA Plan of 1980, as amended, would be further amended to authorize construction of the Ten West Link Project within 0.25-mile of occurrences of Harwood's eriastrum, provided that a Rare Plant Linear ROW Protection Plan for Harwood's eriastrum is developed and approved by the BLM California State Director. The Rare Plant Linear ROW Protection Plan would meet the DRECP goal of promotion of the ecological processes in the BLM Decision Area that sustain vegetation types of Focus and BLM Special Status Species and their habitat. The Rare Plant Linear ROW Protection Plan would have the objectives of:

- *Avoidance of take of Harwood's eriastrum individuals to the maximum extent practical; and*
- *Avoidance of impacts to Harwood's eriastrum suitable habitat to the maximum extent practical.*

The California State Director would approve the Harwood's Eriastrum Rare Plant Linear ROW Protection Plan and Fringe-toed Lizard Linear ROW Protection Plan prior to ground or vegetation disturbing activities commencing on public lands in California.

BLM required BMPs contained in Appendix 2A would also apply and reduce the impacts of the Project on BLM special status plant species.

2.2.3 Alternatives and Subalternatives

Alternative segments were identified by BLM through a combination of both internal and public scoping (Table 2.2-2, Appendix 2). Public scoping comments that resulted in alternative segments being identified included: segments that avoid the Town of Quartzsite, segments within BLM utility corridors, segments that avoid sensitive cultural resources, and segments that avoid Johnson

Canyon and the Kofa NWR. Public scoping also raised other potential alternatives that did not result in alternative segments being identified, since the suggested alternative was either not applicable (i.e. the Proposed Action segments already avoided Wilderness Areas) or not relevant to the Project (i.e., development of a route and substation for the Brenda Solar Energy Zone). Additional information regarding alternative development and screening is provided in the Project record.

Four Action Alternatives to the Proposed Action (Figure 2-3), along with associated subalternatives, are analyzed in this EIS. Action alternatives consist of individual segments (Figure 2-4) that have been compiled into full Alternative Routes and Subalternatives. Individual segments are the essential building blocks of the full Alternative Routes and Subalternatives.

The Yuma RMP (BLM 2010a) would require an amendment to establish a ROW for any segment outside designated BLM utility corridors and for portions of routes that do not conform to the VRM Classes for lands designated by the Yuma RMP. These potential RMP amendments are detailed in Table 2-3 and Figure 2-5 for alternative segments. The CDCA Plan of 1980 would also be amended for alternative segments as described for the Proposed Action in Section 2.2.2.2 and Appendix 2.

Table 2-3 Yuma RMP Amendments by Action Alternative Segment

SEGMENT*	LENGTH (MILES)	VRM CLASS	UTILITY CORRIDOR?	RMPA REQUIRED?	RMP AMENDMENT DESCRIPTION
cb-01	3.2	II	No	Yes	Establish ROW outside of utility corridor; and change from VRM Class II to VRM Class IV outside BLM utility corridor within 0.3-mile either side of the centerline of segments, or in an area bounded by the viewshed where the segment would be within canyons.
cb-02	2.2	II	No	Yes	Establish ROW outside of utility corridor; and change to VRM Class IV within 0.3-mile either side of the centerline of segment, or in an area bounded by the viewshed where the segment would be within canyons, for conformance outside utility corridor; or expand existing utility corridor to contain this segment, and in conjunction with other corridor changes, change VRM Class to Class IV.
cb-03	4.3	II	Yes - Partial	Yes	Change to VRM Class IV on portion of BLM-administered public lands within the utility corridor within the viewshed of the canyon.

SEGMENT*	LENGTH (MILES)	VRM CLASS	UTILITY CORRIDOR?	RMPA REQUIRED?	RMP AMENDMENT DESCRIPTION
cb-04	1.9	II & III	No	Yes	Establish ROW outside of utility corridor; and change to VRM Class IV for the area within 0.3-mile either side of the centerline of the segment, or in an area bounded by the viewshed where the segment would be within canyons.
cb-05	4.4	II & III	Yes - Partial	Yes	Establish ROW outside of utility corridor; and change to VRM Class IV for the area within 0.3-mile either side of the centerline of the segment.
cb-06	1.9	III	Yes - Partial	Yes	Establish ROW outside of utility corridor; and change from VRM Class II to VRM Class IV for the area within 0.3-mile either side of the centerline of the segment.
i-03	20.0	III	Yes - Partial	Yes	Establish ROW in areas outside the BLM utility corridor to encompass the i-03 route.
i-04	10.4	III	Yes	Yes	Change the VRM from Class III to Class IV within the BLM utility corridor.
i-05	2.9	III	Yes	Yes	Change the VRM to Class IV within the BLM utility corridor.
i-06	7.1	III	Yes	Yes	Change the VRM from Class III to Class IV within the BLM utility corridor.
qn-02	10.8	III & IV	Yes - Partial	Yes	Change to VRM Class IV 0.3-mile either side of centerline and establish ROW outside of utility corridor.
qs-01	3.1	III & IV	Yes - Partial	Yes	Change to VRM Class IV 0.3-mile either side of centerline and establish ROW outside of utility corridor.
qs-02	4.8	IV	Yes - Partial	Yes	Establish ROW in areas outside the utility corridor to encompass the qs-02 route and change to VRM Class IV within the BLM utility corridor.
x-01	7.9	II	No	Yes	Establish ROW outside of utility corridor.
x-02b	3.5	II	Yes - Partial	Yes	Establish ROW outside of utility corridor.
x-03	5.6	III	Yes - Partial	Yes	Establish ROW outside of utility corridor.
x-04	22.7	III	Yes - Partial	Yes	Establish ROW outside of utility corridor.

SEGMENT*	LENGTH (MILES)	VRM CLASS	UTILITY CORRIDOR?	RMPA REQUIRED?	RMP AMENDMENT DESCRIPTION
x-05	10.2	III	Yes - Partial	Yes	Establish ROW outside of utility corridor.
x-06	9.2	III	Yes - Partial	Yes	Establish ROW outside of utility corridor and change to VRM Class IV 0.3-mile either side of segment centerline.
x-07	7.7	III	Yes	Yes	Change the VRM in areas of Class III to Class IV within the BLM utility corridor.

*Segment is only listed if an RMP Amendment is needed.

2.2.3.1 Alternative 1: I-10 Route

Alternative 1 would be 111.5 miles long and would generally follow I-10 (Figure 2-6, Table 2-4). This alternative route was developed to utilize BLM utility corridors while avoiding the Kofa NWR, Johnson Canyon, YPG, Copper Bottom Pass area, and the area of dense cultural resources in Mule Mountains south of Blythe; and also meet public request for a route that follows I-10 and minimize crossings of VRM Class II land.

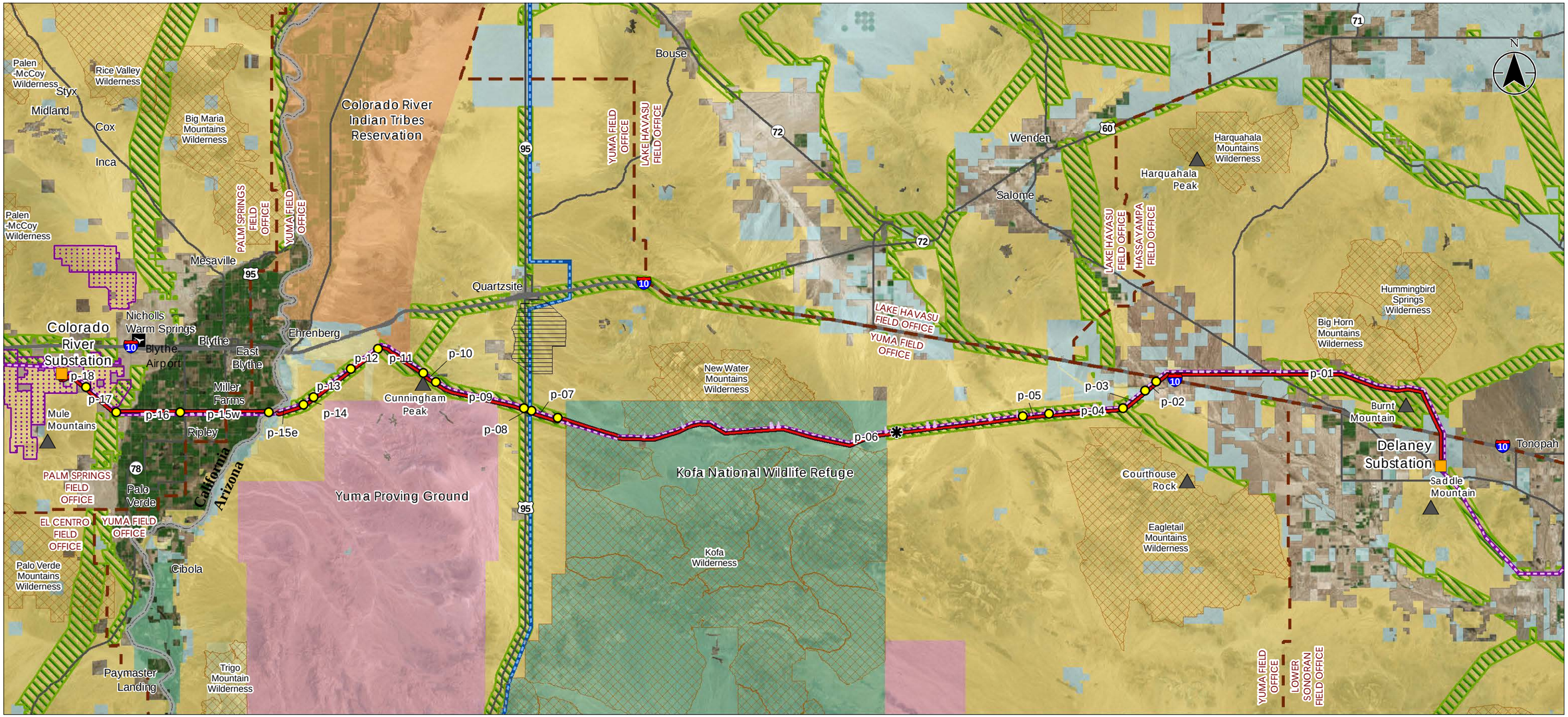
Table 2-4 Alternative 1 Jurisdiction

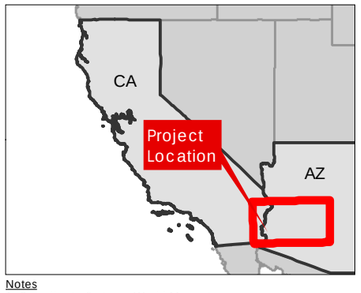
LAND MANAGEMENT LANDS CROSSED	MILES (#)	% OF TOTAL ROUTE DISTANCE
BLM	59.9	53.7
USFWS	0	0
Reclamation	6.5	5.8
DOD	0	0
State	20.4	18.3
Private	23.3	20.9
Indian Lands	1.4	1.2
Total length of route:	111.5	100.0

Appendix 2 details:

- The 18 segments that comprise Alternative 1 in Table 2.2-3;
- The five subalternatives that would also meet the objectives of Alternative 1 in Table 2.2-4; and
- Segment descriptions in Table 2.2-2.

Figures 2.2-1 through 2.2-3, which show the five subalternatives to Alternative 1, are located in Appendix 7.





Notes
1. Coordinate System: World Mercator
2. Data Source(s): Project data - HDR; Land Status - BLM
3. Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

- Substation
- Proposed Series Compensation Station
- Route Segment Node
- Proposed Action*
- Existing DPV1 Transmission Line*
- Existing WAPA 161kV Transmission Line
- BLM Long-term Visitor Area
- Proposed Solar Energy Facility
- BLM Utility Corridor
- Existing NRG Solar Facility
- Peak
- BLM Field Office Boundary
- Wilderness Area

Land Status
- Bureau of Land Management
- Bureau of Reclamation
- Local or State Parks
- Indian Lands
- Military
- Private
- State
- USFWS

* = Existing DPV1 follows the Proposed Action. DPV1 and the Proposed Action are cartographically offset for display purposes. Because the routes are cartographically offset, in some cases, the routes do not precisely depict the estimated TWL alignment.

0 9 18 Miles

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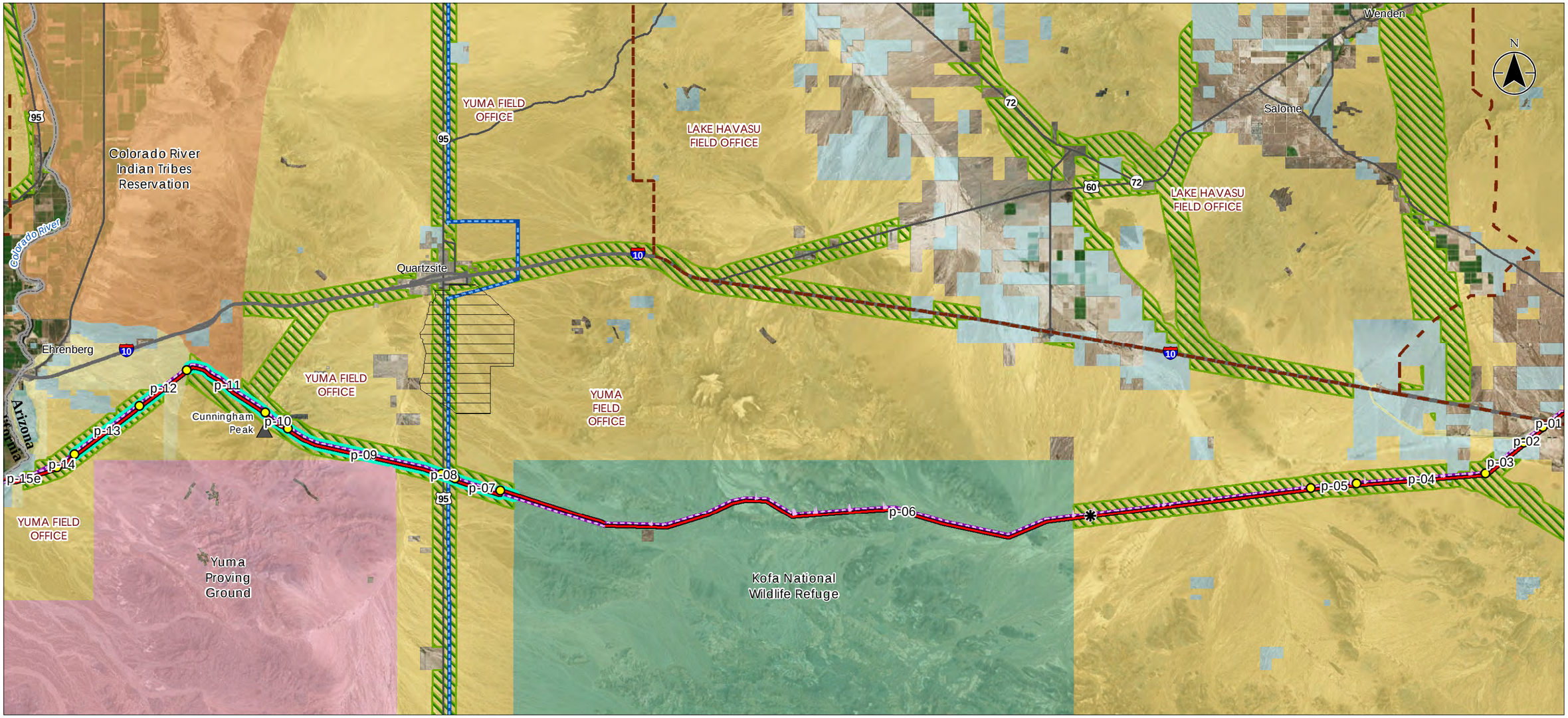
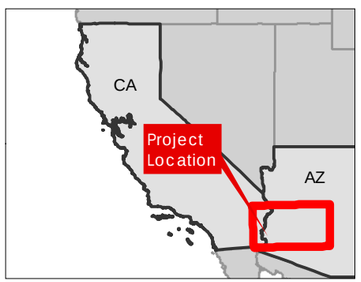
Figure 2-1
Ten West Link
Proposed Action Segments
Overview





Notes
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2. Data Source(s): Project data - HDR; Land Status - BLM
3. Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

- Proposed Series Compensation Station
- Route Segment Node
- Proposed Action*
- Route Segment requiring Yuma Field Office RMP Amendment
- Existing DPV1 Transmission Line*
- Existing WAPA 161kV Transmission Line
- BLM Long-term Visitor Area
- Peak
- BLM Utility Corridor
- BLM Field Office Boundary

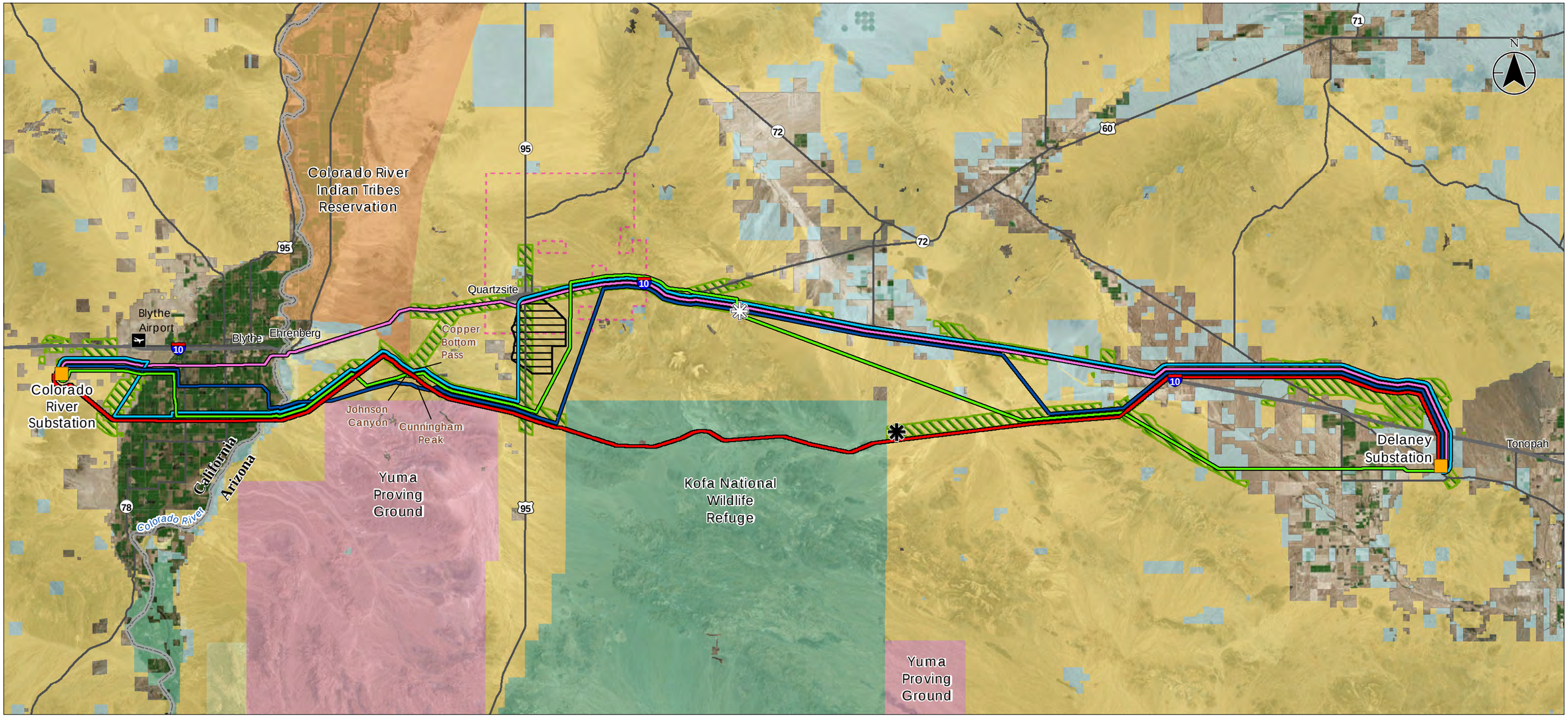
Land Status
- Bureau of Land Management
- Bureau of Reclamation
- Local or State Parks
- Indian Lands
- Military
- Private
- State
- USFWS

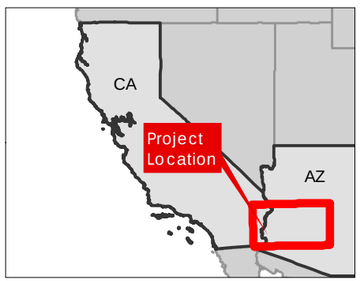
* = Existing DPV1 follows the Proposed Action. DPV1 and the Proposed Action are cartographically offset for display purposes. Because the routes are cartographically offset, in some cases, the routes do not precisely depict the estimated TWL alignment.

0 5.5 11 Miles

1:327,160 (At original document size of 11x17)

Figure 2-2
Ten West Link
Proposed Action Segments that would Require Amendment of the YFO RMP





Notes
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2. Data Source(s): Project data - HDR; Land Status - BLM
3. Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

- Substation
- Proposed Series Compensation Station
- Alternative Series Compensation Stations (2 possible site locations; ~75' feet apart)
- Proposed Action*
- Alternative 1: I-10 Route*
- Alternative 2: BLM Utility Corridor*
- Alternative 3: Avoidance Route*
- Alternative 4: Public Lands Emphasis Route*
- BLM Utility Corridor^
- BLM Long-term Visitor Area
- Quartzsite Planning Area

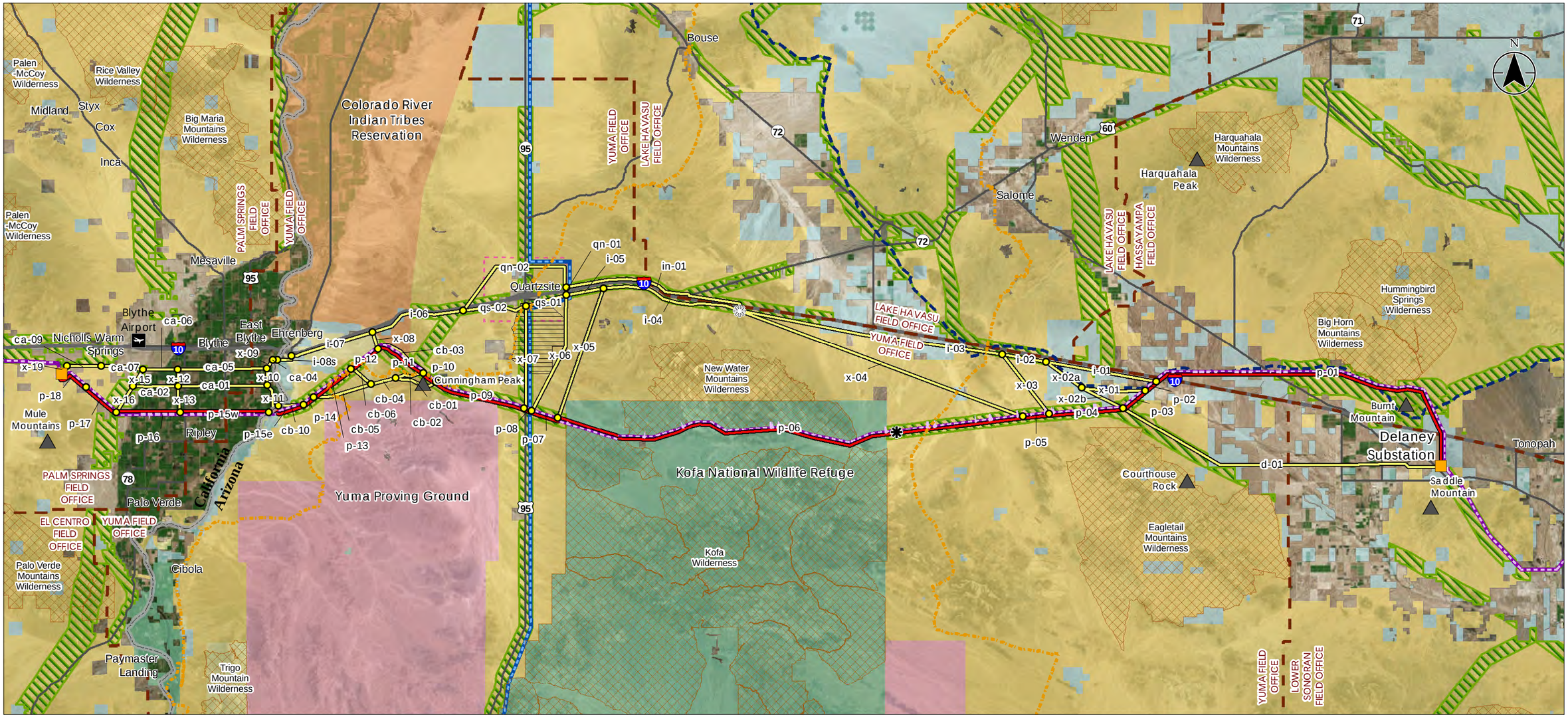
Land Status
- Bureau of Land Management
- Bureau of Reclamation
- Local or State Parks
- Indian Lands
- Military
- Private
- State
- USFWS

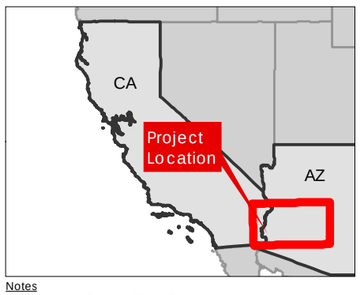
0 9 18 Miles

1:570,240 (At original document size of 11x17)

^ = BLM Utility Corridors were clipped to a 2-mile study area.
* = Routes depicted on this map are cartographically offset up to 1200 meters for display purposes. In some instances, the route turns were modified to represent the overall intent of the route design.

Figure 2-**3**
Ten West Link
Full Route Alternatives
to the Proposed Action





Notes
1. Coordinate System: World Mercator
2. Data Source(s): Project data - HDR; Land Status - BLM
3. Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

- Substation
- Proposed Series Compensation Station
- Alternative Series Compensation Stations (2 possible site locations; ~75' feet apart)
- Route Segment Node
- Proposed Action*
- Alternative Route Segment
- Existing DPV1 Transmission Line*
- Existing WAPA 161kV Transmission Line
- Proposed Arizona Peace Trail
- BLM Long-term Visitor Area
- Peak
- CAP Canal
- BLM Utility Corridor
- BLM Field Office Boundary
- Wilderness Area
- Quartzsite Planning Area

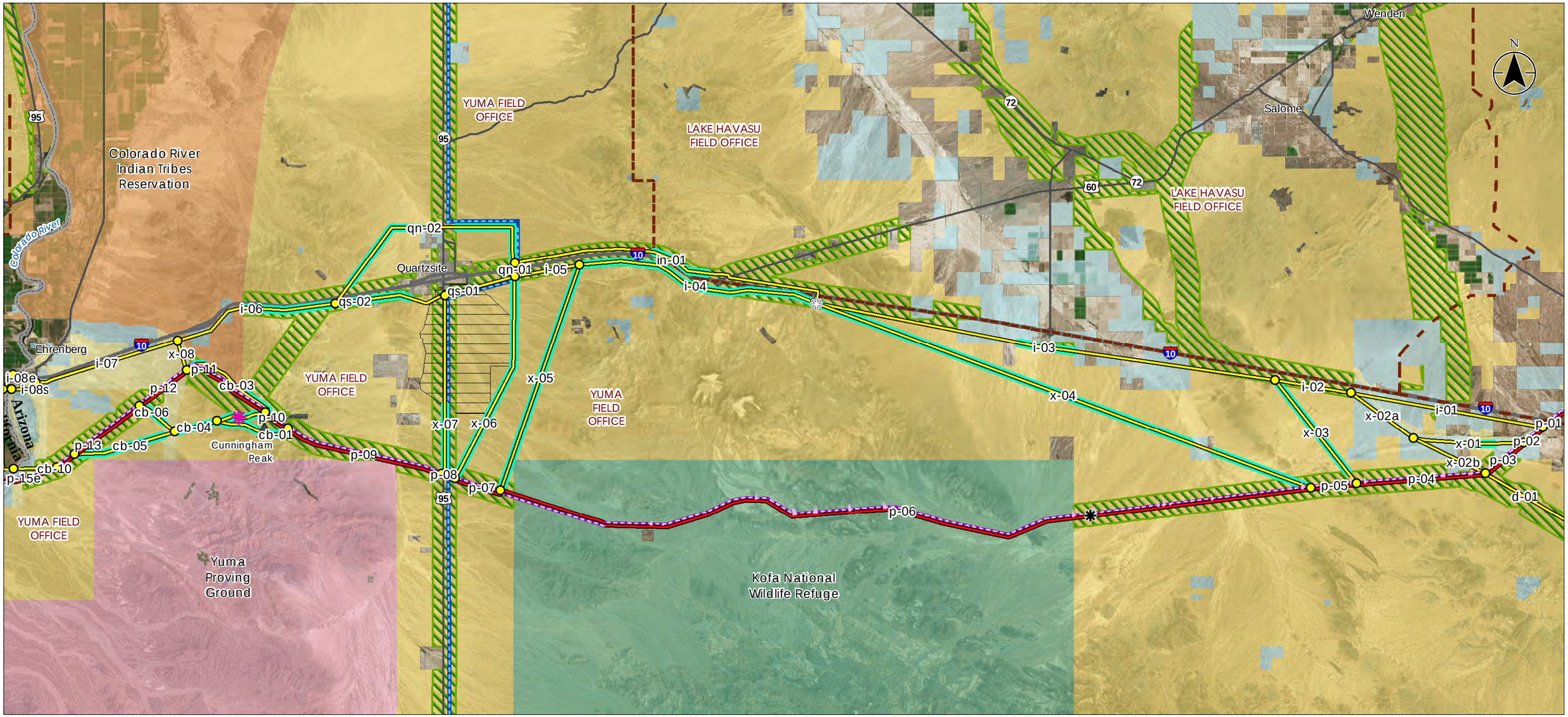
Land Status
- Bureau of Land Management
- Bureau of Reclamation
- Local or State Parks
- Indian Lands
- Military
- Private
- State
- USFWS

* = Existing DPV1 follows the Proposed Action. DPV1 and the Proposed Action are cartographically offset for display purposes. Because the routes are cartographically offset, in some cases, the routes do not precisely depict the estimated TWL alignment.

0 9 18 Miles

1:570,240 (At original document size of 11x17)

Figure 2-**4**
Ten West Link
Action Alternative Segments



Proposed Series Compensation Station

Alternative Series Compensation Stations (2 possible site locations; ~75' feet apart)

Johnson Canyon

Route Segment Node

Proposed Action*

Alternative Route

Route Segment requiring RMP Amendment

Existing DPV1 Transmission Line*

Existing WAPA 161kV Transmission Line

BLM Long-term Visitor Area

Peak

BLM Utility Corridor

BLM Field Office Boundary

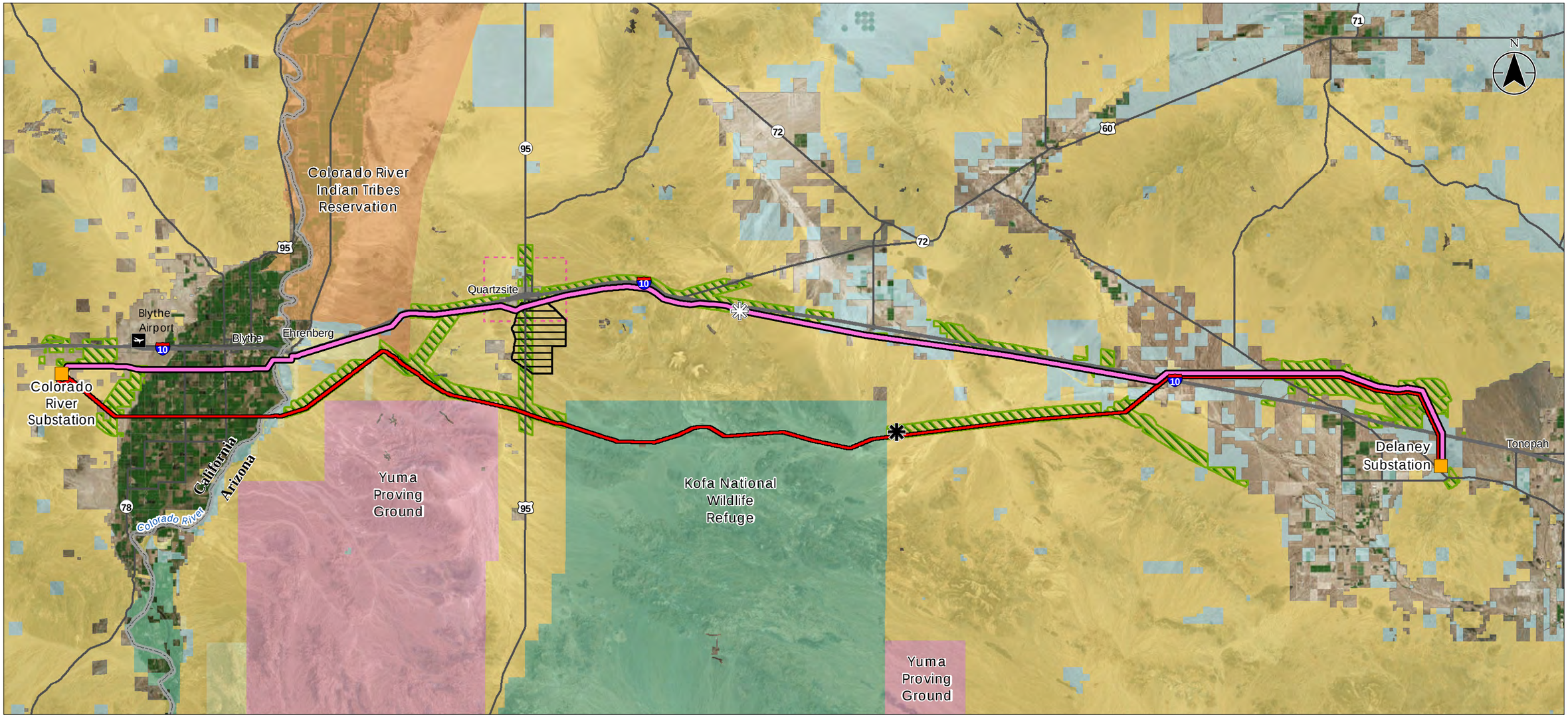
Land Status

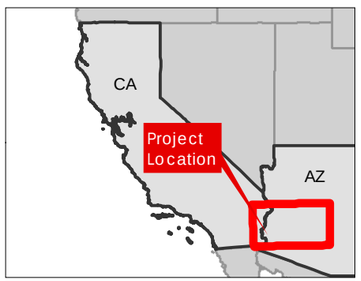
- Bureau of Land Management
- Bureau of Reclamation
- Local or State Parks
- Indian Lands
- Military
- Private
- State
- USFWS

Notes
1. Coordinate System: World Mercator
2. Data Source(s): Project data - HDR; Land Status - BLM
3. Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

* = Existing DPV1 follows the Proposed Action. DPV1 and the Proposed Action are cartographically offset for display purposes. Because the routes are cartographically offset, in some cases, the routes do not precisely depict the estimated TWL alignment.

Figure 2-5
Ten West Link
Action Alternative Segments that would Require RMP Amendment





Notes
1. Coordinate System: World Mercator
2. Data Source(s): Project data - HDR; Land Status - BLM
3. Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

- Substation
- Proposed Series Compensation Station
- Alternative Series Compensation Stations (2 possible site locations; ~75' feet apart)

- Proposed Action*
- Alternative 1: I-10 Route
- BLM Long-term Visitor Area
- BLM Utility Corridor^
- Quartzsite Planning Area

Land Status
- Bureau of Land Management
- Bureau of Reclamation
- Local or State Parks
- Indian Lands
- Military
- Private
- State
- USFWS

^ = BLM Utility Corridors were clipped to a 2-mile Project study area.
* = The Proposed Action is offset 600 meters to the South for display purposes.

0 9 18 Miles

1:570,240 (At original document size of 11x17)

Figure 2-**6**
Ten West Link
Alternative 1: I-10 Route

Subalternative 1C would include a route portion that crosses VRM Class II designated lands in the Lake Havasu FO. An RMP amendment would be required to change the portion of this segment designated VRM Class II to Class IV within the BLM utility corridor.

2.2.3.2 Alternative 2: BLM Utility Corridor Route

Alternative 2 would be 126.1 miles long and would be primarily within existing BLM utility corridors (Figure 2-7, Table 2-5). This alternative route was developed to emphasize the use of BLM utility corridors while avoiding the Kofa NWR, Johnson Canyon, Ehrenberg Sandbowl area, the area of dense cultural resources in Mule Mountains south of Blythe, and residential and other development south of Blythe; minimize impacts to the CRIT reservation and use of private land in California; and place the majority of route crossing VRM Class III.

Table 2-5 Alternative 2 Jurisdiction

LAND MANAGEMENT LANDS CROSSED	MILES (#)	% OF TOTAL ROUTE DISTANCE
BLM	81.4	64.6
USFWS	0	0
Reclamation	1.7	1.3
DOD	0.4	0.3
State	18.7	14.8
Private	24.0	19.0
Indian Lands	0	0
Total length of route:	126.1	100.0

Appendix 2 details:

- The 20 segments that comprise Alternative 2 in Table 2.2-5;
- The five subalternatives that would also meet the objectives of Alternative 2 in Table 2.2-6; and
- Segment descriptions in Table 2.2-2.

Figures 2.2-4 through 2.2-6, which show the five subalternatives to Alternative 2, are located in Appendix 7.

2.2.3.3 Alternative 3: Avoidance Route

Alternative 3 would be 123.0 miles long and was developed to avoid Kofa NWR Johnson Canyon, the CRIT reservation the Town of Quartzsite and Ehrenberg Sandbowl area, biologically important backwaters of the Colorado River, the southern end of Blythe, and the area of dense cultural resources in Mule Mountains south of Blythe; and place the majority of the route crossing VRM Class III (Figure 2-8, Table 2-6).

Table 2-6 Alternative 3 Jurisdiction

LAND MANAGEMENT LANDS CROSSED	MILES (#)	% OF TOTAL ROUTE DISTANCE
BLM	83.6	68.0
USFWS	0	0
Reclamation	0.7	0.5
DOD	0.4	0.3
State	15.2	12.4
Private	23.1	18.8
Indian Lands	0	0
Total length of route:	123.0	100.0

Appendix 2 details:

- The 23 segments that comprise Alternative 3 in Table 2.2-7;
- The twelve subalternatives that would also meet the objectives of Alternative 3 in Table 2.2-8; and
- Segment descriptions in Table 2.2-2.

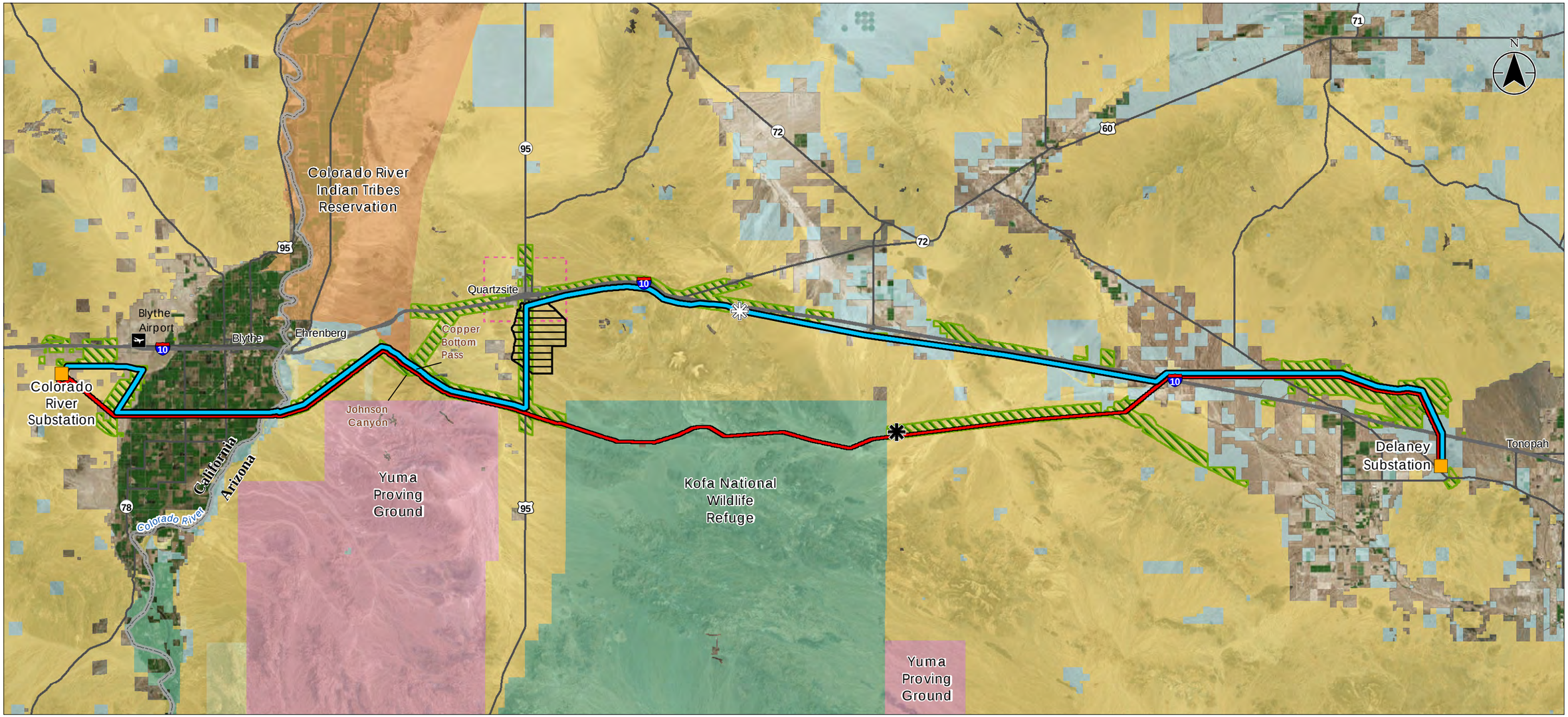
Figures 2.2-7 through 2.2-10, which show the twelve subalternatives to Alternative 3, are located in Appendix 7.

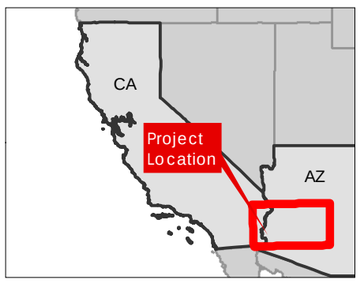
2.2.3.4 Alternative 4: Public Lands Emphasis Route

Alternative 4 would be 121.8 miles long and generally is on public lands, minimizing state lands (Figure 2-9, Table 2-7). This alternative route was developed to avoid the Kofa NWR, state land along I-10, the CRIT reservation, the Ehrenberg Sandbowl area, the southern end of Blythe, and the area of dense cultural resources in Mule Mountains south of Blythe; and also maximize use of BLM utility corridors in the Copper Bottom Pass area while placing the majority of route crossing VRM Class III, with slightly less Class II than Alternative Routes 2 or 3.

Table 2-7 Alternative 4 Jurisdiction

LAND MANAGEMENT LANDS CROSSED	MILES (#)	% OF TOTAL ROUTE DISTANCE
BLM	86.8	71.2
USFWS	0	0
Reclamation	0.8	0.7
DOD	0.4	0.3
State	6	4.9
Private	27.9	22.9
Indian Lands	0	0
Total length of route:	121.8	100.0





Notes
1. Coordinate System: World Mercator
2. Data Source(s): Project data - HDR; Land Status - BLM
3. Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

- Substation
- Proposed Series Compensation Station
- Alternative Series Compensation Stations (2 possible site locations; ~75' feet apart)
- Proposed Action*
- Alternative 2: BLM Utility Corridor Route
- BLM Long-term Visitor Area
- BLM Utility Corridor^
- Quartzsite Planning Area

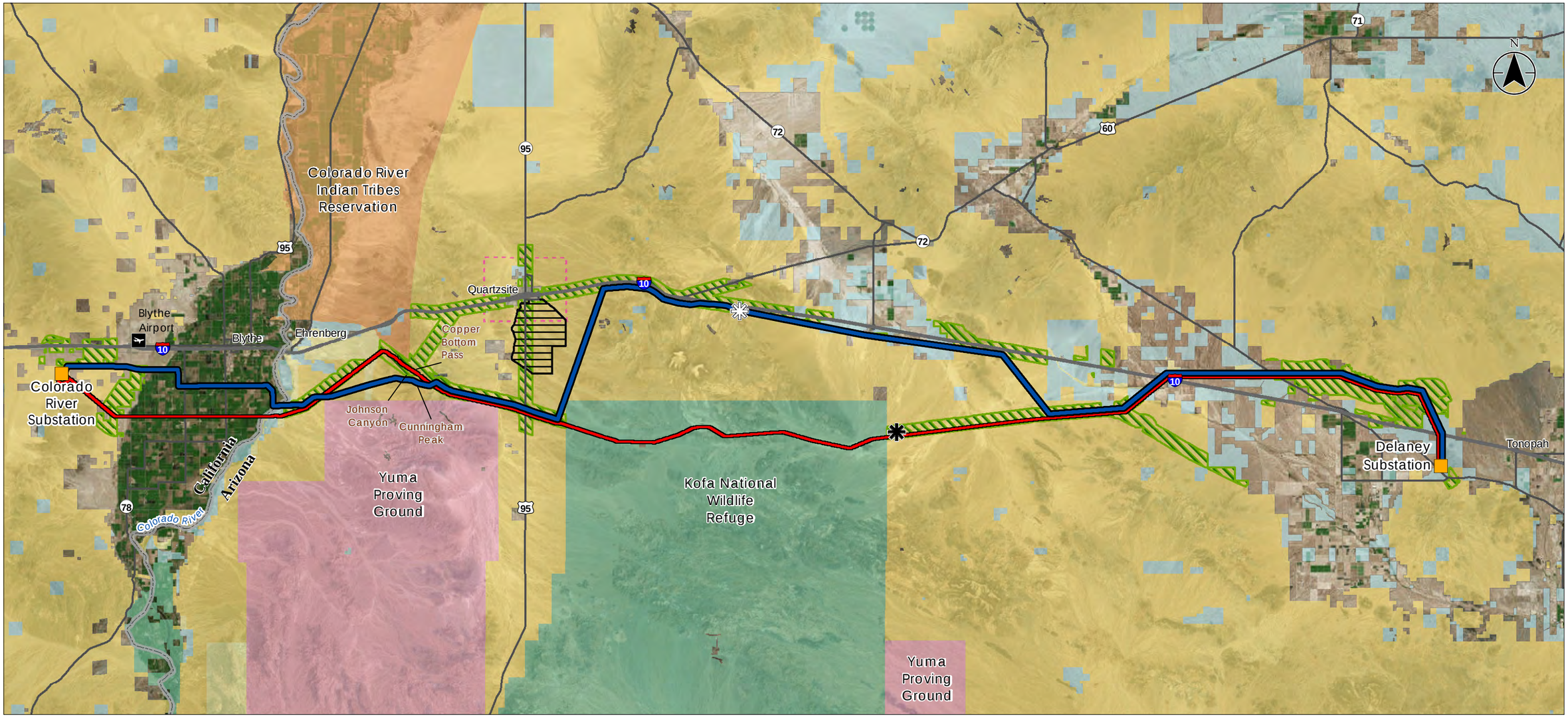
Land Status
- Bureau of Land Management
- Bureau of Reclamation
- Local or State Parks
- Indian Lands
- Military
- Private
- State
- USFWS

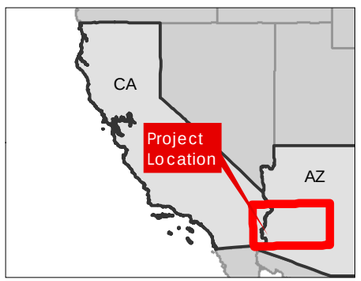
^ = BLM Utility Corridors were clipped to a 2-mile Project study area.
* = The Proposed Action is offset 600 meters to the South for display purposes.

0 9 18 Miles

1:570,240 (At original document size of 11x17)

Figure 2-**7**
Ten West Link
Alternative 2:
BLM Utility Corridor Route





Notes
1. Coordinate System: World Mercator
2. Data Source(s): Project data - HDR; Land Status - BLM
3. Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

- Substation
- Proposed Series Compensation Station
- Alternative Series Compensation Stations (2 possible site locations; ~75' feet apart)
- Proposed Action*
- Alternative 3: Avoidance Route
- BLM Long-term Visitor Area
- BLM Utility Corridor^
- Quartzsite Planning Area

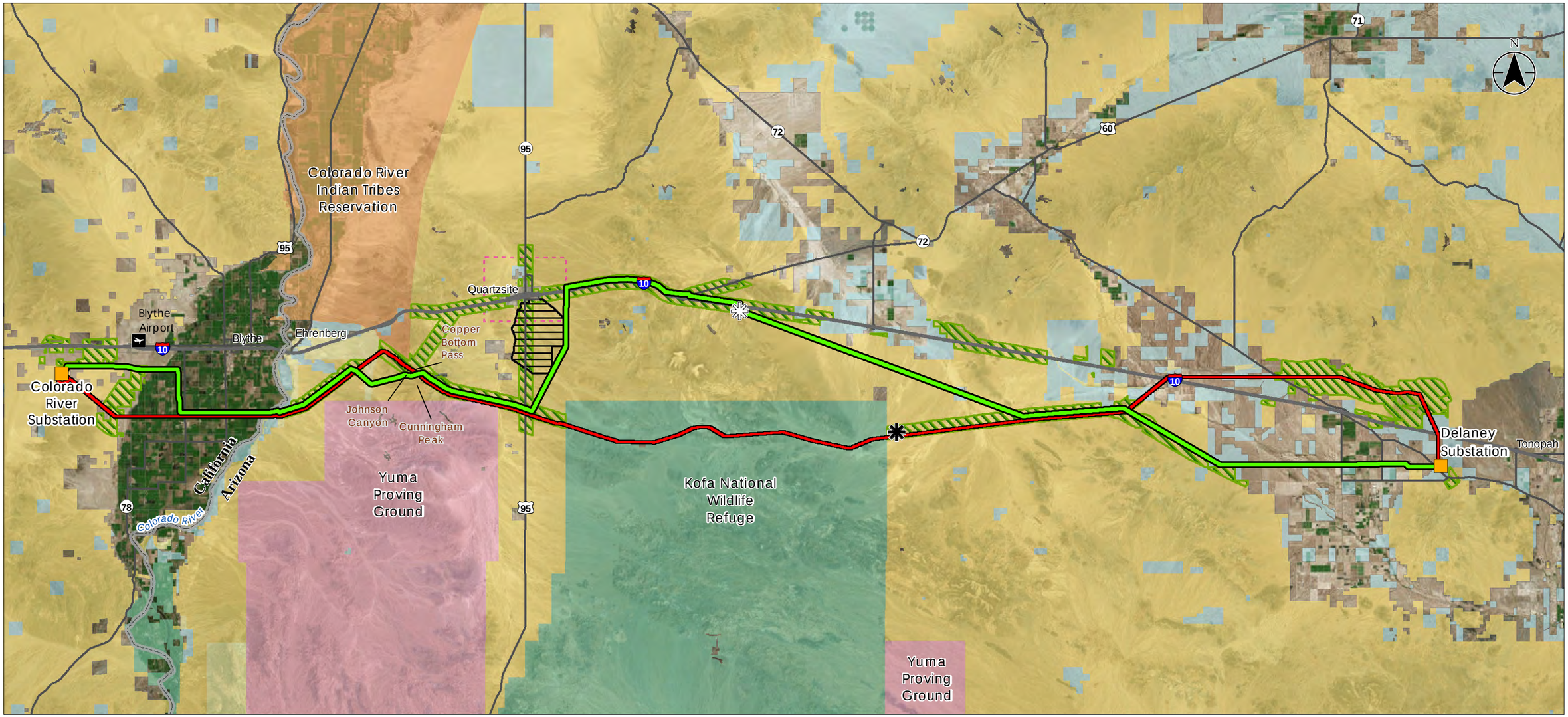
Land Status
- Bureau of Land Management
- Bureau of Reclamation
- Local or State Parks
- Indian Lands
- Military
- Private
- State
- USFWS

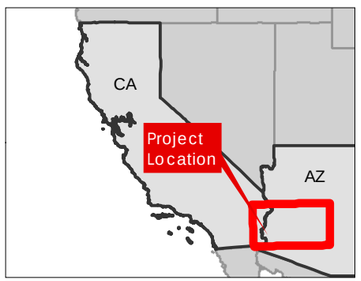
^ = BLM Utility Corridors were clipped to a 2-mile Project study area.
* = The Proposed Action is offset 600 meters to the South for display purposes.

0 9 18 Miles

1:570,240 (At original document size of 11x17)

Figure 2-**8**
Ten West Link
Alternative 3:
Avoidance Route





Notes
1. Coordinate System: World Mercator
2. Data Source(s): Project data - HDR; Land Status - BLM
3. Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

- Substation
- Proposed Series Compensation Station
- Alternative Series Compensation Stations (2 possible site locations; ~75' feet apart)
- Proposed Action*
- Alternative 4: Public Lands Emphasis Route
- BLM Long-term Visitor Area
- BLM Utility Corridor^
- Quartzsite Planning Area

Land Status
- Bureau of Land Management
- Bureau of Reclamation
- Local or State Parks
- Indian Lands
- Military
- Private
- State
- USFWS

0 9 18 Miles

1:570,240 (At original document size of 11x17)

^ = BLM Utility Corridors were clipped to a 2-mile Project study area.
* = The Proposed Action is offset 600 meters to the South for display purposes.

Figure 2-**9**
Ten West Link
Alternative 4:
Public Lands Emphasis Route

Appendix 2 details:

- The 23 segments that comprise Alternative 4 in Table 2.2-9;
- The fourteen subalternatives that would also meet the objectives of Alternative 4 in Table 2.2-10; and
- Segment descriptions in Table 2.2-2.

Figures 2.2-11 through 2.2-14, which show the fourteen subalternatives to Alternative 4, are located in Appendix 7.

2.2.3.5 No Action Alternative

NEPA regulations require the No Action Alternative to be included in the alternatives analysis of an EIS (CEQ Regulation Section 1502.14(d)). The No Action Alternative forms the baseline against which the potential impacts of the Proposed Action and Action Alternatives are compared.

Under the No Action Alternative, the BLM would not approve the ROW grant on BLM-administered public lands and none of the BLM RMPs would be amended. The 500kV transmission line would not be constructed across BLM-administered lands as proposed by DCRT.

2.2.4 Proposed Facilities, Infrastructure, and Construction

2.2.4.1 Preconstruction and Construction Activities Overview

Preconstruction activities, include refinement of Project design, preconstruction environmental surveys, materials procurement, design, contracting, ROW acquisition from other Federal, state, local (Section 1.5), and private entities; and permitting efforts. Appendix 2 contains additional details regarding preconstruction activities.

Construction of the transmission line(s) would include the following sequence of activities:

- surveying and staking the transmission centerline, structure locations, environmental cultural resources sensitive areas, other Project features, and work areas
- upgrading or constructing short- and long-term access roads
- clearing and grading the structure sites, and short- and long-term work areas
- excavating and installing foundations
- assembling and erecting structures with short- and long-term work areas
- stringing conductors and shield wires
- installing counterpoise (structure grounds), where needed
- post-construction cleaning up
- constructing the SCS and associated power connection to the distribution line

- reclamation

In addition to these activities, other preconstruction and construction components include:

- Preconstruction resource surveys and aerial photography;
- Construction storage yards and concrete batch plants located in previously disturbed areas and areas of lesser ecological impact to the extent practicable;
- Equipment staging areas located in previously disturbed areas and areas of lesser ecological impact to the extent practicable;
- Equipment refueling areas collocated with staging and storage areas where possible and in conformance with the Project Spill Prevention, Control, and Countermeasure Plan;
- Flagging, fencing, and signs in areas of active construction activities or where required for employee and public safety;
- Transportation management for Project access and public safety as in conformance with the Project Traffic and Transportation Management Plan/
- Fire protection as identified in the Project Fire Protection Plan;
- Blasting in areas of hard rock not removable by heavy excavators; in conformance with the Project Blasting Plan;
- Erosion/dust control and air quality management in conformance with the Project Erosion, Dust Control, and Air Quality Plan;
- Hazardous materials management in conformance with the Project Hazardous Materials Management Plan;
- Emergency preparedness and response in conformance with the Project Emergency Preparedness and Response Plan; and
- Control of noxious weeds in conformance with the Project Noxious Weed Management Plan.

Appendix 2 contains detailed descriptions of environmental safety and training requirements, construction management measures and controls, including APMs and BMPs (Appendix 2A) for vegetation, weeds, lighting, blasting, topsoil management, and dust control. All of the above referenced plans are discussed further in Appendix 2B.

2.2.4.2 Transmission Structures

Support structures are proposed to be steel lattice of various configurations or steel monopoles; however, the majority of the structures proposed would be guyed V structures with a single footing and four support guy wires (Figure 2.2-15, Appendix 7). In certain high off-highway vehicle (OHV) use areas, self-supporting lattice structures or monopoles would replace guyed V structures

to eliminate hazards to those recreationists (Section 2.4 in Appendix 2). The structures would be between 72 and 195 feet in height, depending on the span length required and topography, with most being shorter than 130 feet. Span lengths between structures would vary from 600 to 2,100 feet, depending upon terrain conditions, current land use, structure type used, and to achieve site-specific mitigation objectives. However, the typical span would be approximately 1,200 feet. On average, three to eight structures would be placed per mile, depending on the structure type, topography, and angles of the route. Appendix 2 contains additional details regarding structure design and configurations.

2.2.4.3 Foundations and Structure Construction

Each structure type requires specific foundation configurations. The approximate foundations by structure type are as follows (note that soil conditions and environmental and engineering considerations may change the foundation size and depth):

- Guyed V Structure (Tangent): foundation 3 feet in diameter by 24 feet deep with 6 feet-6 inches square by 4 feet cap (one per structure).; additional 4 multihelix screw anchors for the guys. Guys located a maximum of 83 feet-6 inches from base of structure with a 1-foot square footprint.

- H Frame (Tangent): foundation 3 feet in diameter by 24 feet deep (two per structure).

- Self-supporting Tangent and Dead-end Structures: foundation 6 feet in diameter by 38 feet deep (four per structure).

- Drilled pier (steel monopole): foundation 8 feet in diameter by 38 feet deep (one per structure).

A temporary disturbance area of approximately 1.1 acres is estimated for each structure site. Total structures for the Proposed Action route are estimated at 385; the number of structure sites for alternatives would be roughly proportional to the comparative length of each alternative route. Short-term disturbance associated with the Proposed Action and Action Alternative segments is detailed in Tables 2.2-11 and 2.2-12 in Appendix 2. Total short-term disturbance associated with the Proposed Action and Action Alternatives ranges from approximately 424 acres to 455 acres.

A long-term work area at the base of each structure would be required for long-term maintenance. These areas would be somewhat larger than the structure foundations. The dimensions of the long-term work area for each structure type would be:

- Guyed V Structure: 9 feet by 9 feet (81 square feet), 4 multihelix screw anchors: 1 foot by 1 foot (1 square foot) each

- H Frame Lattice: 6 feet by 50 feet (300 square feet)

- Self-supporting Structure: 51 feet by 51 feet (2,601 square feet)

- Steel Monopole: 12 feet by 12 feet (144 square feet)

Each support structure would require the installation of foundations, which are typically drilled concrete piers. The foundation for the structures would be long-term disturbance for the life of the Project. The long-term work area at the base of each structure would be required for long-term maintenance. While revegetation would occur in this work area, minimal contouring would be performed.

A typical temporary disturbance area of 200 feet by 200 feet (0.9 acre) has been assumed for each structure work area, which would be used for assembly, erection, and crane pads. Short-term disturbance estimates are based on this assumption; however, actual disturbance would be reduced to the minimum size required to the extent practicable, based on site-specific conditions, during field staking prior to construction (see BMP-MISC-02; Appendix 2A). Actual dimensions of the temporary area of disturbance may vary, depending on factors such as terrain, structure size, and vegetation. Temporary disturbance areas would be specifically identified in conjunction with structure locations and the Access Road Plan in the final Plan of Development (POD), which would receive final approval from the BLM prior to construction. Long-term disturbance associated with the Proposed Action and Action Alternative segments is detailed in Tables 2.2-11 and 2.2-12 in Appendix 2. Total long-term disturbance associated with the Proposed Action and Action Alternatives ranges from approximately 5 to 7 acres.

Appendix 2 contains details of:

- Structure foundations associated with the Project;
- Structure and Foundation Construction;
- Estimated disturbance for the Proposed Action segments; and
- Estimated disturbance for the Action Alternative segments.

2.2.4.4 Conductors

The conductors are the wire cables strung between transmission line structures over which the electric current flows. The transmission line would consist of three phases for the single-circuit, including a bundle containing multiple conductors per phase. The conductors are typically spaced approximately 18 inches apart in an equilateral triangle configuration. The bundle configuration would be designed to provide adequate current-carrying capacity while minimizing interference from audible noise and radio operations. The minimum conductor height above ground for the transmission line would be 30 to 40 feet for most of the route and 50 feet for the Colorado River crossing, based on NERC, NESC, CPUC General Order 95, and the DCRT's design standards.

In the process of conductor installation, insulators and stringing sheaves would be installed on the structures (short-term disturbance already accounted for at structure sites), pulling the pilot line through the sheaves, which would connect to and pull the conductor; and pulling/tensioning of the conductor. Short-term disturbance work areas for conductor, ground wire, and OPGW pulling, and snubbing sites (where a conductor is temporarily fixed or attached to the ground for conductor-sagging purposes) associated with the Proposed Action and Action Alternatives would range from approximately 74 to 97 acres.

Appendix 2 provides additional details regarding:

- Short-term disturbance and work areas for conductor, ground wire, and optical ground wire (OPGW), pulling and snubbing sites, which are discussed;
- Estimated short-term disturbance for pulling and snubbing for the Proposed Action segments detailed in Table 2.2-13; and
- Estimated short-term disturbance for pulling and snubbing for Action Alternative segments detailed in Table 2.2-14.

2.2.4.5 Insulators, Grounding, and Other Hardware

Insulators, which are made of an extremely low conducting material such as porcelain, glass, or polymer, would be used to suspend the conductors from each structure to inhibit the flow of electrical current from the conductor to the ground, the structure, or another conductor.

To protect conductors from lightning strikes, two overhead ground wires would be installed on top of the structures. Current from lightning strikes would be transferred through the ground wires and structures into the ground.

Upon completion of each structure installation, DCRT would measure the structure footing resistance to determine whether its grounding target is met. If structure footing resistance is reached, ground rods would not be required. If the structure footing resistance is not reached, a 5/8-inch by 10-foot ground rod(s) would be installed until the target resistance is reached. If ground rods cannot be driven, or the target resistance cannot be achieved, alternate grounding procedures would be undertaken.

In addition to the conductors, insulators, and overhead ground wires, other hardware would be installed on the transmission structures as part of the insulator assembly to support the conductors and shield wires composed mostly of galvanized steel and aluminum. To the extent possible, electrical hardware would be specified as “corona-free” to reduce the effects of audible noise and electrical stress caused by corona in high-voltage applications.

Other hardware, such as bird flight diverters, not associated with the transmission of electricity may be installed as part of the Project. This hardware may include aerial marker spheres or aircraft warning lighting, as required for the conductors or structures by Federal Aviation Administration (FAA) regulations. Structure proximity to airports and structure height are the main factors determining whether FAA regulations would apply, based on an assessment of wire/structure strike risk (Appendix 2).

2.2.4.6 Series Compensation Station

A new SCS system would be located within the 200-foot-wide ROW parallel to the existing SCS associated with the DPV1 line and under the Proposed Action, approximately 47 miles from the APS Delaney Substation.

A general layout of the SCS is shown in Figure 2.2-16 (Appendix 7). In this design, the SCS is integrated into the footprint of the transmission line with a 200-foot by 315-foot (1.5 acre) fenced area. Any portion of the SCS disturbance that would be outside the 200-foot wide ROW would be

separately authorized. Clearing of all vegetation would be required for the entire SCS area, including a distance of 10 feet outside the fence, for a total long-term disturbance of 1.7 acres. Under the Proposed Action, the new SCS would be connected to the same APS 12kV distribution line used for the existing DPV1 SCS within a 15-foot-wide ROW approximately 1,000 feet long.

Access roads for the transmission lines would be utilized for access to the SCS. The entire perimeter of the SCS would be enclosed with security fencing to protect equipment and prevent accidental contact with energized electrical equipment. A grounding system would be required at the SCS for fault protection and personnel safety. The SCS would not be lighted at night; however, it would have installed lighting to facilitate maintenance and repairs under emergency conditions during night time hours. Storm water runoff containment ponds may be installed to moderate the discharge of storm water offsite if determined to be necessary in the course of design.

Two alternative locations for the SCS have been identified. Both alternative locations would be on BLM-administered public land, as shown in Figure 2.2-17 (Appendix 7), less than 75 feet apart (due to scale, maps show one symbol for the alternative SCS location). Specifications for the SCS would be the same under the Proposed Action and Action Alternatives. Either alternative SCS site would be powered via a distribution line connecting to the existing APS 12kV distribution line in Brenda, Arizona. The distribution line for either location would be approximately 2.1 miles long with a 15-foot-wide ROW. A crossing of I-10 would be required for the distribution line. Appendix 2 contains additional details regarding:

- The design of the SCS;
- A description of SCS construction; and
- The alternative SCS locations.

2.2.4.7 Substation Upgrades

The equipment required to interconnect the Project to the Delaney and Colorado River substations is expected to be similar in type and size to the existing equipment at each substation. There would be no new disturbance associated with these installations. Appendix 2 contains additional details regarding the substation upgrades.

2.2.4.8 Access

Access to the ROW would be provided by existing roads and trails, such as those associated with the DPV1 transmission line and nearby pipelines, to the extent practicable. Access for the Project would be in accordance with an Access Road Plan (Appendix 2B).

For analysis purposes, access is divided into the following categories:

- Access Type A – Maintained public or private roads that would be parallel to the ROW, or a patchwork of existing roads in the area that would provide access to or be crossed by the Project ROW. Assumes a total existing width of 16 feet or more such that no upgrading of these roads would be required. All roads would be maintained or returned to the same condition or better upon completion of construction. These access roads would not create any new ground disturbance.

- Access Type B – Existing roads or routes that would require some level of upgrade to allow sufficient access at a total width of 16 feet maximum (a 12-foot wide travel surface with 2 feet either side for ditches/berms).

- Access Type C – New centerline access that would consist of a 16-foot-wide road (12-foot wide travel surface with 2 feet on either side for berms/ditches). As much as possible, new centerline access would be entirely within the ROW.

- Access Type D - Spur roads that would consist of either newly constructed or overland access routes required to access structure sites or the ROW from Access Types A, B, or C with a maximum disturbance width of 12 feet.

- Access Type E – If needed, a helicopter would be used in areas where access roads are not feasible for construction. Helicopters would be utilized for structure construction and setting and for wire stringing. Helicopters would utilize material laydown yards where structures are erected to pick up the structures and set them on foundations for each site. Helicopter use would be conducted under a Helicopter Flight and Safety Plan, which would be included as a part of the final POD. Table 2.2-16 (Appendix 2) indicates that this type of access would be needed for two segments in the Copper Bottom Pass area, requiring approximately 5 acres.

Access routes are displayed on Figures 2.2-18 through 2.2-21 (Appendix 7).

Appendix 2 contains additional details regarding:

- Access associated with the Project;
- Proposed Action segments access disturbance estimates provided in Table 2.2-15;
- Action Alternatives segments access disturbance estimates provided in Table 2.2-16; and
- Helicopter access.

2.2.4.9 Induced Currents on Adjacent Facilities

AC transmission lines, such as the Project, have the potential to induce currents on adjacent metallic structures such as other transmission lines, railroads, pipelines, fences, or structures that are parallel to or cross the transmission line(s). An electrical study would be conducted between the draft and final EIS to determine the extent and type of anti-corrosion mitigation that would be required. The gradient wires that may be required could be installed by different methods; trenching, ripping, or a combination of both. Appendix 2 contains additional detail regarding the induced currents, construction details for gradient control wires, and distribution supply lines for cathodic protection.

2.2.4.10 Temporary Use Areas

Temporary use areas would be required for material staging, laydown yards, and batch plants during construction. These areas would be selected based upon the final project alignment and located in previously disturbed areas to the extent practicable. Material laydown yards and staging yards would be utilized during construction. Material staging/storage areas, averaging

approximately 29 acres each, would be strategically located along the Proposed Action or Action Alternative routes, approximately 35 miles apart. Staging areas would be fenced with locked gates and may have security. Temporary staging areas would be powered by local distribution lines if available and necessary, or by diesel generator; in California, renewable energy sources would be used where feasible and available. Some staging areas would also be used for concrete batch plant operations. Batch plant operations average approximately 6 acres each.

Because the length of the Action Alternative routes is not substantially different from the Proposed Action route, there would not be a difference in disturbance from temporary use areas anticipated.

Appendix 2 contains additional details regarding:

- Temporary use areas associated with the Project;
- Disturbance estimates for the Proposed Action segments provided in Table 2.2-17; and
- Disturbance estimates for Action Alternative segments provided in Table 2.2-18.

2.2.4.11 Existing Utility Lines and ROW Crossings

A number of existing electric utility ROWs are present near the Project which would require spanning or encroachment. The Proposed Action would cross the Central Arizona Project (CAP), major roadways, including I-10, Arizona State Route (SR) 95, California SR 78, and local roads in Maricopa, La Paz, and Riverside Counties, where structures would need to be placed outside of existing ROWs.

Appendix 2 provides additional details regarding:

- Existing utility lines and ROW crossings;
- Estimated disturbance for guard structures for the Proposed Action segments in Table 2.2-19; and
- Estimated disturbance for guard structures for the Action Alternative segments in Table 2.2-20.

Figure 2.2-22 (Appendix 7) illustrates a typical guard crossing.

2.2.4.12 Construction Water Requirements

Water would be required for concrete structure foundation construction at the batch plants and dust control during construction. Water would be obtained from private wells and/or municipal supplies with permitted and allocated water rights. Water requirements for the Proposed Action and Action Alternatives is estimated in Tables 2.2-21 through 2.2-23 in Appendix 2.

2.2.4.13 Disposal and Cleanup

Construction would generate non-hazardous solid wastes, including material packaging, concrete, hardware and scrap metal. However, the volume of these wastes is not expected to be substantial. Personal trash would be removed from the ROW on a daily basis. Construction waste (boxes, crates, etc.) would be removed from the transmission ROW shortly after each crew completes their

specific task on site. The solid wastes generated during construction would be hauled away for recycling or disposal at approved disposal sites.

2.2.4.14 Construction Reclamation

Construction reclamation, including cleanup, soil stabilization, and revegetation would occur at the end of the construction process, as described in Appendix 2.

2.2.4.15 Construction Workforce and Schedule

The Project is expected to be constructed in two simultaneous work fronts with over 100 workers on each work front. The SCS construction effort would require approximately 40 workers. Crew parking would be located at one of the material storage yards closest to the work area. Appendix 2 includes the estimated number of workers and types of equipment required to construct the proposed transmission line and SCS, presented in Tables 2.2-24 and 2.2-25, and equipment trip estimates for construction and reclamation, presented in Table 2.2-26. Upon obtaining all permits and ROW approvals, DCRT would commence construction activities. Construction is estimated to require 585 days for the transmission and distribution lines; and 472 days for the SCS. Table 2.2-27 in Appendix 2 outlines the construction task, phase, and anticipated duration.

2.2.4.16 Project Construction Closeout

Upon completion of construction and commissioning for the Project, DCRT and the construction contractor(s) would coordinate with the Compliance Inspection Contractor (CIC), BLM, and other permitting agencies to conduct final on-the-ground inspections of Project conditions. After BLM's determination of successful construction completion on BLM-administered lands, the CIC would submit a final summary report to the BLM Authorized Officer documenting the construction process. When the BLM Authorized Officer determines that construction (including initial reclamation activities) has been completed in compliance with the ROW grant, ROD, POD, and any other applicable permits, the CIC, construction contractor(s), and DCRT's construction roles would be considered complete. This determination would initiate the post-construction monitoring phase for reclamation success for which DCRT would remain responsible.

2.2.4.17 Estimated Disturbance Summary

Tables 2-8 and 2-9 summarize the total disturbance acreages and water requirements for the Proposed Action and Action Alternatives routes.

2.2.5 Project Operation and Maintenance

After construction, Project operation and maintenance would be an ongoing activity including ROW safety requirements, transmission line inspections, preventative and emergency maintenance, vegetation management including trimming and removal of vegetation within the ROW (wire zone as shown in Figures 2.2-23 a and b, Appendix 7), SCS maintenance, substation maintenance, and long-term access to the ROW through general road maintenance and installation of signs and markers. More information on energy use during operations and maintenance, radio or television interference, contingency planning, emergency procedures, and compatible uses is provided in Appendix 2.

Table 2-8 Short-term Disturbance by Alternative

	SHORT-TERM[1] DISTURBANCE (ACRES)								
ALTERNATIVE	STRUCTURES	MATERIAL STAGING AREA	SCS	HELI-COPTER STAGING	BATCH PLANTS	GUARD CROSSINGS	SNUBBING AND PULLING SITES	TOTAL SHORT-TERM DISTURBANCE	TOTAL WATER USE - CONSTRUCTION
Proposed Action	423.5	86.4	24.0	0	18	0.8	74.0	116.8	2,856,634
Alternative 1	425.7	115.2	26.5	0	24	1.44	78.2	130.1	2,849,718
Alternative 2	468.6	86.4	26.5	0	18	1.12	81.2	126.8	3,217,947
Alternative 3	463.1	86.4	26.5	0	18	1.36	78.0	129.9	3,081,256
Alternative 4	455.4	86.4	26.5	0	18	1.08	97.2	148.8	3,091,796

[1] Temporary use areas would be disturbed during construction, their use would be temporary, and the acreage reclaimed; however, due to the desert environment, the disturbance effects may be long term.

Table 2-9 Long-Term Disturbance by Alternative

LONG-TERM DISTURBANCE (ACRES)					
ALTERNATIVE	LINE MILES	SCS	ACCESS ROADS	STRUCTURES	TOTAL LONG-TERM DISTURBANCE
Proposed Action	114.1	1.7	265.0	5.3	270.3
Alternative 1	110.6	1.7	207.1	6.0	213.1
Alternative 2	120.0	1.7	231.9	6.8	238.7
Alternative 3	122.3	1.7	238.1	5.9	244.0
Alternative 4	120.0	1.7	231.9	6.8	238.7

2.2.6 Termination, Reclamation, and Decommissioning

Should the ROW and facilities no longer be needed, the transmission lines and associated facilities would be decommissioned. Subsequently, conductors, insulators, concrete pads for the SCS and associated facilities, and hardware would be dismantled and removed from the ROW. Transmission structures would be removed, and foundations broken off at least 2 feet below ground surface. All areas of long-term disturbance would be reclaimed in accordance with a Decommissioning Plan to be developed by the ROW grant holder and approved by the BLM prior to issuance of the ROW grant. A reclamation bond would also be required per BLM bonding policy to ensure performance of reclamation activities.

Access routes and other sites disturbed during decommissioning would be reclaimed and revegetated in accordance with a Decommissioning Plan to be approved by BLM. Additional details regarding termination, reclamation, and decommissioning are provided in Appendix 2.

2.2.7 Applicant Proposed Measures and BLM Best Management Practices

Design features for the Project include BMPs, standard operating procedures, APMs, and requirements from RMPs and BLM manuals. These design features would be applied to reduce and minimize impacts to resources from the Project.

As a part of their POD, DCRT identified APMs that are included as part of the Proposed Action and all Action Alternatives. Current BLM mitigation policy would be applied to address impacts of the Project that cannot be avoided or minimized to an acceptable level. BLM BMPs would be required to be applied to the Proposed Action and/or Action Alternatives. Project APMs and BMPs are described in Appendix 2A.

The CDCA Plan, as amended, contains CMAs, which include a specific set of avoidance, minimization, and compensation measures. The applicability of those measures to the Project was determined using a CMA checklist. Those CMA measures that were determined to be applicable to the Project are described in Appendix 2C.

2.2.8 Alternative Segments Considered but Eliminated from Detailed Analysis

Screening of the alternative segments against screening criteria identified potential alternative segments, or portions thereof, that did not meet the criteria for reasonable alternatives, and therefore, these alternative segments will not be carried forward in the EIS. Reasons for elimination of alternatives included identification of known conflicts with a use or sensitive resource, redundancy with an alternative already included in the EIS for detailed study, and technical infeasibility. A complete explanation of the alternative segments considered but eliminated from detailed analysis is provided in the Project record. Appendix 2 provides a summary of alternative segments not carried forward for detailed analysis in Table 2.2-28 and these are shown on Figures 2.2-24 through 2.2-27 (Appendix 7).

2.3 COMPARISON OF ALTERNATIVES

Table 2-10 provides a summary of the impacts of the combined segments for the Proposed Action and each Action Alternative route, as presented in detail in Chapter 4.

Appendix 2 contains a comparison of impacts by segment and subalternatives in Tables 2.2-29a-b, 2.2-30a-b, 2.2-31a-c, and 2.2-32a-d; and Tables 2.2-33 through 2.2-37, respectively.

Table 2-10 Comparison of Alternatives

CHARACTERISTIC OR RESOURCE IMPACT		PROPOSED ACTION	ALTERNATIVE 1	ALTERNATIVE 2	ALTERNATIVE 3	ALTERNATIVE 4
Land ownership (miles)	BLM	57.0	59.9	81.4	83.6	86.8
	Reclamation	1.5	6.5	1.7	0.7	0.8
	USFWS	24.9	0.0	0.0	0.0	0.0
	DOD	0.2	0.0	0.0	0.0	0.0
	Arizona State	9.3	20.4	0.4	0.4	6.0
	California State	0.1	0.0	0.0	0.0	0.0
	Private	21.5	23.3	18.7	15.2	27.9
	Indian Lands	0.0	1.4	24.0	23.1	0.0
	Total Length	114.3	111.5	126.1	123.0	121.8
Ground disturbance	Short-term Acres	618.4	470.1	571.2	508.4	669.0
	Long-term Acres	113.1	26.7	59.6	47.8	156.1
BLM RMP conformance	VRM	8 segments required amendments	1 segment required amendment	5 segments required amendments	6 segments required amendments	7 segments require amendments
	Corridors	Conform	Except 1 segment	Except 1 segment	Except 5 segments	Except 5 segments
	RMP Conformance	Conform	Amendments required (YFO)	Amendments required (YFO)	Amendments required (YFO)	Amendments required (YFO and Lake Havasu)
	CDCA Plan	Amendment required	Amendment required	Amendment required	Amendment required	Amendment required
Other Plan conformance (Federal, county, municipal)	Plan Conformance	USFWS Kofa NWR determined not appropriate; would conform with all others	Not consistent with La Paz County Zoning Plan and Town of Quartzsite General Plan	Not consistent with La Paz County Zoning Plan and Town of Quartzsite General Plan	Not consistent with La Paz County Zoning Plan	Not consistent with La Paz County Zoning Plan
Soil Resources	Soils disruption of sand transport and dunes	Soil loss/erosion risk negligible to minor, short term to long term; adherence to APMs & BMPs reduces risks to negligible. Negligible disruption of sand transport or dunes during construction and operation.	Uses Segments ca-07, ca-09, and x-19 which would have negligible to minor impact on sand transport and dunes during construction and operation	Uses Segments ca-07, ca-09, and x-19 which would have negligible to minor impact on sand transport and dunes during construction and operation	Uses Segments ca-07, ca-09, and x-19 which would have negligible to minor impact on sand transport and dunes during construction and operation.	Uses Segments ca-07, ca-09, and x-19 which would have negligible to minor impact on sand transport and dunes during construction and operation

CHARACTERISTIC OR RESOURCE IMPACT		PROPOSED ACTION	ALTERNATIVE 1	ALTERNATIVE 2	ALTERNATIVE 3	ALTERNATIVE 4
Biological Resources (Vegetation Resources, Wildlife, including Special Status Species and Migratory Birds)	Loss of native habitat/communities	Some long-term loss for structures, access roads. Long-term impacts from clearing of temporary use areas pending restoration but reduced due to adjacency of existing disturbances.	Minor short- and long-term impacts to native vegetation pending successful restoration. Minor long-term impacts due to facilitating increased abundance of non-native plants, especially in dune habitats. Moderate short- and long-term impacts of ground disturbance on protected and special status plants and plant communities. Negligible impacts to bighorn sheep; Negligible long-term impacts to wildlife and habitats by facilitating increased recreational access to remote areas. Minor short- and long-term impact to Mojave fringe-toed lizard due to possible mortality by Project activities and habitat impacts on 4 miles of habitat. Negligible short- and long-term impacts to sensitive wildlife species (excluding Mojave fringe-toed lizard), including nests of migratory birds. Negligible long-term impacts associated with contributing to an increase in abundance of non-native plants degrading wildlife habitat. Minor short- and long-term impacts to migratory birds due to potential collision hazard with structures, conductors, and guy lines, and additional hazard at the Colorado River crossing.	Minor short- and long-term impacts to native vegetation pending successful restoration. Minor long-term impacts due to facilitating increased abundance of non-native plants, especially in dune habitats. Moderate short- and long-term impacts of ground disturbance on protected and special status plants and plant communities. More than one mile of big galleta Alliance intersected. Minor short-term impacts to bighorn sheep in the Copper Bottom Pass area. Minor short- and long-term impacts to Mojave fringe-toed lizard due to possible mortality by Project activities and habitat impacts. Negligible short- and long-term impacts to sensitive wildlife species (excluding Mojave fringe-toed lizard), including nests of migratory birds. Minor long-term impact to wildlife habitat by contributing to an increase in abundance of non-native plants, especially in dune habitat. Minor short- and long-term impacts to migratory birds due to potential collision hazard with structures, conductors, and guy lines.	Moderate short-term impacts to native vegetation due to ground disturbance during construction pending restoration, and moderate long-term impacts to vegetation in areas where no linear facilities and few roads exist. Moderate long-term impacts due to facilitating spread and increased abundance of non-native plants into new areas, especially into the Dome Rock Mountains and dune habitats. Moderate short- and long-term impacts of ground disturbance on protected and special status plants and plant communities. Moderate short- and long-term impacts in areas where there are no existing linear facilities and few roads resulting in impacts to near-pristine examples of desert wash communities. Major long-term impacts to bighorn sheep in the Dome Rock Mountains by degrading nearly pristine habitat and facilitating increased recreational access to remote areas. Minor short- and long-term impacts to Mojave fringe-toed lizard due to possible mortality by Project activities and habitat impacts. Negligible short- and long-term impacts to sensitive wildlife species (excluding Mojave fringe-toed lizard), including nests of migratory birds. Moderate long-term impact to wildlife habitat by contributing to an increase in abundance of non-native plants into remote areas and dune habitat. Minor short- and long-term impacts to migratory birds due to potential collision hazard with structures, conductors, and guy lines, and additional hazard at the Colorado River.	Moderate short- and long-term impacts to native vegetation pending restoration, and increased degradation of 20 miles of existing good quality desert habitats. Moderate long-term impacts due to facilitating spread and increased abundance of non-native plants into new areas, especially into the Dome Rock Mountains and dune habitats. Moderate short- and long-term impacts of ground disturbance on protected and special status plants and plant communities. Major long-term impacts to bighorn sheep in the Dome Rock Mountains by degrading nearly pristine habitat and facilitating increased recreational access to remote areas. Minor short- and long-term impacts to Mojave fringe-toed lizard due to possible mortality by Project activities and habitat impacts. Negligible short- and long-term impacts to sensitive wildlife species (excluding Mojave fringe-toed lizard), including nests of migratory birds. Moderate long-term impact to wildlife habitat by contributing to an increase in abundance of non-native plants into remote areas and dune habitat. Minor short- and long-term impacts to migratory birds due to potential collision hazard with structures, conductors, and guy lines.
	Noxious weeds	Negligible to minor impact with APMs and BMPs but increased abundance of existing invasives already present.				
	Special Status Plant Species	Potential impact to <1 acre of Harwood's eriastrum. Potential impact to protected microphyll washes and 1 acre of wash habitat. No federal species; one BLM sensitive species known to be present; many protected native plants. Negligible to minor impact with APMs and BMPs				
	Increased risk of predation or electrocution re infrastructure	Electrocution risk for raptors, increased predation from raptors due to artificial perch sites; minimized by use of APMs and BMPs.				
	Displacement via construction	Loss of habitat, crushing under vehicles, displacement due to disturbance; minimized through use of EPMs and BMPs.				
	Increased access to remote areas resulting in displacement via human activity including recreation	Route segments follow previous disturbance corridors.				
	Impacts to native habitat and designated management areas	Impacts to habitats minimized through use of APMs and BMPs. Major, unmitigable, adverse effect to management of Kofa NWR for wildlife.				
	Migratory birds	Impacts from noise of construction causing displacement, increased predation from raptors, loss of nests, risk of collision with towers and lines; minimized by use of APMs and BMPs				
	Special Status Animal Species	Sonoran Pronghorn potential major impact on Kofa NWR; Mojave and Sonoran Desert Tortoise potential impacts from construction and increased predation by ravens, disturbance within bighorn sheep habitat; minimized by APMs and BMPs.				

CHARACTERISTIC OR RESOURCE IMPACT		PROPOSED ACTION	ALTERNATIVE 1	ALTERNATIVE 2	ALTERNATIVE 3	ALTERNATIVE 4
Cultural Resources	Damage or loss of a cultural site or potential site under federal or state registers; degradation of the setting for a cultural site where setting is significant to its listing eligibility; increased access leading to potential vandalism; disturbance of human remains	Known National Register of Historic Places (NRHP)-eligible sites and sites requiring NRHP evaluation: 55 (cultural resources survey coverage: 41.2%). Known site density: 0.9 sites per 100 acres. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 133. Key resources include trails, intaglios, and prehistoric habitation sites with potential human remains, particularly along Segments p-17 and p-18 that cross the eastern base of the Palo Verde Mesa. Areas of Tribal concern (NRHP-listed Ripley Intaglio Site, NRHP-listed Mule Mountains Petroglyph and Intaglio District, Limekiln Wash Intaglio Site, and Indian Well Site) are in the vicinity of this proposed route. Continued consultation with Native American tribes and/or other interested parties potentially may identify additional resources of concern.	Known NRHP-eligible sites and sites requiring NRHP evaluation: 25 (cultural resources survey coverage: 31.0%). Known site density: 5.3 sites per 100 acres. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 81. Key resources projected to occur include trails and intaglios.	Known NRHP-eligible sites and sites requiring NRHP evaluation: 41 (cultural resources survey coverage: 34.2%). Known site density: 7.4 sites per 100 acres. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 120. Key resources projected to occur include trails and intaglios. Areas of Indian Tribal concern (NRHP-listed Ripley Intaglio Site and Limekiln Wash Intaglio Site) are in the vicinity of this alternative route. Continued consultation with Indian Tribes and/or other interested parties potentially may identify additional resources of concern.	Known NRHP-eligible sites and sites requiring NRHP evaluation: 41 (cultural resources survey coverage: 25.7%). Known site density: 8.8 sites per 100 acres. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 140. Key resources projected to occur include trails.	Known NRHP-eligible sites and sites requiring NRHP evaluation: 45 (cultural resources survey coverage: 23.2%). Known site density: 10.1 sites per 100 acres. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 116. Key resources projected to occur include trails. Areas of Native American concern (NRHP-listed Ripley Intaglio Site, NRHP-listed Eagle tail Petroglyph Site, and Limekiln Wash Intaglio Site) are in the vicinity of this alternative route. Continued consultation with Native American tribes and/or other interested parties potentially may identify additional resources of concern.
Issues of Concern to Indian Tribes	Existing and new access	Potential impacts to areas of Indian tribal concern due to new access or access restrictions will be studied in an access analysis that will be a required stipulation of the Programmatic Agreement (PA; Appendix 2D).	Native infrastructure and the interconnectedness of the cultural and natural environment, places of elevated spiritual importance, and the Colorado River.	Native infrastructure and the interconnectedness of the cultural and natural environment, places of elevated spiritual importance, and the Colorado River.	Native infrastructure and the interconnectedness of the cultural and natural environment; the Colorado River; intrusion on pristine landscapes.	Native infrastructure and the interconnectedness of the landscape; places of elevated spiritual importance; the Colorado River; intrusion on pristine landscapes.
	Native infrastructure and the interconnectedness of the landscape.	12 segments contain relevant concerns, including trails.				
	Places of elevated spiritual importance	Five segments contain relevant concerns, including intaglio or petroglyph sites. Two segments pass through a prehistoric cultural landscape that include the Mule Mountains Petroglyph and Intaglio District.				
	Colorado River	Two segments cross the Colorado River; multiple tribes expressed concern about the Colorado River, and its influence on their spiritual belief and cultural history.				
	Treatment of human remains	One segment includes a site with calcined bone consistent with a human cremation. Indian tribes have indicated that human remains should not be disturbed and should remain in place.				
	Intrusion on pristine landscapes	No known concerns to Indian tribes.				

CHARACTERISTIC OR RESOURCE IMPACT		PROPOSED ACTION	ALTERNATIVE 1	ALTERNATIVE 2	ALTERNATIVE 3	ALTERNATIVE 4
Land Use	Land use authorizations and ROWs	No changes in ownership; short-term conflict with access to ROWs during construction; minor short-term displacement to recreation and grazing during construction; non-compliance with CDCA Plan; minor with Quartzsite Plan Major, unmitigable, adverse effect to management of Kofa NWR for wildlife.	Same as Proposed Action except Alternative 1 would avoid the Kofa NWR and the YPG, would cross through more ASLD land, would affect more residential land and NRCS-classified farmland in California, and affect more solar facilities. It would not be consistent with Town of Quartzsite or La Paz County plans. In California, it would not be in compliance with the CDCA Plan so would require an amendment.	Same as the Proposed Action except inconsistent with La Paz County Zoning Plan and possibly the Quartzsite General Plan. Avoids the Kofa NWR. Affects greater number of solar facilities. One ROW RMP amendment required and five VRM RMP amendments. In California, it would not be in compliance with the CDCA Plan so would require an amendment.	Avoids Kofa NWR. Inconsistent with La Paz County Zoning Plan. Would affect more NRCS-classified farmland and solar energy facilities than Proposed Action. One amendment to Yuma RMP for ROW and six for VRM. In California, it would not be in compliance with the CDCA Plan so would require an amendment.	Would not cross Kofa NWR. Inconsistent with La Paz County Zoning Plan. Affects more NRCS-class farmland & solar facilities than Proposed Action. Five RMP amends for ROW and for VRM for seven segments. In California, it would not be in compliance with the CDCA Plan so would require an amendment.
	Residential	Short-term minor during construction, if any; minor impact to residential use in California.				
	Agricultural	Short-term minor during construction; potential soil erosion or changes in drainage patterns; negligible change to agricultural character in Palo Verde Valley Area; negligible loss of ag use in California; may preclude aerial spraying in some areas (minor impact).				
	Other (i.e., nuisance impacts)	Short term during construction, if any; noise from corona effect and EMF health issues.				
Recreation	Physical, access, use, or functional changes to established, designated, or planned recreation areas, resources, experiences, or activities; conflicts with Federal, state, or local policies; affect OHV designations, access, or routes; impacts to hunting access.	Negligible to minor effects to recreation areas short term due to access restrictions; negligible effects long term as already impacted by DPV1 line. Negligible to moderate effects to OHV route and APT short term, negligible long term, with MMs. Negligible effects to hunting.	Greater impacts to long-term recreation where route varies from Proposed Action as power lines would be new and may impact the quality of the recreation experience. Minor to major effects to La Posa long-term visitor area (LTVA), Dome Rock Camping Area, and the Ehrenberg Sandbowl OHV area. Kofa NWR would not be crossed. Otherwise the Same as Proposed Action.	Long-term recreation quality similar to Proposed Action except in Quartzsite area where powerline would be new to the landscape (negligible to minor). Two Alternative 2 segments would cross the La Posa LTVA (minor to moderate impact), but, by comparison to Alternative 1, Dome Rock Camping Area would not be crossed by Alternative 2. Otherwise similar to the Proposed Action.	Long-term recreation quality similar to Proposed Action except where powerline would be new to the landscape (negligible to minor). Would not cross the La Posa LTVA, Dome Rock Camping Area, Kofa NWR, Copper Bottom Pass, or Johnson Canyon. Otherwise similar to the Proposed Action.	Long-term recreation quality similar to Proposed Action except where powerline would be new to the landscape (negligible to minor). Would run adjacent to the La Posa LTVA but would avoid Dome Rock Camping Area and Kofa NWR. Would run through Johnson Canyon. Otherwise similar to the Proposed Action.

CHARACTERISTIC OR RESOURCE IMPACT		PROPOSED ACTION	ALTERNATIVE 1	ALTERNATIVE 2	ALTERNATIVE 3	ALTERNATIVE 4
Socioeconomics & Environmental Justice (EJ)	Employment; Tax collection & revenue; Population or population displacement; Non-market values and ecosystem services; Revenue from recreation sector; Local economy; Reductions in property values; EJ Populations; disproportionate adverse impacts to EJ populations.	Short-term increase in employment; increased revenue from taxes short and long term; short-term negligible impacts to recreation sector, non-market values. Short-term negligible impacts to property values. Negligible long-term impact to population. Local economic impacts would include short-term increase in employment and long-term facilitation of renewable energy generation facilities. EJ populations present but would not experience disproportionate adverse impacts.	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action
Visual Resources	Conflicts with visual standards, ordinances, or policies established; major and unmitigated visual changes that degrade or disrupt views of scenic landscapes from highly sensitive viewing locations; VRM class objectives that would not be met requiring an RMP Amendment.	The Proposed Action would be an impact along I-10 in the eastern portion of the Project Area approaching and between the two I-10 crossings of Segment p-01. Scenic quality in this area is rated B and sensitivity is moderate. At the crossings, the infrastructure would appear as a major modification and dominate views for travelers for a few seconds.	Impacts to viewers along I-10 are going to be minor to moderate. Additionally, there are larger areas of higher scenic quality south of I-10 than there are to the north, meaning that viewers along I-10 attracted to the distant scenic views to the south would be viewing these areas with the Project in the intervening landscape. In areas of moderate impact, the visibility of distant scenic quality A areas may further increase the adverse visual impact of the Project, notably Segment i-04. Addition of the transmission line would add a visible and, in many cases, noticeable development. However, most of the areas crossing BLM-managed public land would meet established VRM Class objectives.	Impacts along the eastern portion (Segments i-01 through i-05) would be the same as Alternative 1. The large lattice H-frame structures would be a major modification and would dominate the views for travelers on SR 95, particularly in conjunction with the existing utility infrastructure. An additional RMP amendment would change the VRM Class within the corridor to VRM Class IV.	Under Alternative 3, impacts to the I-10 corridor in the eastern portion of the Project Area would be the same as the Proposed Action. Alternative 3 would avoid any impacts to the SR 95 corridor. Impacts to the remainder of this route would the same as Alternative 2.	Alternative 4 would remain south of and not impact the visual resources along the I-10 until Segment i-04; impacts were previously described as follows: Segment in-01 – Subalternative 1C Segments ca-06, ca-07, ca-09, x-19 – Alternative 3. All other segments would not impact views along I-10.

Sources: Jurisdiction from Tables 2-1, and 2.2-4 through 2.2-7; Disturbance from Appendix 2 - Table 2.2-33 through 2.2-36.

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2.4 MONITORING AND MITIGATION

Appendix 2A provides Project design features, the APMs proposed by DCRT, and BMPs provided by BLM, which are included as part of the Proposed Action and any Action Alternative; however, additional monitoring and MM would be necessary. These MM are in response to potential environmental impacts identified in Chapter 4 or Appendix 4 and are above and beyond identified APMs and BMPs. These measures are summarized in Section 2.4 in Appendix 2. They would be included and apply to the Agency Preferred Alternative (Section 2.5). Additionally, WAPA would require preparation of a Mitigation Action Plan (Appendix 2B).

Those CMAs that are addressed by MMs are provided in parenthesis following the measures.

No mitigation would be required by the BLM for: air quality and greenhouse gases; geology, minerals, or soil resources; paleontological resources; land use; special designations; noise; socioeconomics; environmental justice; and water resources. The APMs and BMPs would adequately address these resources.

2.5 IDENTIFICATION OF THE BLM'S PREFERRED ALTERNATIVE

The BLM has identified Alternative 2, the BLM Utility Corridor Route, utilizing Subalternative 4D, as the Agency Preferred Alternative route (Figure 2-10) for the proposed transmission line, to include the alternative SCS location closest to the Agency Preferred Alternative route; along with design features, AMPs, BMPs, and MMs, with modifications, as necessary. Modifications could consist of minor pole placement deviations for micrositing of structures or adjustments of segments at the time of route engineering to minimize impacts to visual and other sensitive resources, as indicated in the MMs. Tables 2-11 through 2-13 present affected jurisdiction, a summary of short- and long-term disturbance; and impact summaries, respectively for the Agency Preferred Alternative.

Table 2-11 BLM Preferred Alternative Jurisdiction

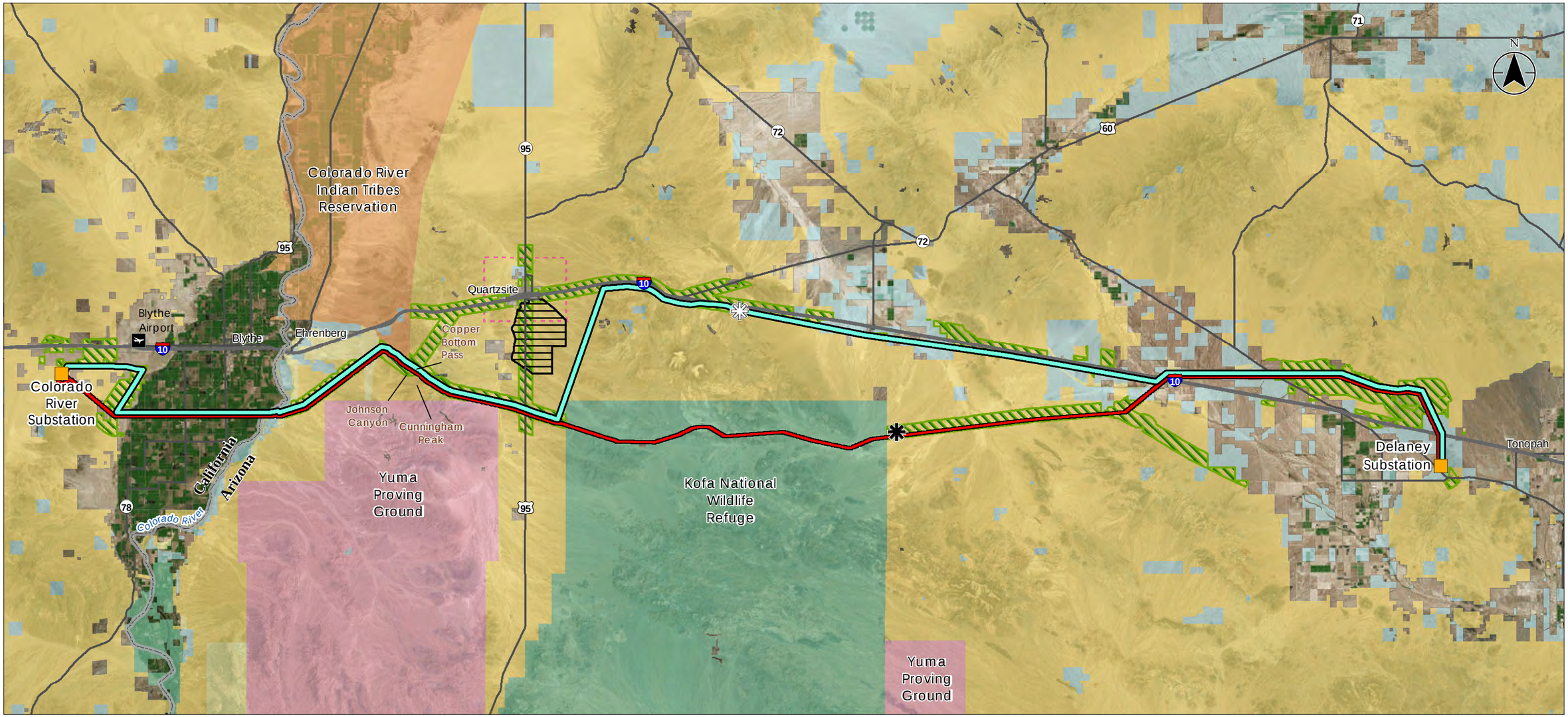
LAND MANAGEMENT LANDS CROSSED	MILES (#)	% OF TOTAL ROUTE DISTANCE
BLM	79.4	64%
USFWS	0.0	0%
Reclamation	1.7	1%
DOD	0.4	0%
State	18.8	15%
Private	24.6	20%
Indian Lands	0.0	0%
Total length of route:	124.9	100%

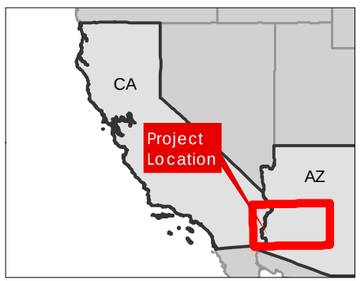
Table 2-12 Short- and Long-Term Disturbance for the BLM Preferred Alternative

COMPONENT	SHORT-TERM[1] DISTURBANCE (ACRES)	LONG-TERM DISTURBANCE (ACRES)	TOTAL DISTURBANCE (ACRES)
Access Roads		252.1	252.1
Material Staging Areas	86.4		86.4
Batch Plants	18.0		18.0
Structure Foundations and Erection	467.5	6.8	467.5*
Wire Stringing (snubbing and pulling sites)	81.1		81.1
Crossings (roads, transmission/power lines, water)	1.0		1.0
Series Compensation Station	24.0	<0.1	24.0
Distribution Lines	2.5	<0.1	2.5
Total	**680.5**	**260.6**	**932.6**
Total Water Requirements - Construction (gallons)	**3,202,683**		

[1] Temporary use areas would be located in conformance with BMP-MISC-04, disturbed during construction, their use would be temporary, and the acreage reclaimed; however, due to the desert environment, the disturbance effects may be long term.

*Long-term foundation disturbance would be within and a subset of the short-term disturbance; therefore, it is not additive to the short-term disturbance in totals.





Notes
1. Coordinate System: World Mercator
2. Data Source(s): Project data - HDR; Land Status - BLM
3. Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

- Substation
- Proposed Series Compensation Station
- Alternative Series Compensation Stations (2 possible site locations; ~75' feet apart)
- Proposed Action*
- BLM Preferred Alternative
- BLM Long-term Visitor Area
- BLM Utility Corridor^
- Quartzsite Planning Area

Land Status
- Bureau of Land Management
- Bureau of Reclamation
- Local or State Parks
- Indian Lands
- Military
- Private
- State
- USFWS

0 9 18 Miles

1:570,240 (At original document size of 11x17)

^ = BLM Utility Corridors were clipped to a 2-mile Project study area.
* = The Proposed Action is offset 600 meters to the South for display purposes.

Figure 2-**10**
Ten West Link
BLM Preferred Alternative

Table 2-13 BLM Preferred Alternative Impact Summary

ELEMENT OR RESOURCE	INDICATOR	BLM PREFERRED ALTERNATIVE
Disturbance	Temporary Acres	931
	Long-term Acres	207
BLM RMP Conformance	VRM	Amendments required for seven segments (Yuma)
	Corridors	Yes, except three segments (Yuma)
	RMP Conformance	Amendments required (Yuma and CDCA)
Soil Resources	Soils disruption of sand transport and dunes	Uses Segments ca-07, ca-09, and x-19 which would have negligible to minor impact on sand transport and dunes during construction and operation.
Biological Resources (Vegetation Resources, Wildlife, including Special Status Species and Migratory Birds)	Loss of native habitat/communities	Minor short- and long-term impacts to native vegetation pending successful restoration.
	Noxious weeds	Minor long-term impacts due to facilitating increased abundance of non-native plants, especially in dune habitats. Minor long-term impact to wildlife habitat by contributing to an increase in abundance of non-native plants, especially in dune habitat.
	Special Status Plant Species	Moderate short- and long-term impacts of ground disturbance on protected and special status plants and plant communities.
	Increased risk of predation or collision from infrastructure	Minor short- and long-term impacts to migratory birds due to potential collision hazard with structures, conductors, and guy lines.
	Displacement via construction	Minor short-term impacts to bighorn sheep in the Copper Bottom Pass area.
	Increased access to remote areas resulting in displacement via human activity including recreation	Minor short-term impacts to bighorn sheep in the Copper Bottom Pass area.
	Impacts to native habitat and designated management areas	Minor short- and long-term impacts to native vegetation pending successful restoration. Negligible impacts to designated management areas.
	Migratory birds	Negligible short- and long-term impacts to nests of migratory birds. Minor short- and long-term impacts to migratory birds due to potential collision hazard with structures, conductors, and guy lines.
	Special Status Animal Species	Moderate short- and long-term impacts of ground disturbance on protected and special status plants and plant communities. Minor short- and long-term impacts to Mojave fringe-toed lizard due to possible mortality by Project activities and habitat impacts. Minor short- and long-term impacts to Sonoran desert tortoise habitat in the Plomosa and Dome Rock mountains

ELEMENT OR RESOURCE	INDICATOR	BLM PREFERRED ALTERNATIVE
		and no impacts to Mojave desert tortoise habitat near the Mule Mountains due to avoidance. Special status species may occur in desert scrub habitat within the corridor, mostly in the Plomosa Mountains.
Cultural Resources	Damage or loss of a cultural site or potential site under Federal or state registers; degradation of the setting for a cultural site where setting is significant to its listing eligibility; increased access leading to potential vandalism; disturbance of human remains	Known NRHP-eligible sites or sites requiring NRHP evaluation: 38 (cultural resources survey coverage: 32.5%). Known site density: 6.1 sites per 100 acres. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 120. Key resources projected to occur include trails and intaglios. Areas of Native American concern NRHP-listed Ripley Intaglio Site and Limekiln Wash Intaglio Site) are in the vicinity of this alternative route. Continued consultation with Native American tribes and/or other interested parties potentially may identify additional resources of concern.
Issues of Concern to Indian Tribes	Existing and new access	Potential impacts to areas of Indian tribal concern due to new access or access restrictions will be studied in an access analysis that will be a required stipulation of the PA.
	Native infrastructure and the interconnectedness of the landscape.	Segments contain relevant concerns, including trails.
	Places of elevated spiritual importance	Two segments contain relevant concerns, including intaglios.
	Colorado River	One segment crosses the Colorado River; multiple tribes expressed concern about the Colorado River, and its influence on their spiritual belief and cultural history.
	Treatment of human remains	No known concerns to Indian tribes.
	Intrusion on pristine landscapes	No known concerns to Indian tribes.
Land Use	Land use authorizations and ROWs	No changes in ownership; short-term conflict with access to ROWs during construction; minor short-term displacement to recreation and grazing during construction; avoids Kofa NWR; non-compliance with La Paz County Zoning Plan and CDCA Plan of 1980, as amended.
	Residential	Short-term minor during construction, if any; minor impact to residential use in California.
	Agricultural	Short-term minor impacts during construction; potential soil erosion or changes in drainage patterns; negligible change to agricultural character in Palo Verde Valley Area; negligible loss of ag use in California; may preclude aerial spraying in some areas (minor impact).
	Other (i.e., nuisance impacts)	Short term during construction, if any; noise from corona effect.

ELEMENT OR RESOURCE	INDICATOR	BLM PREFERRED ALTERNATIVE
Recreation	Physical, access, use, or functional changes to established, designated, or planned recreation areas, resources, experiences, or activities; conflicts with Federal, state, or local policies; affect OHV designations, access, or routes; impacts to hunting access.	Negligible to minor effects to recreation areas short term due to access restrictions; negligible effects long term as already impacted by DPV1 line. Negligible to moderate effects to OHV route and APT short term, negligible long term, with MMs. Negligible effects to hunting.
Socioeconomics & Environmental Justice	Employment; Tax collection & revenue; Population or population displacement; Non-market values and ecosystem services; Revenue from recreation sector; Local economy; Reductions in property values; EJ Populations; disproportionate adverse impacts to EJ populations	Short-term beneficial increase in employment; increased revenue from taxes short and long term; short-term negligible impacts to recreation sector, non-market values. Short-term negligible impacts to property values. Negligible long-term impact to population. Beneficial impact to local economy through short-term employment and long-term facilitation of renewable energy generation facilities. EJ populations present but would not experience disproportionate adverse impacts.
Visual Resources	Conflicts with visual standards, ordinances, or policies established; major and unmitigated visual changes that degrade or disrupt views of scenic landscapes from highly sensitive viewing locations; VRM class objectives that would not be met requiring an RMP Amendment.	Impacts to viewers along I-10 are going to be minor to moderate. Additionally, there are larger areas of higher scenic quality south of I-10 than there are to the north, meaning that viewers along I-10 attracted to the distant scenic views to the south would be viewing these areas with the Project in the intervening landscape. In areas of moderate impact, the visibility of distant scenic quality A areas may further increase the adverse visual impact of the Project, notably Segment i-04. Addition of the transmission line would add a visible and, in many cases, noticeable development. However, most of the areas crossing BLM-managed public land would meet established VRM Class objectives.

Under the Agency Preferred Alternative, the BLM would amend the Yuma RMP to:

- Designate approximately 13.5 miles of 200-foot wide ROW on public lands managed by the BLM outside of designated utility corridors for portions of Segments i-03, i-04, and x-05; and

- Change the existing VRM Class designations from Class III to Class IV within 0.3-mile either side of centerline of 18.4 miles of Segments p-07 through p-13, for a total of 6,803.2 acres.

Under the Agency Preferred Alternative, the BLM would amend the CDCA Plan to state:

The Ten West Link Project is authorized to include construction within 0.25-mile of occurrences of Harwood's eriastrum, provided that a Linear Right-of-Way Rare Plant Protection Plan for Harwood's eriastrum is developed and approved by the California State Director. The Rare Plant Linear ROW Protection Plan would meet the DRECP goal of promotion of the ecological processes in the BLM Decision Area that sustain vegetation types of Focus and BLM Special Status Species and their habitat. The Rare Plant Linear ROW Protection Plan would have the objectives of:

1. *Avoidance of take of Harwood's eriastrum individuals to the maximum extent practical; and*

2. *Avoidance of impacts to Harwood's eriastrum suitable habitat to the maximum extent practical.*

The California State Director will approve the Harwood's Eriastrum Rare Plant Linear ROW Protection Plan and Fringe-toed Lizard Linear ROW Protection Plan prior to ground or vegetation disturbing activities commencing on public lands in California.

Agency Preferred Alternative Route details are shown on Figure 2.10. Appendix 2 provides additional details:

- Describing the Agency Preferred Alternative route;

- Requiring or recommending changes to reduce impacts; and

- Outlining the benefits of the route.

Chapter 3 Affected Environment

CHAPTER 3 AFFECTED ENVIRONMENT

3.1 INTRODUCTION

Detailed information specifically referenced in the sections below is located in Appendix 3. All figures with in-text references with three-digit figure numbers (i.e., 3.X-X) not shown in this chapter are contained in Appendix 7. All figures with two-digit in text references (3-X) are contained within this chapter. References, Acronyms, Abbreviations, Glossary, and Index are located in Appendix 6.

3.1.1 General Setting of Project Area

The Project Area extends across southwestern Arizona into southeastern California.

It is within the North American Deserts Ecoregion (Level I division) (Commission for Environmental Cooperation n.d. [no date]) and the Sonoran Basin and Range subdivision (Level III division) (EPA 2013a), which is distinguished by palo verde-cactus vegetation including saguaro, cholla, and agave cacti. This ecoregion contains scattered low mountains and has large tracts of Federally owned lands. Winter rainfall decreases from west to east, while summer rainfall decreases from east to west (EPA 2013b).

The Project Area is within the Basin and Range Physiographic Province. The climate of the province is characterized by being the driest in the US. The topography is characterized by mountain ranges that are roughly parallel. The basins between the ranges are relatively flat plains with gentle slopes next to the mountains (Fenneman 1931). The Project Area is in the Sonoran Desert subdivision of the physiographic province. The subdivision is characterized by being approximately 20 percent mountains and 80 percent plains. The mountains vary from hills and buttes up to mountains rising 4,000 feet above sea level (asl). The desert plains mostly lie below 2,000 feet elevation (Fenneman 1931).

The economy of the region has historically been based on irrigated agriculture, livestock grazing, and mining (Commission for Environmental Cooperation 1997). Today Federal and state lands include commercial, recreational, range, and undeveloped lands. Private land includes residential, commercial, industrial, and undeveloped areas. The primary types of land within the analysis areas and adjacent to the Project Area are undeveloped lands and rural areas. The Project location is shown in Figure 1-1.

3.1.2 Resources Brought Forward for Analysis

Based on internal (agency and cooperator) and external (public) scoping, or issue identification, a number of issues and concerns were identified for analysis in this EIS (see Appendix 1, Section 1.9). In order to analyze and respond to the issues and concerns, the resource values and uses of the affected environment must be identified and described.

The analysis area varies by resource value or use, depending on the geographic extent of the resource or use and the extent of the effects of the Proposed Action and Action Alternatives on a resource or use.

Current conditions are characterized within the analysis areas. The study areas were determined to allow routing flexibility for final design, to allow adequate geographic coverage for where direct and indirect impacts could occur, and to characterize the broader environment where the Project would be located.

While all resources identified for analysis in the EIS are required to be addressed, some resources are "key" to distinguishing between alternatives and to the decision-making process: soil resources, biological resources, cultural resources, concerns of Indian tribes, land use, recreation, socioeconomics, environmental justice, and visual resources. Brief summaries of baseline conditions for "non-key" resources follow in subsections below, while more detailed descriptions of "key" resources are provided in the sections that follow.

3.2 NON-KEY RESOURCES

3.2.1 Air Quality and Climate Change

The air quality study area is a 31-mile (50 kilometer [km]) radius around the Proposed Action and Action Alternatives. A 31-mile radius was chosen to be consistent with minimum air quality analyses required by the EPA's Prevention of Significant Deterioration regulations. For purposes of climate assessment, the existing climate conditions in the air quality study area are described. Current air quality conditions in the study area were obtained from the EPA's AirData website for the nearest monitor locations for each pollutant considered (carbon monoxide [CO], nitrogen dioxide [NO_x], ozone, particulate matter less than 10 micrometers [PM_{10}], particulate matter less than 2.5 micrometers [$PM_{2.5}$], and sulfur dioxide [SO_2]). Given the rural, unpopulated nature of the study area, concentrations of most pollutants are well below the National Ambient Air Quality Standards (NAAQS). The exception is ozone, and the eastern portion of the study area near Phoenix is in a nonattainment area. EPA estimated that Arizona greenhouse gas (GHG) (CO_{2e}) emissions were approximately 92.3 million metric tons per year for calendar year 2000. The California Air Resources Board estimated 440.4 million metric tons of CO_{2e} for that State in 2015.

3.2.2 Geology and Minerals

The study area for geology and mineral resources is a 4,000-foot corridor encompassing the Proposed Action and Action Alternatives. The study area for geologic hazards is 50 miles from the Project Area for historic seismicity, 20 miles from the Project Area for Quaternary faulting, and a 2-mile corridor encompassing the Proposed Action and Action Alternative segments for other geologic hazards. The study area extends from the Mojave Desert Province of southern California and into the Basin and Range Province. The Mojave Desert Province is a broad interior region of isolated mountain ranges separated by expanses of desert plains. The Basin and Range Province, is characterized by northwest-trending, block-faulted mountain ranges separated by deep, alluvium-filled basins. The basins generally consist of sedimentary deposits and the mountain ranges consist of granitoid and metamorphic rock. The surface geology of the study area crosses both alluvial deposits and sedimentary, metamorphic, and igneous bedrock formations, with approximately 85 percent of the area consisting of unconsolidated surficial deposits and approximately 15 percent of the area consisting of bedrock. No unique geologic features are within the study area.

Potential geologic hazards in the study area include seismic-related hazards (earthquakes, faults, and soil liquefaction) and landslides, land subsidence, and flooding. Earthquake hazard values range from a relatively low risk at the Delaney Substation in Maricopa County, Arizona, to a moderate risk at the Colorado River Substation in Riverside County, California. No Quaternary-age active faults are mapped within the study area. Liquefaction hazard has been mapped in California and most of the study area west of the Colorado River has a very high to moderate liquefaction risk. Liquefaction hazard maps are not available for the Arizona portion of the study area, although based on changes in topography east of the Palo Verde Valley, greater depths to groundwater, and lower seismic risk, it can be concluded that the liquefaction hazard would be considerably less in most areas. The US Geological Survey (USGS) landslide risk database indicates that the relative risk for landslides in the study area is low, but locally there may be potential for slope movement in areas of steep topography depending on site-specific conditions. Land subsidence from groundwater withdrawal or karst dissolution has not been known to occur or been reported in the study area. While underground mines and mine shafts are present in the study area, it is not known whether any have collapsed.

Mineral resources in the study area include gold, silver, copper, marble, limestone, tungsten, and aggregates, although none of the instances reported appear to be active. For leasable minerals, there is potential for geothermal, oil, and gas development in the future, but no current development. Locatable metallic and nonmetallic minerals are known to occur in the study area, additional mining activities could occur within the study area based on market conditions. Last, saleable minerals such as aggregate, sand, gravel, or crushed stone have a moderate to high potential to occur in most of the study area. There are numerous borrow or gravel pits (inactive, active, or proposed) within the Arizona part of the study area.

3.2.3 Paleontological Resources

The analysis area for paleontological resources is a 2-mile corridor that encompasses the Proposed Action and Action Alternatives. The Potential Fossil Yield Classification (PFYC) system (BLM Instruction Manual 2016-114) was utilized for identifying fossil potential in the study area. The geologic units crossed by the Proposed Action and Action Alternatives were reviewed to determine which units could potentially contain sensitive paleontological (fossil) resources. Paleontological resources may occur in sedimentary rocks and unconsolidated sediments greater than 10,000 years old. Most of the geologic units in the study area have a very low to low or unknown paleontological sensitivity with some areas of high sensitivity (Figure 3.2-1, Appendix 7). Therefore, fossil potential in the study area, for all Action Alternative routes, varies from very low to high and unknown.

3.2.4 Grazing and Rangeland

The grazing and rangeland analysis area is a set of 4,000-foot-wide corridors encompassing the Proposed Action and Action Alternatives. There are five open BLM grazing allotments in the study area, all of them in Arizona. Four additional allotments present in the study area have been closed by land use planning decisions. There are also a number of parcels administered by the ASLD and leased for multiple purposes, including grazing. California does not have a similar program. The BLM also manages portions of its land as wild horse and burro herd areas and herd management

areas (HMAs) under the Wild Free-roaming Horses and Burros Act of 1971; only one HMA overlaps the study area.

3.2.5 Special Designations and Management Allocations

The special designations and management allocations study area includes a 4,000-foot-wide corridor encompassing the Proposed Action and Action Alternatives. As land uses and ownership can change with each individual parcel of land regardless of the size of the parcels, a 4,000-foot-wide corridor is sufficient to capture the land uses and jurisdictions that may be affected by the Project. Specially designated areas are those lands that are managed for specific conservation, preservation, or recreational uses, and are typically public lands managed by a governmental entity. Wilderness Areas (WAs), priority Wildlife Habitat Areas (WHAs), and Lands with Wilderness Characteristics (LWC), are the types of federal specially designated areas and management allocations found in the study area.

3.2.5.1 Wilderness Areas

There are three designated WAs (Figures 3.2-2a through 3.2-2c, Appendix 7) within the study area: Big Horn Mountains; Kofa; and Eagletail Mountains. A fourth WA (New Water Mountains) is outside of the study area but adjacent to the Kofa WA and to a potential LWC area.

3.2.5.2 Wildlife Habitat Areas

WHAs have been established in the study area for habitat type (i.e., riparian) and for specific species (i.e., Sonoran desert tortoise, Sonoran pronghorn, and bighorn sheep). Designated WHAs in the study area include the Colorado and Gila River Riparian Area, Desert Mountains, Palomas Plain, the Wildlife Movement Corridor, and the Lake Havasu Field Office WHAs (Figures 3.2-2a through 3.2-2c, Appendix 7). Non-federal specially designated areas in the study area include the Quechan Marina Park in Blythe, California, along the Colorado River and Riverside County's Goose Flats Wildlife Area.

3.2.5.3 Lands with Wilderness Characteristics

LWC are generally roadless BLM-administered public land areas greater than 5,000 acres that have maintained their natural character and are primarily undeveloped, in other words they have the presence of wilderness character. Additionally, they may provide outstanding opportunities for solitude and for primitive and unconfined recreation. LWC may also be smaller parcels with these characteristics, adjacent to existing WAs. After an evaluation of the study area for potential LWC, six areas were concluded to meet the LWC criteria (Figure 3.2-3, Appendix 7).

3.2.6 Noise

The noise study area includes a 4,000-foot-wide corridor encompassing the Proposed Action and Action Alternatives. Existing noise sources in the study area include highways, roadways, OHV use, agricultural activities, population centers, and natural noise-producing sources such as wind, insects, and other animals. Another low-level source of noise is from existing transmission lines that emit corona noise under certain atmospheric conditions. Corona is an electrical discharge associated with transmission lines produced by the ionization of fluid (most often humidity in the

air) surrounding an electrically charged conductor. Corona is not a steady source of noise; rather, it varies with humidity conditions. Based on the rural nature of most of the study area, proximity to major surface transportation corridors and population density, existing noise levels are very low in the noise study area, although areas in and around Blythe are projected to have slightly higher noise levels.

A noise-sensitive receptor is defined as a single home, mobile home, or building that could include a nursing home, church, hospital, school, or day care center. Residents or users of those buildings are not counted individually as receptors. Most of the noise-sensitive receptors in the study area are residential, which includes LTVAs or mobile home parks. Noise-sensitive receptors were identified within the study areas encompassing the Proposed Action and Action Alternatives; they are located in and around the Town of Quartzsite, including the La Posa LTVA, and the City of Blythe.

3.2.7 Hazards and Hazardous Materials

The hazardous materials study area is defined as a 1-mile-wide corridor encompassing the Proposed Action and Action Alternatives, which is assumed to encompass the extent of potential new Project-related access roads and any other construction-related disturbance areas. The Proposed Action and Action Alternatives would traverse lands classified under a variety of land uses, including open space, recreation and preserve, agricultural, commercial, military, and rural and suburban residential uses. Current or historical land use activities provide indicators of potential hazardous materials use and storage. Agricultural lands, both active and inactive, are within and adjacent to the Proposed Action and Action Alternatives. There is potential for encountering contaminated soils in these areas based on the storage, transport, and use of pesticides and herbicides in the study area. Identified sites of potential environmental and human health concerns due to the possible presence of hazardous materials or waste include utility infrastructure, above ground storage tanks and underground storage tanks, historical mining sites, past and present agricultural use, and industrial/commercial facilities known to store, generate, transport, or dispose of hazardous materials. Generally, the number of identified sites of concern increases in the area of Blythe because of agricultural operations using pesticides, herbicides, and fuels used for aircraft, industrial equipment, and vehicles.

3.2.8 Public Health and Safety

The study area for general public health and safety is a 4,000-foot-wide corridor encompassing the Proposed Action and Action Alternatives, which is sufficient to capture the potential health and safety issues that may come into play due to the Project. The study area for the assessment of fire and fuels management includes areas within 1 mile of the Proposed Action and Action Alternatives. The study area for the assessment of electromagnetic fields (EMF) is based on an analysis of electric and magnetic field strengths at the center and at the edge of the proposed 200-foot-wide ROW as well as an area extending 100 feet on each side of the ROW. In relation to public health and safety, a sensitive receptor is defined as a single home, mobile home, or building that could include a nursing home, hospital, or daycare center, as well as schools and churches. No sensitive receptors were identified for most of the study area, except around Quartzsite and west of the Colorado River in California. Public health and safety hazards related to the Project include fire, EMF, radio interference, and dust-related illness (i.e., Valley fever).

The risk of wildland fire is related to weather conditions, potential fire ignition sources, the presence and condition of fuels (vegetation), and associated fire regimes. Fire management and protection responsibility in and near the study area is assigned to Federal, tribal (on Federal and tribal land), state (on state and most unincorporated county land), or local jurisdiction.

Extremely low frequency EMF are invisible lines of force that surround electrical equipment, power cords, wires that carry electricity, and outdoor power lines. Electric and magnetic fields can occur together or separately and are a function of voltage and current. On a daily basis people around the world are exposed to extremely low frequency EMF as a result of using electricity.

Noticeable radio and TV interference may occur in close proximity to an AC transmission line due to corona or gap discharges. This interference is typically limited to AM radio and analog TV. FM radio frequencies and cable TV are not sensitive to transmission line interference (Radio Noise Subcommittee 1971).

Valley fever (*coccidioidomycosis*) is a naturally occurring potential public health hazard in the study area. Valley fever spores survive in soils in many parts of Arizona and California.

3.2.9 Traffic and Transportation

The traffic and transportation analysis area includes a 5-mile buffer on either side of the Proposed Action and Action Alternative segments to create a 10-mile-wide corridor, which allows for the identification of roadways and facilities that could potentially be affected by the Project from the perspective of traffic and roadway operations and provides some flexibility of Project routing and design. There are no active railroad facilities within the study area, but there are many roads of various types. The roadway network in the study area includes Interstate 10 (I-10), US 95, US 60, SR 95, Business Route 10, roads and streets in the Town of Quartzsite and the City of Blythe, utility/recreation access roads, and various local roads and dirt trails on BLM-administered land and private property. I-10 extends from Tonopah, Arizona, on the eastern end of the study area through Quartzsite and across the Colorado River through Blythe, California, to the Colorado River Substation at the western end of the study area; it is the major freight facility in the area. US 95 and SR 95 travel north-to-south through the study area, crossing through the Town of Quartzsite. Business Route 10 travels east to west through the study area in Quartzsite parallel to and on the north side of I-10. Much of the study area is characterized by rural and uninhabited areas served by maintained local roads, most of which are lightly traveled one- or two-lane gravel or dirt roads. These roads have various types of vehicle usage, levels of service, and traffic counts.

Most of the aviation facilities within the study area are used for general aviation and non-primary commercial service airports. Requirements for vertical and horizontal clearances for runways at public airports vary by airport class and physical characteristics, which in turn control the setback distance of transmission line structures that the FAA requires. The Blythe Airport is the only public airport in the study area and there are plans for its northward expansion. There are also several privately-owned airports, airstrips, and airfields in the study area; these are regulated differently than public airports. Further, the YPG has restricted portions of airspace in the study area for training flights in low-altitude conditions, which are conducted along military training routes (MTRs). One of these generally parallels the entire Project area, while others cross it (Figure 3.2-4, Appendix 7).

3.2.10 Water Resources

The water resources study area includes a 4,000-foot-wide corridor encompassing the Proposed Action and Action Alternative segments. There is one perennial surface water (the Colorado River, Figure 2-4 and numerous ephemeral washes, canals (including the CAP canal, Figure 2-4), irrigation ditches, stock ponds, wetlands, floodplains, groundwater basins, wells, springs, and water rights in the study area. Waters used by wildlife are presented on Figure 3.4-3 (Appendix 7). Water resources present reflect the area's arid land where: channels are generally dry for long periods of time; streamflow results from high-intensity, short duration summer thunderstorms and during less intense, longer duration winter storms; runoff is typically erratic and sediment-laden; springs are few and limited in extent; and wetlands and shallow groundwater are localized.

3.3 SOIL RESOURCES

3.3.1 Analysis Area

The study area for soils is a 2-mile wide corridor encompassing the Proposed Action and Action Alternatives. The study area for geologic hazards is 50 miles from the Project Area for historic seismicity, 20 miles from the Project Area for Quaternary faulting, and a 2-mile corridor encompassing the Proposed Action and Action Alternatives for other geologic hazards. Sources of data and inventory methods are provided in the Geology, Mineral Resources, Soils, and Paleontology Baseline Technical Report (HDR 2017b).

3.3.2 Existing Conditions

3.3.2.1 Soils and Soil Hazards

The soils in the study area are associated with a variety of climates, vegetative cover, topography, and geology (BLM 2008c). Their properties vary depending on environmental conditions, but area soils were typically developed under hot, dry conditions characterized as having thermic or hyperthermic temperature regimes and arid or semi-arid moisture regimes.

The Natural Resource Conservation Service (NRCS) develops and maintains several soil geographic databases. Only the relatively general State Soil Geographic Data Base (STATSGO) data is being used in this EIS; however, Soil Survey Geographic Data Base (SSURGO) data, where available within the study area is included in the soil resource report. STATSGO soil associations within the study area (Figure 3-1; Table 3.3-1 in Appendix 3) are generally characterized as having moderate to severe water erosion potential and slight to high wind erosion potential.

Sensitive soils in the study area include desert pavement, biological soil crusts, calcareous soils, and wetland soils (BLM 2008c). Sand dunes are mapped along the western end of the study area near the Colorado River Substation and are described further under the active windblown sand, dunes, and sand transport corridors subheading, below. Wetland soils in the study area are limited to only small areas along the Colorado River and across several low-lying basins associated with agricultural fields near the towns of Tonopah and Blythe. Similarly, alluvial soils can be found in the alluvial bottom lands associated with rivers and ephemeral drainage channels.

Soils with high shrink-swell (expansive) characteristics, corrosive soils, and collapsible soils may all occur within the study area. Expansive, corrosive, or collapsible soil characteristics are identified locally through site-specific geotechnical testing, and associated hazards can be addressed through soil correction during construction or engineering design.

Valley fever is another potential hazard naturally occurring in some soils in the Project Area. Valley fever spores survive in the top 2 to 12 inches of soil in many parts of Arizona and California.

3.3.2.2 Segment-Specific Soil Conditions

Figure 3-1 maps the STATSGO soils listed below, by Proposed Action and Action Alternative segments. SSURGO soils maps and data are located in Appendix 3A.

Proposed Action Route Segments p-01 through p-06

STATSGO soils mapped along Segments p-01 through p-06 include the Ligurta-Gunsight-Cristobal, Schenco-Rock outcrop-Laposa, Hyder-Coolidge-Cipriano-Cherioni, Momoli-Denure-Carrizo, Pahaka-Estrella-Antho, Valencia-Estrella-Cuerda, Rock outcrop-Quilotosa-Hyder-Gachado, Rock outcrop-Lehmans-Gran, and Rillito-Gunsight-Denure-Chuckwalla soil associations.

Alternative Segments d-01, i-01 through i-04, in-01, and x-01 through x-04

The STATSGO soil associations mapped along the above-noted Action Alternative segments are the same as the comparable Proposed Action Segments p-01 through p-06.

Proposed Action Route Segments p-07 and p-08

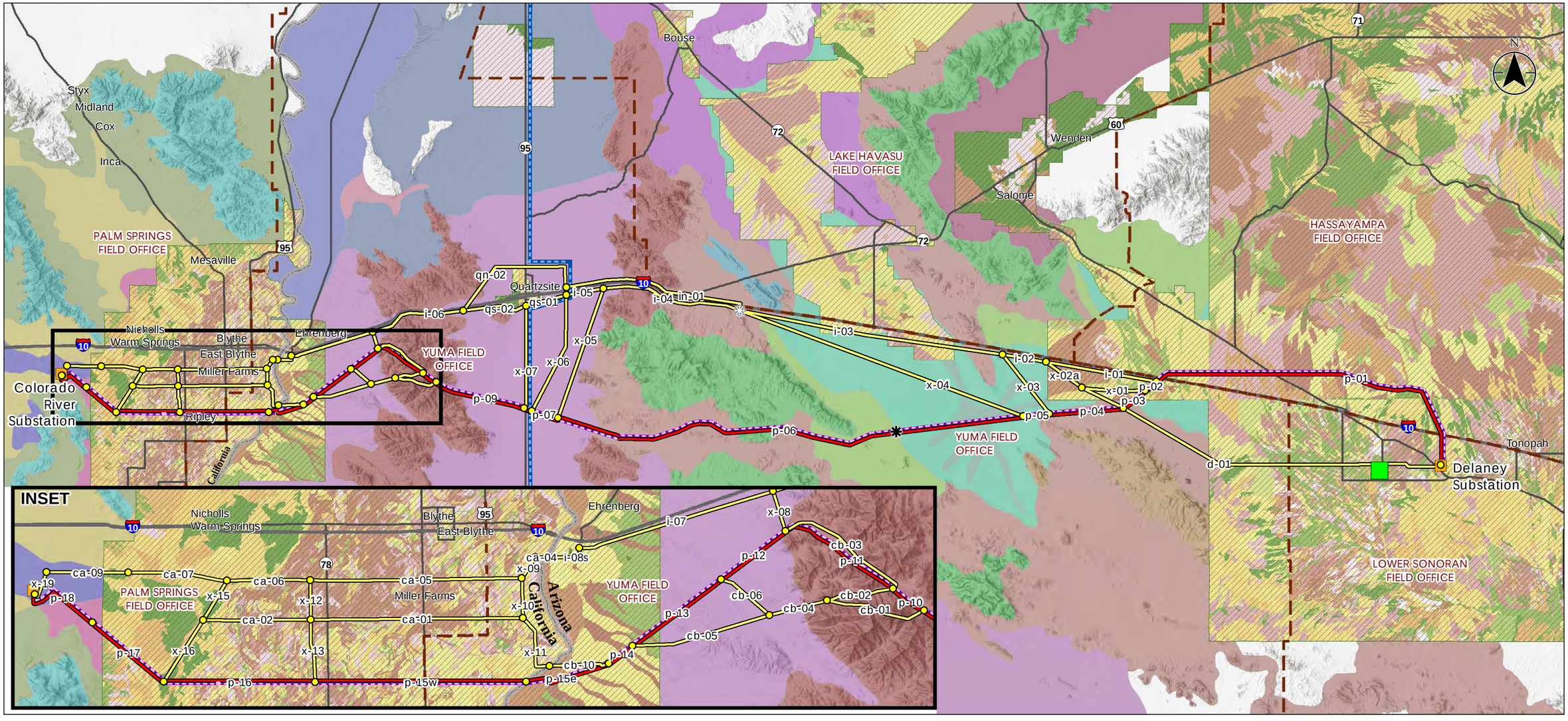
The only STATSGO soil association mapped for Segments p-07 and p-08 is Ligurta-Gunsight-Cristobal.

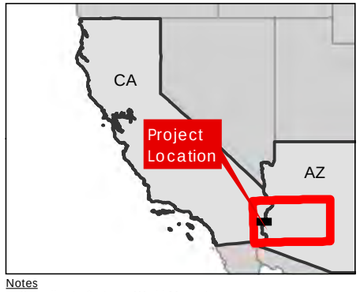
Alternative Segments qn-01 and qn-02, qs-01 and qs-02, i-05, x-05, x-06 and x-07

The two STATSGO soil associations mapped for the segments include Ligurta-Gunsight-Cristobal and Schenco-Rock outcrop-Laposa. In addition, Rock outcrop-Lehmans-Gran soil association is mapped along Segment x-05.

Proposed Action Segments p-09 through p-14

The two STATSGO soil associations mapped for Segments p-09 through p-14 include Ligurta-Gunsight-Cristobal and Schenco-Rock outcrop-Laposa.





Notes
1. Coordinate System: World Mercator
2. Data Source(s): Project data - HDR; Land Status - BLM
3. Service Layer Credits: USGS, NGA, NASA, CGIAR,N Robinson,NCEAS,NLS,OS,NMA,Geodatastyrelsen and the GIS User Community

- Proposed Action*
- Alternative Route Segment
- Route Segment Node
- Proposed Series Compensation Station
- Alternative Series Compensation Stations (2 possible site locations; ~75' feet apart)
- Existing WAPA 161kV Transmission Line
- Existing DPV1 500kV Transmission Line*
- Substation
- Harquahala Power Plant
- BLM Field Office Boundary
- Detailed Soil Survey (SSURGO)

Soil Units (STATSGO)
- Carrizo-Brios-Antho (s274)
- Hyder-Coolidge-Cipriano-Cherioni (s289)
- Ligurta-Gunsight-Cristobal (s290)
- Momoli-Denure-Carrizo (s281)
- Pahaka-Estrella-Antho (s299)
- Pahaka-Mohall-Laveen-Denure (s280)
- Rillito-Gunsight (s1140)
- Rillito-Gunsight-Denure-Chuckawalla (s288)
- Rock outcrop-Lehmans-Gran (s316)
- Rock outcrop-Quilotosa-Hyder-Gachado (s294)
- Rock outcrop-Quilotosa-Momoli (s293)
- Rositas-Dune land-Carsitas (s1136)
- Rositas-Orita-Carrizo-Aco (s1041)
- Rositas-Ripley-Indio-Gilman (s275)
- Schenco-Rock outcrop-Laposa (s295)
- Superstition-Rositas (s301)
- Tecopa-Rock outcrop-Lithic Torriorthents (s1126)
- Tres Hermanos-Pajarito-Mohave (s306)
- Vaiva-Quilotosa-Hyder-Cipriano-Cheri... (s1141)
- Valencia-Estrella-Cuerda (s300)

0 9 18 Miles

1:570,240 (At original document size of 11x17)

* = Existing DPV1 follows the Proposed Action. DPV1 and the Proposed Action are cartographically offset for display purposes. Because the routes are cartographically offset, in some cases, the routes do not precisely depict the estimated TWL alignment.

Figure 3-1
Ten West Link
STATSGO Mapped Soils in the Study Area

Alternative Segments cb-01 through cb-06, i-06, i-07, i-08s, and x-08

The two STATSGO soil associations mapped for the Action Alternative segments are the same as the Proposed Action route segments in this zone and include Ligurta-Gunsight-Cristobal and Schenco-Rock outcrop-Laposa.

Proposed Action Segments p-15e through p-18

The STATSGO soil associations mapped along Segments p-15e through p-18 include Rositas-Ripley-Indio-Gilman, Rositas-Orita-Carrizo-Aco, Rillito-Gunsight, Rositas-Dune land-Carsitas, Vaiva-Quilotosa-Huder-Cipriano-Cherioni, and Ligurta-Gunsight-Cristobal.

Alternative Segments ca-01, ca-02, ca-04 through ca-07, ca-09, cb-10, i-08s, x-09 through x-16, and x-19

The STATSGO soil associations mapped along the segments listed above include Rositas-Ripley-Indio-Gilman, Rositas-Orita-Carrizo-Aco, Rositas-Dune land-Carsitas, Vaiva-Quilotosa-Huder-Cipriano-Cherioni, and Ligurta-Gunsight-Cristobal.

Active Windblown Sand, Dunes, and Sand Transport Corridors

The Chuckwalla Valley of the Mojave Desert, located along I-10 between Blythe and Desert Center, is an example of a sand transport corridor. This valley supports sand dune habitats that depend upon delivery of fine sand from aeolian (wind-driven) and fluvial (river-driven) processes. These sand dunes have an active layer of mobile sand and exist in a state of dynamic equilibrium as they continuously lose sand downwind and gain sand upwind. Dunes move within sand transport corridors, as wind direction and other factors change. Active sand dunes also provide important habitat for species that rely on regular supply of wind-blown sand (BLM 2015a).

The DRECP (BLM 2015a) identifies the entire western portion of the Project Area on BLM-administered land west of Blythe as dune systems and aeolian sand transport corridors. Figure 3-2 identifies the areas of active windblown sand as Qe and Qe/Qal. Sand transport corridors and sand dunes move over time (Philip Williams & Associates [PWA] 2011), so the figure is approximate. PWA (2011) concludes that sand transport corridors and areas of active windblown sand, such as the one just north of the Colorado River Substation, are sensitive to development.

3.4 BIOLOGICAL RESOURCES

3.4.1 Analysis Area

The biological study area includes a corridor 2 miles to each side of the Proposed Action and Action Alternative Segments (a 4-mile wide corridor). This biological study area was selected to identify biological resources that could be directly affected by the transmission line (for example, by ground disturbance and the presence of workers) or that could be indirectly affected by noise or other stressors.

3.4.2 Existing Conditions

3.4.2.1 Vegetation Resources, Including Special Status Plants, and Noxious and Invasive Weeds

Introduction

The study area is in the northern part of the Sonoran Biogeographical Province (Brown et al. 1988; Lowe and Brown 1994; Weinstein et al. 2003). This neotropical province covers most of southwestern Arizona and parts of southeastern California. Vegetation typical of the Sonoran Desert is present there from about 100 to 4,000 feet in elevation (Lowe 1964; Turner and Brown 1994).

The Sonoran Desert has a bimodal rainfall pattern, with rain from frontal systems occurring in the late fall and winter, and convection systems causing thunderstorms during the summer. Average annual rainfall across the Project Area is generally less than 5 inches. Average monthly temperatures range from a low of about 52 degrees Fahrenheit (°F) in December and January to a high of 93°F in July and August (ADWR 2009).

Terrain in southwestern Arizona and southeastern California is characterized by northwest-to-southeast-oriented mountain ranges separated by large valleys, as is typical for the Basin and Range physiographic province. In and near the study area, mountain ranges are generally lower than 3,700 feet in elevation, and elevations in the valley bottoms range from about 300 to 1,200 feet, decreasing from east to west. Mountains in the region are steep, and most are of volcanic origin. Terrain in the part of the Project Area in California is flat, soils generally are deep and sandy (Marshall et al. 2000; Weinstein et al. 2003), and elevations range from about 250 to 2,500 feet.

The vegetation associations and other land cover types along the Proposed Action and Action Alternative segments in Arizona are illustrated in Figure 3.4-1 (Appendix 7).

To describe patterns of vegetation distribution along Proposed Action route and Alternative Segments in California, a fine-scale map of vegetation alliances in portions of the Mojave and Sonoran deserts was used (Menke et al. 2013) (Figure 3.4-2, Appendix 7). This map was developed for the BLM DRECP (BLM 2015a) with support from the California Department of Fish and Wildlife (CDFW) and was obtained from the CDFW's Biogeographic Information and Observation System (CDFW 2016a). The map was developed using the statewide system established to classify patterns of vegetation associations (Sawyer et al. 2009).

Notes
1. Coordinate System: World Mercator
2. Data Source(s): Project data - HDR; Land Status - BLM; Aeolian System Mapping - Lancaster 2014
3. Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

- Proposed Action*
- Alternative Route Segment
- Route Segment Node
- Existing DPV1 500kV Transmission Line*
- Substation
- Sand and Dune Systems (DRECP)

Aeolian System Mapping for the DRECP, California Geological Survey

- D - Developed areas
- Qe - Active windblown deposits > 1.5 m thick
- Qe/Qal -Active windblown deposits < 1.5 m thick
- Qoa -Pleistocene alluvial deposits
- Qw -Alluvial wash deposits
- Qye/Qal - Stabilized windblown deposits
- Qyf - Alluvial fan deposits
- br - Bedrock

0 1 Miles

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* = Existing DPV1 follows the Proposed Action. DPV1 and the Proposed Action are cartographically offset for display purposes. Because the routes are cartographically offset, in some cases, the routes do not precisely depict the estimated TWL alignment.

Figure 3-**2**
Ten West Link
Aeolian System Map of Palo Verde Mesa

Vegetation Communities and Habitat Features

The entire Project Area is included within two subdivisions of the Sonoran Desert: Lower Colorado River Valley and Arizona Uplands, represented by various plant associations and habitat types (including physical features).

The Proposed Action and Action Alternative segments do not cross any BLM-designated Vegetation Habitat Management Areas or Areas of Critical Environmental Concern identified in a RMP (BLM 2010a, Figure 2-5; BLM 2010b; BLM 2012a; BLM 2007).

CDFW rankings and DRECP classification of vegetation alliances show five rare plant alliances on the Palo Verde Mesa and are crossed by one or more route segments (Figure 3-3). The *Pleuraphis rigida* (big galleta) Alliance has a rank of S2, imperiled, and the *Pluchea sericea* (arrowweed) Alliance and *Suaeda moquinii* (bush seepweed) Alliance have a rank of S3, vulnerable. The *Parkinsonia florida–Olneya tesota* (blue paloverde-ironwood) Alliance and *Prosopis glandulosa* (honey mesquite) Alliance are included in the semi-desert wash woodland riparian vegetation type, often referred to as microphyll woodlands, and have been ranked as S3, vulnerable. These dry desert wash woodland communities and rare vegetation alliances are considered sensitive in the California BLM planning area (BLM 2015a). Appendix 3, Table 3.4-1 identifies the Project segments and distance, in miles, of intersection for rare vegetation alliances on the Palo Verde Mesa.

Sand dunes

The Colorado River Substation and the routes that approach the substation are in or near a series of sand sheets and dunes. This sand dune system is in a state of dynamic equilibrium and relies on aeolian (wind) transport of sand into the area from upwind sources and free movement of sand through the dunes. The Project Area is at the eastern end of the approximately 30-mile-long Chuckwalla sand transport corridor, which trends west to east (ESA PWA 2011; Muhs et al. 2003). Based on the soils mapping prepared by the California Geological Survey (Lancaster 2014) (Figure 3-2), the large dune system west of the Colorado River Substation diminishes east of the substation to a band of sand sheets about 1-mile-wide extending an additional 5 miles across the Palo Verde Mesa where the sand transport corridor ends. A 2017 study (Kenney) found that the primary source of aeolian sand deposits on Palo Verde Mesa are the Wiley's Well Basin and Mule Mountains—a local source rather than from a regional sand migration corridor. The DRECP classifies most of the Palo Verde Mesa as Sand and Dune System (Figure 3-2) where there is a dynamic mosaic of active dunes (dunes that have a layer of mobile fine sand), with areas of partially stabilized and stabilized sand sheets composed of increasingly coarse and compacted sand due to loss of fine sand. Over the last several thousands of years the dune system has become increasingly stable and in places, degrading (Kenney 2017). Dune vegetation can strongly influence sand transport; for example, 10 percent aerial coverage of plants less than one-foot-tall decreases aeolian sand migration rates by 90 percent (Lancaster et al. 1998 *in* Kenney 2017). The dominant vegetation in these sand dunes includes creosote bush, white bursage, brittlebush (*Encelia farinosa*), white ratany (*Krameria grayi*), cheesebush (*Hymenoclea salsola*), big galleta, and birdcage evening primrose (*Oenothera deltoides*) (CPUC 2011, Section D.2.1 and Figure D-2; HDR 2017c). Sahara mustard is a persistent, dominant non-native invasive weed. Numerous plants and animals, such as the plant Harwood's eriastrum (*Eriastrum hardwoodii*) and the Mojave fringe-toed lizard (*Uma scoparia*), are found only on sand dunes.

Springs and other watering sites

Numerous wildlife species depend on maintained or natural water sources during dry periods, and vegetation is often more abundant and diverse along the outflows of springs. Figure 3.4-3 (Appendix 7) shows the location of wildlife waters in Arizona within the biological study area that are inventoried by the AGFD (2016a), plus those on the Kofa NWR that are managed by the USFWS. Table 3.4-2 in Appendix 3 lists the approximate distance from the route segments to wildlife waters that are within the 4-mile-wide (2 miles to each side of the corridor) biological study area. No wildlife waters are within the biological study area in California.

Special Status Plant Species

ESA Threatened, Endangered, and Proposed Plant Species

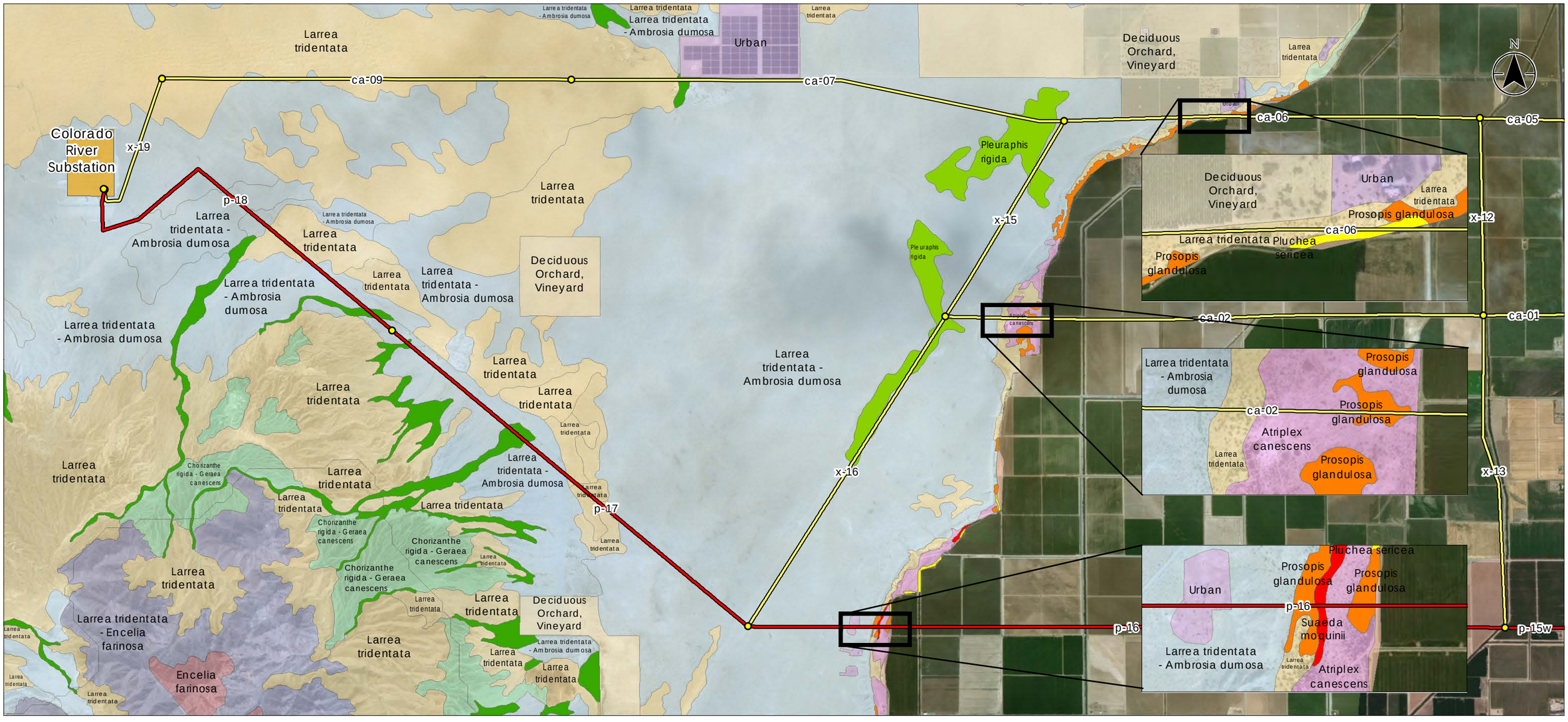
No plants species currently listed or proposed for listing under the ESA would be expected to be present in the Project Area.

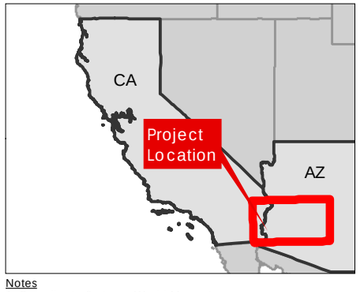
Other Special Status Plant Species – Arizona

The Arizona Department of Agriculture (ADA) maintains a list of plants protected under the Arizona Native Plant Law. That list includes four categories of protected plants: Highly Safeguarded, Salvage Restricted, Salvage Assessed, and Harvest Restricted. Highly Safeguarded plants include rare species; many of the species under other classifications are widespread throughout the Project Area. Table 3.4-3 in Appendix 3 lists plants protected under the Arizona Native Plant Law that are likely to be present in the Project Area in Arizona.

Seven plants classified as sensitive by the BLM are present in the Yuma Planning Area and elsewhere in southwestern Arizona. Table 3.4-4 in Appendix 3 lists Arizona BLM sensitive plant species and the likelihood that they may be found in or near the Project Area. The seven species listed are either unlikely or not expected to be present in the Project Area.

Table 3.4-4 in Appendix 3 lists Arizona BLM Yuma Planning Area priority plant species and the likelihood that they may be found in or near the Project Area. The majority of the route segments in Arizona are in the BLM Yuma Planning Area. Of the ten listed species, six are present in the Project Area.





Notes
1. Coordinate System: World Mercator
2. Data Source(s): Project data - HDR; Land Status - BLM; Vegetation Alliances - Menke et al 2013
3. Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

- Route Segment Node
- Proposed Action*
- Alternative Route Segment
- Substation

NVCS Name (Of Interest)
- Parkinsonia florida - Olneya tesota
- Pleuraphis rigida
- Pluchea sericea
- Prosopis glandulosa
- Suaeda moquinii

NVCS Name (Other)
- Atriplex canescens
- Atriplex polycarpa
- Chorizanthe rigida - Geraea canescens
- Deciduous Orchard, Vineyard
- Encelia farinosa
- Irrigated Row and Field Crops
- Lacustrine
- Larrea tridentata
- Larrea tridentata - Ambrosia dumosa
- Larrea tridentata - Encelia farinosa
- Urban

0 0.75 1.5 Miles

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Figure 3-**3**
Ten West Link
Palo Verde Mesa
Vegetation Alliances

Other Special Status Plant Species – California

In addition to BLM designated sensitive plant species, the BLM confers sensitive status on California State endangered, threatened, and candidate species, and rare plant species with a California Rare Plant Rank of 1B (rare, threatened, or endangered in California and elsewhere) that are on BLM-administered land or affected by BLM actions (LUPA).

Sixteen special status plant species identified in Table 3.4-5 have been found or could be present in the Project Area. However, none of those species are classified as endangered, threatened, or rare by the California Fish and Game Commission (CDFW 2016b).

Noxious and Invasive Weeds

Invasive annual and perennial plant species have become widespread throughout the Sonoran Desert and are common in some parts of the biological study area. Common invasive plants found in the area include Mediterranean grass (*Schismus* spp.), cheatgrass (*Bromus tectorum*), buffelgrass (*Pennisetum ciliare*), red brome (*Bromus madritensis* spp. *rubens*), fountain grass (*Pennisetum alopecuroides*), wild oat (*Avena fatua*), prickly Russian thistle (*Salsola tragus*), and Sahara mustard (*Brassica tournefortii*) (BLM 2002c, 2006, 2008c; Weinstein et al. 2003; YPG 2012). BLM's Land Use Plan Amendments (BLM 2002c and 2008c) have identified salt cedar as a pernicious and widespread invasive species in riparian areas. This nonnative tree is the dominant riparian plant species where route segments would cross the Colorado River.

The ADA (2005) and the California Department of Food and Agriculture (2016) maintain lists of noxious weeds in those states. The Arizona classification system for noxious weeds identifies the 14 species (Table 3.4-6, Appendix 3) on those lists that are known to be present in the BLM planning areas that are crossed by route segments.

Rare Vegetation Alliances

For California, the CDFW has assigned state-level rarity rankings to many vegetation alliances that are dominated by native species (CDFW 2010). The DRECP classifies vegetation alliances (an alliance is defined by one or a group of diagnostic plant species) on BLM land with a state ranking of S1, S2, or S3 (critically imperiled, imperiled, and vulnerable, respectively) as rare vegetation alliances, and provides protection measures in the LUPA. Five rare plant alliances on the Palo Verde Mesa are crossed by one or more route segments (Figure 3-3). The *Pleuraphis rigida* (big galleta) Alliance has a rank of S2, imperiled, and the *Pluchea sericea* (arrowweed) Alliance and *Suaeda moquinii* (bush seepweed) Alliance have a rank of S3, vulnerable. The *Parkinsonia florida–Olneya tesota* (blue paloverde-ironwood) Alliance and *Prosopis glandulosa* (honey mesquite) Alliance are included in the semi-desert wash woodland riparian vegetation type, often referred to as microphyll woodlands, and have been ranked as S3, vulnerable. These dry desert wash woodland communities and rare vegetation alliances are considered sensitive in the California BLM planning area (BLM 2015a).

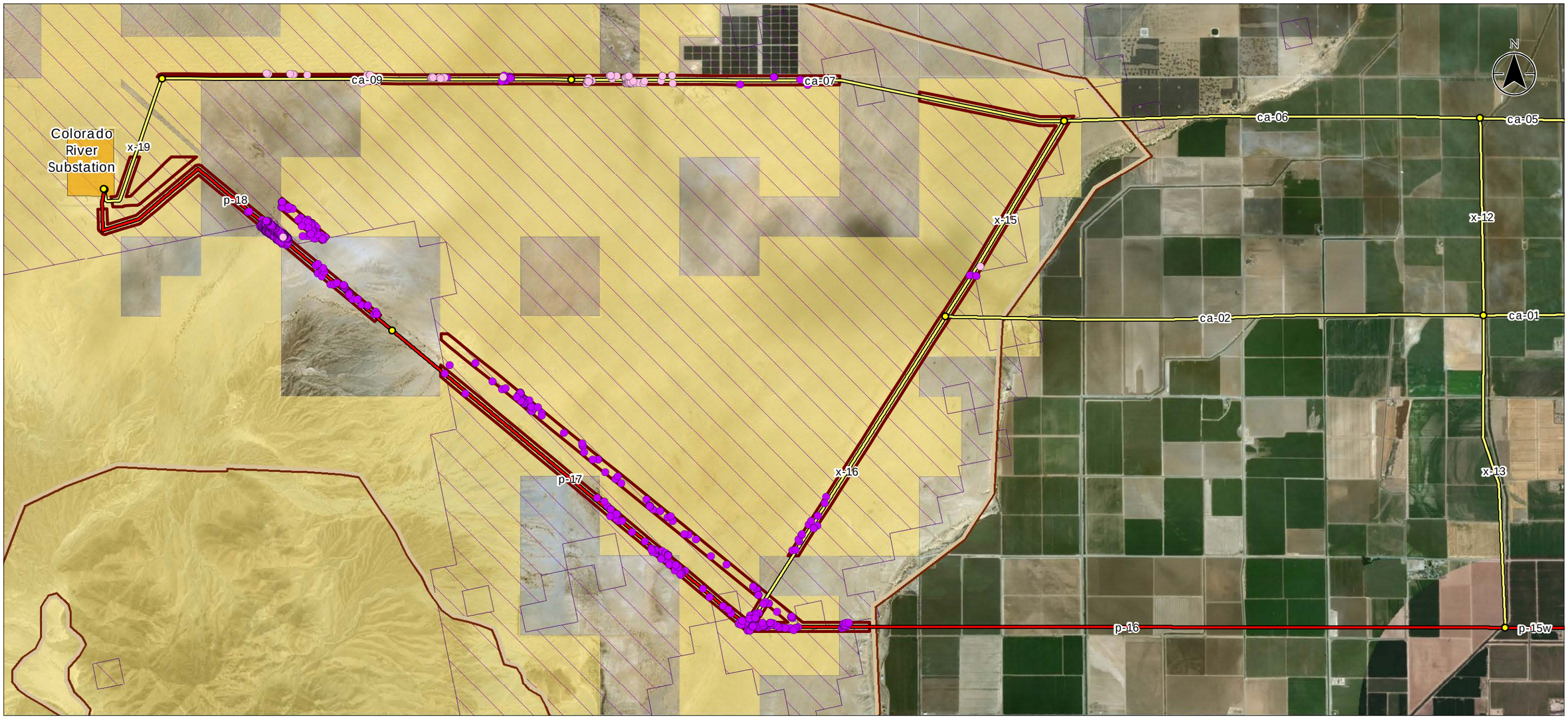
Palo Verde Mesa

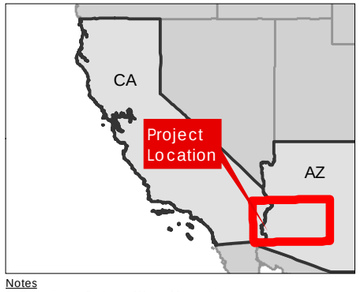
West of the agricultural fields, the route segments cross areas with very sandy soil on Palo Verde Mesa to reach the Colorado River Substation. The amount of sand in the soil increases, and the stability of the soil surface decreases from east to west. Segments ca-07, ca-09, and x-19 cross an

area of active windblown sand deposition where Harwood's eriastrum appear to be present in relatively high numbers; Segments p-17 and p-18 cross sparse stands of creosote and white bursage (*Larrea tridentata* and *Larrea tridentata–Ambrosia dumosa* Shrubland Alliances) and a small number of protected washes with blue paloverde, mesquite, smoketree (*Psorothamnus spinosus*), and ironwood. The north-to-south-oriented Segments x-15 and x-16 and the west end of Segment ca-02 along the eastern edge of the Palo Verde Mesa cross a band of vegetation dominated by big galleta (*Pleuraphis rigida* Alliance), classified as imperiled and protected under the LUPA. Segments p-17 and p-18 do not cross soils classified as having active aeolian deposits, although a small area of active deposition is adjacent to Segment p-17, and dune obligate species have been recorded along a portion of Segment p-18.

On the Palo Verde Mesa, segments cross vegetation alliances within vegetation types that have a state ranking of S2 or S3 (imperiled or vulnerable) (Figure 3-3). In addition, the semi-desert wash woodland vegetation type is considered sensitive by BLM (BLM 2002c). The *Parkinsonia florida–Olneya tesota* Alliance (blue palo verde–ironwood woodland) and *Prosopis glandulosa* Alliance (mesquite bosque, mesquite thicket) are both included in the Coloradan semi-desert wash woodland/scrub vegetation type and have a state ranking of 3.2 (vulnerable). Specifically, Segments p-17 and p-18 cross 0.3-mile of these washes. Segment ca-02 crosses 0.1-mile of narrow bands of mesquite near the western edge of cultivated lands at the edge of the Palo Verde Mesa. Sahara mustard, an invasive plant species, is scattered about the Palo Verde Mesa and is locally abundant in the more sandy areas. No ESA-listed plant species, or plant species classified as endangered, threatened, or rare by the CDFW (2016c) in California. Harwood's eriastrum, a BLM sensitive species, and Harwood's milkvetch, a California Native Plant Society (CNPS) rare plant, are most common on dunes and other areas with loose sandy soils, and either one or both species have been documented within Segments ca-07, ca-09, p-16, p-17 p-18, x-16, and x-19, especially in areas that include active windblown sand deposits (Figure 3-2 and Figure 3-4).

Two special status plants with a CNPS rare plant ranking of 1 or 2 have been found along segments on the Palo Verde Mesa. Harwood's eriastrum, a BLM sensitive species, and Harwood's milkvetch (*Astragalus insularis* var. *harwoodii*), considered rare by the CNPS but not a BLM sensitive species, occur in sand dunes and other sandy soils (BLM 2012b, Appendix G; BLM and Riverside County Planning Department 2015, Appendix C1; Power Engineers 2012). Surveys of Proposed Action route segments in 2016 did not locate these species (HDR 2016a), but in 2017, a total of 2,975 Harwood's milkvetch plants and 94 Harwood's eriastrum plants were recorded during surveys of route segments on the Palo Verde Mesa. Figure 3-4 shows where rare plants were located during 2017 surveys (Transcon Environmental 2017); these surveys were restricted to a 200-foot-wide corridor centered on route segments. Both of these species are herbaceous annuals with highly variable year to year germination rates, generally dependent on rainfall; winter precipitation in 2016/2017 was well above average resulting in ideal conditions for surveys conducted in spring 2017 (Transcon Environmental 2017). Plant locations may shift among years reflecting scattered rainfall events and shifting sand dune habitat. Other projects have previously documented 3,402 Harwood's eriastrum plants from deep sandy soils on the Palo Verde Mesa, and over 25,000 Harwood's milkvetch plants (Ironwood Consulting Inc. 2016).





Notes
1. Coordinate System: World Mercator
2. Data Source(s): Project data - HDR; Land Status - BLM; Rare Plant Surveyed Points - Transcon Environmental 2017
3. Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

- Route Segment Node
- Proposed Action*
- Alternative Route Segment
- Substation
- Harwood's Eriastrum Surveyed Points (Transcon 2017)
- Harwood's Milkvetch Surveyed Points (Transcon 2017)
- Rare Plant Survey Area
- Harwood's Eriastrum - Species Distribution Model (DRECP)
- Sand and Dune Systems (DRECP)

Land Status
- Bureau of Land Management
- Private

0 0.75 1.5 Miles

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Figure 3-**4**
Ten West Link
Rare Plant Locations,
DRECP Modeled Habitat for
Harwood's Eriastrum, and
Land Ownership on Palo Verde Mesa

Harwood's eriastrum, as a BLM designated sensitive species, has special management requirements. A habitat model for this species was developed as part of the DRECP (BLM 2016h), and much of the Palo Verde Mesa is included as suitable for the species (Figure 3-5). However, the DRECP model is based on general habitat conditions and includes areas where the plant is not expected to be found. When known locations of Harwood's eriastrum on the Palo Verde Mesa from CNDDB and occurrences documented by Project surveys are plotted with the California Geologic Survey soil map (Figure 3-2), there is a close correlation with active wind-blown sand deposits. But some locations do not fall within the mapped dune system, perhaps reflecting the dynamics of sandy soils and the patchy nature of these habitats not evident due to the mapping scale. In an effort to more accurately map suitable Harwood's eriastrum habitat on the Palo Verde Mesa, the locations from the CNDDB of Mojave fringe-toed lizards, another sand dune obligate species, was plotted with the plant occurrences and soils data. These data tended to cluster observations and polygons of presumed suitable Harwood's eriastrum habitat (Figure 3-5). This map was used to calculate the linear distance of potentially suitable Harwood's eriastrum habitat that would be crossed by each route segment on the Palo Verde Mesa (Table 3.4-7 in Appendix 3).

3.4.2.2 Wildlife, Including Special Status Wildlife and Migratory Birds

Wildlife in the Arizona portions of the Project Area is generally similar to wildlife in the California portion of the biological study area.

Amphibians and Reptiles

More than 40 species of reptiles are present in southwestern Arizona. Lizards and snakes are common, and some of the more common and widespread species are desert iguana (*Dipsosaurus dorsalis*), western whiptail (*Aspidoscelis tigris*), Great Basin collared lizard (*Crotaphytus bicinctores*), long-nosed leopard lizard (*Gambelia wislizenii*), zebra-tailed lizard (*Callisaurus draconoides*), desert spiny lizard (*Sceloporus magister*), desert horned lizard (*Phrynosoma platyrhinos*), common side-blotched lizard (*Uta stansburiana*), coachwhip snake (*Masticophis flagellum*), gopher snake (*Pituophis catenifer*), common kingsnake (*Lampropeltis getula*), western diamondback rattlesnake (*Crotalus atrox*), and Mojave rattlesnake (*Crotalus scutulatus*). Sonoran desert tortoises (*Gopherus morafkai*) are found primarily on rocky slopes and upper bajadas in the Arizona Upland subdivision, and the nonnative spiny softshell turtles (*Apalone spinifera*) are found in the Colorado River.

Couch's spadefoot toad (*Scaphiopus couchii*) is found in uplands throughout much of the Project Area and generally is active after summer rains. Other amphibians, such as the Sonoran desert toad (*Incilius alvarius*), Woodhouse's toad (*Anaxyrus woodhousii*), and red-spotted toad (*Anaxyrus punctatus*) are more common near water sources.

Birds

More than 350 species of birds have been documented in southwestern Arizona (BLM 2006, 2008c; YPG 2012). Most of those species are protected under the Migratory Bird Treaty Act (MBTA). There are three major habitats for the conservation of birds that are present in or near the Project Area: Sonoran desertscrub, low-elevation riparian habitat (including xeroriparian washes), and freshwater marshes. Sonoran desertscrub and xeroriparian washes are found

throughout the Project Area; riparian habitat and freshwater marshes are present only along the Colorado River.

Cultivated fields and other developed lands are west of the Colorado River, near the Delaney Substation, and along portions of I-10.

Mammals

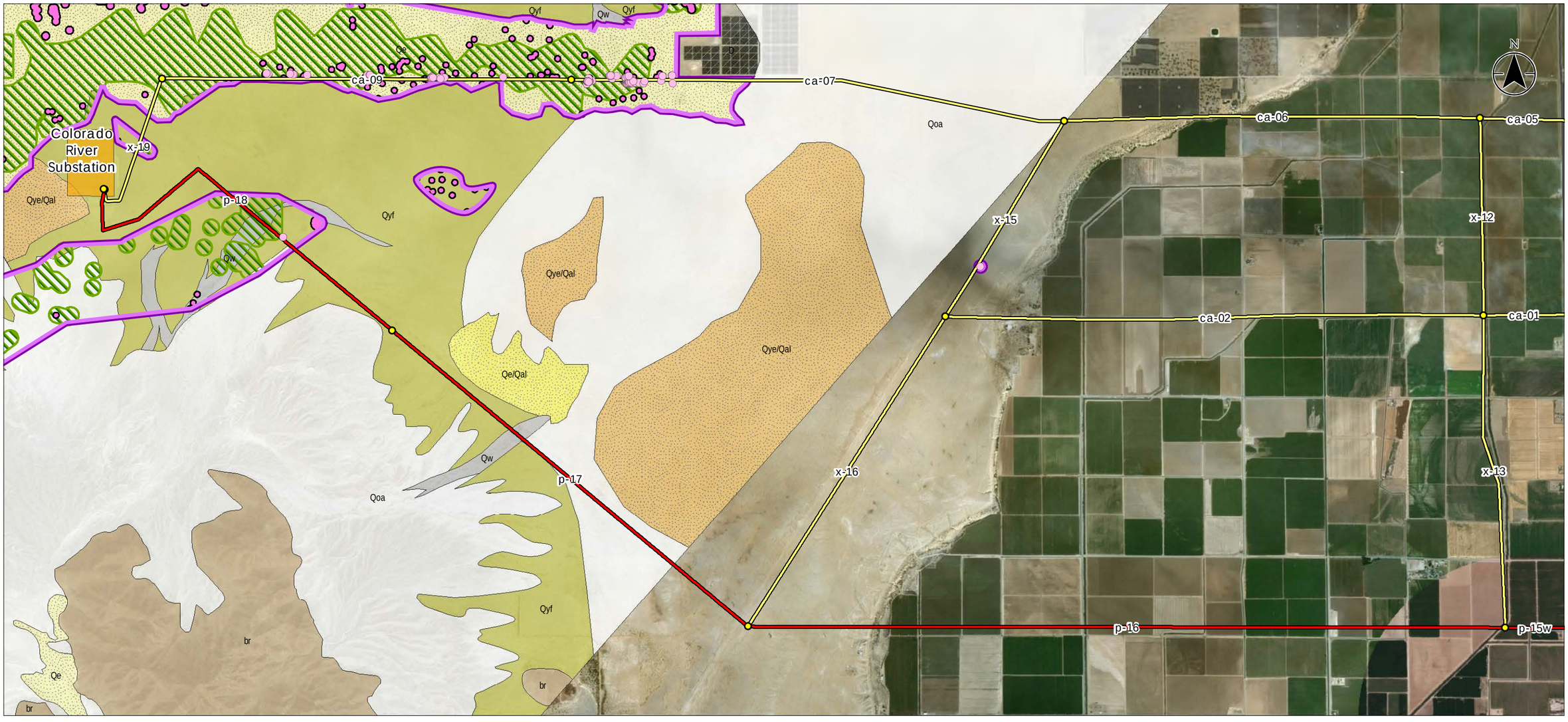
More than 60 mammalian species are present in southwestern Arizona (BLM 2008c). Desert bighorn sheep are present in Arizona in mountain ranges throughout the region, including the Saddle, Big Horn, Eagletail, Little Harquahala, Plomosa, New Water, and Dome Rock Mountains (AGFD 2016a; BLM 2008c, 2008d, 2011c). Bighorn sheep depend on and are found near permanent water during dry and hot months. There are numerous water sources within the biological study area (Figure 3.4-3, Appendix 7) within or near habitat for bighorn sheep (AGFD 2016a). Lambing occurs year-round but peaks in January through April (BLM 2002c, 2008c). Important lambing areas in the region include rugged and isolated areas in the Plomosa Mountains, Livingston Hills, and New Water Mountains, within the Kofa NWR, and in the Dome Rock Mountains in the area surrounding Copper Bottom Pass (BLM 2008c; USFWS 1996; Weinstein et al. 2003).

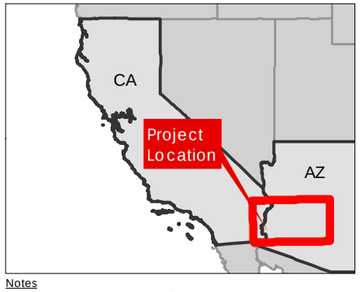
Segments p-01 and p-04 cross an area near habitat for desert bighorn sheep in the Big Horn and Eagletail mountains, and Segment d-01 passes near bighorn habitat in the Eagletail Mountains. Segment p-01 also crosses an important wildlife dispersal corridor south of the Big Horn Mountains.

Segment p-06 crosses through and is near an extensive area of habitat for desert bighorn sheep in the Livingston Hills and New Water Mountains on the Kofa NWR, as well as crossing through a wildlife dispersal corridor in the northwestern corner of the refuge. Segments in-01 and i-04 cross desert bighorn sheep habitat and a dispersal corridor along I-10 through the Plomosa Mountains. Segment x-05 also crosses a dispersal corridor through the La Posa Plain between the New Water and Dome Rock mountains.

The following route segments cross important dispersal corridors for desert bighorn sheep and are important linkages among blocks of undisturbed wildlife habitat in the region (AGFD 2016a; BLM 2008c, 2008d; Weinstein et al. 2003): Segments i-01 and i-04 are located along I-10 through the Plomosa Mountains.

- Segment i-07 along I-10 through the Dome Rock Mountains
- Segment p-01 between Burnt Mountain and Saddle Mountain to the south and the Big Horn Mountains to the north
- Segment p-06 through Livingston Hills and the New Water Mountains in the northwestern corner of Kofa National Wildlife Refuge
- Segment x-05 through the La Posa Plain between the New Water and Dome Rock mountains





Notes
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2. Data Source(s): Project data - HDR; Land Status - BLM; Aeolian System Mapping - Lancaster 2014
3. Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

- Route Segment Node
- Proposed Action*
- Alternative Route Segment
- Substation
- Harwood's Eriastrum Surveyed Points (Transcon 2017)
- Boundary of Presumed Harwood's Eriastrum Habitat

California Natural Diversity Database (CNDDB) Species
- Harwood's Eriastrum
- Mojave Fringe-toed Lizard

Aeolian System Mapping for the DRECP, California Geological Survey
- D - Developed areas
- Qe - Active windblown deposits >1.5 m thick
- Qe/Qal -Active windblown deposits < 1.5 m thick
- Qoa -Pleistocene alluvial deposits
- Qw -Alluvial wash deposits
- Qye/Qal - Stabilized windblown deposits
- Qyf - Alluvial fan deposits
- br - Bedrock

0 0.75 1.5 Miles

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Figure 3-**5**
Ten West Link
Presumed Harwood's Eriastrum Habitat

Special Status Wildlife Species

ESA Threatened, Endangered, and Proposed Wildlife Species

Species that are classified as threatened, endangered, or proposed and protected under the Federal ESA that could be present in the Project Area were identified by querying the USFWS's Information for Planning and Conservation database (USFWS 2016a), reviewing BLM RMPs and related documents, and evaluating published and unpublished information about the listed species.

Six threatened and endangered species were identified that are known to be present or that could be present in or near the Project Area (Table 3.4-8 in Appendix 3**)**. All species protected under the Federal ESA are classified as special status species by the BLM.

Sonoran pronghorn occupy desert plains and bajadas, and occasionally rocky hills and mountainous habitats. These animals are nomadic and require large expanses of land to survive as localized droughts are frequent and summer rains are sporadic. They must be able to move across the landscape during all seasons to locate areas with sufficient food and water. Sonoran pronghorn are very wary, capable of seeing long distances across the open desert, and flee the area when disturbed.

Sonoran pronghorn are classified as endangered, and a nonessential experimental population has been established to reintroduce this subspecies in the Kofa NWR and a large surrounding area (USFWS 2011). When evaluating the effects of Federal actions as required under Section 7 of the ESA, Federal agencies must treat nonessential experimental populations on national wildlife refuges or units of the National Park Service (NPS) as they would treat threatened species, and as a proposed species elsewhere. The route segments in Arizona south of I-10 are within that designated nonessential experimental population area. The Sonoran pronghorn is classified as a Species of Great Conservation Need (SGCN) in Arizona.

A nonessential experimental population of Sonoran pronghorn (endangered) is being established in King Valley on the Kofa NWR. About 70 Sonoran pronghorn were released into King Valley on the Kofa NWR from 2013 through January 2016. Most of those animals have remained in that valley on the Kofa NWR and the YPG, more than 10 miles south of the route segments. About ten individuals have been found outside of the Kofa NWR west of US 95, and a small number of other individuals have moved outside of the Kofa NWR and into or through the Palomas Plain, the southern Ranegras Plain, and north of and near the Little Horn and Eagletail mountains (AGFD 2014, 2015, 2016b).

Potential route segments in the eastern portion of the study area south of I-10 are within the experimental nonessential population area established for the Sonoran pronghorn. Though reintroductions are occurring in the King Valley on the Kofa NWR and most animals remain many miles from Project segments, some animals have moved long distances, possibly as far as the Harquahala Plain, and have repeatedly been documented within portions of the proposed ROW (USFWS 2017). As the number of animals increase through augmentation and reproduction, the range of the population would be expected to expand and perhaps regularly encounter portions of the Project.

According to the 2016 Revised Sonoran Pronghorn Recovery Plan (USFWS 2016b):

> "The Kofa population could be threatened by habitat loss, but most lands have some level of protection from habitat loss. Lands managed by FWS in the Kofa population area comprise 23% of the area, including Kofa NWR, Imperial NWR, and Cibola NWR. These FWS lands are managed for wildlife habitat and are primarily protected from habitat loss" (USFWS 2016b p. 37).

On the Cabeza Prieta NWR and in Sonora, Mexico, Sonoran pronghorn are present in open valley bottoms during cool and wetter months and in areas closer to dense vegetative cover during summer. Little has been written about the habitat use and movements of Sonoran pronghorn in the introduced population on and near the Kofa NWR.

Three bird species, including the western yellow-billed cuckoo (threatened), the southwestern willow flycatcher (endangered), and the Yuma Ridgway's rail (endangered), are known to be present around waterways in the western portion of the Project Area. The razorback sucker fish (endangered) is now found in Lake Mohave, Lake Mead, and the mainstream river channel below Lake Havasu, including the section of the Colorado River to be crossed by the Project (LCRMSCP 2016).

The Mojave desert tortoise is known to be present on the Palo Verde Mesa around the Colorado River substation. Mojave desert tortoises occur on the Palo Verde Mesa west of the agricultural areas. Though the sandiest areas are typically not well suited to support Mojave desert tortoise burrows, sign of Mojave desert tortoises representing a low density population have been found in the vicinity of the Colorado River Substation and elsewhere on the mesa. Habitat conditions tend to improve closer to the Mule Mountains, about 2 miles south of the substation.

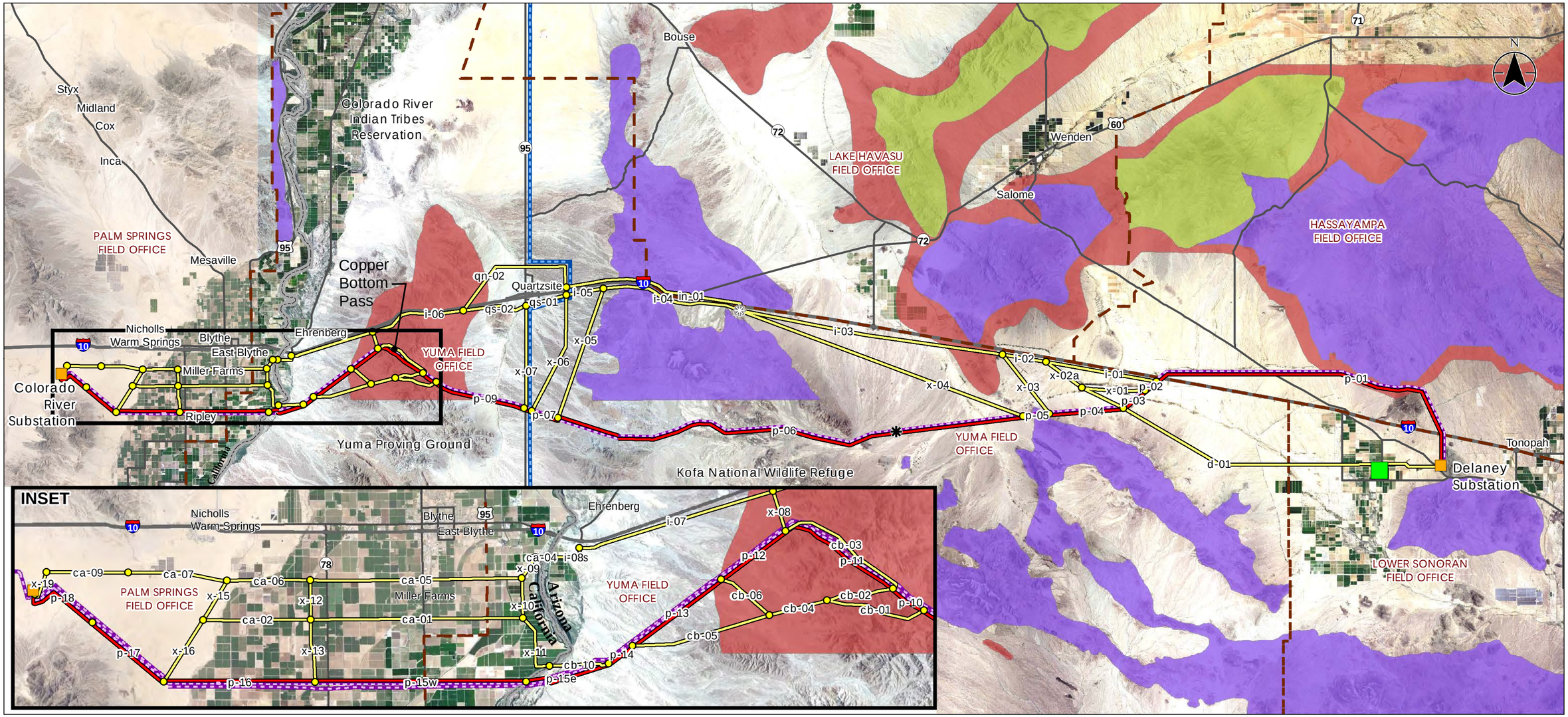
Other Special Status Wildlife Species – Arizona

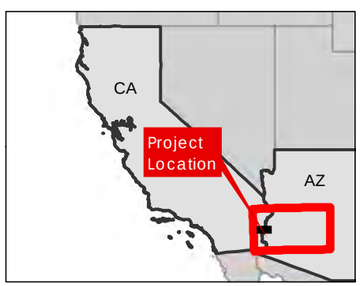
Tables 3.4-9 through 3.4-13 in Appendix 3 provides information on special status wildlife species (not including Federal ESA-listed species) that are present or could be present in and near the Project Area in Arizona.

Amphibians and Reptiles

Sonoran desert tortoises are found in southwestern Arizona, primarily in the Arizona Upland subdivision on rocky slopes, canyons, bajadas, and other rugged terrain. They are less common or absent from valley bottoms dominated by creosote-bursage. Habitat for the Sonoran desert tortoise on land managed by the BLM has been mapped and classified into three categories (BLM 2008c, Map 3-11) (Figure 3-6):

- **Category 1**: Habitat area essential to maintenance of large, viable populations, where conflicts are resolvable; there are medium- to high-density or low-density populations contiguous with medium- or high-density populations and increasing, stable, or decreasing population.
- **Category 2**: Habitat area may be essential to maintenance of viable population, where most conflicts are resolvable; there are medium- to high-density or low-density populations contiguous with medium- or high-density populations and stable or decreasing population.





Notes
1. Coordinate System: World Mercator
2. Data Source(s): Project data - HDR; Land Status - BLM
3. Service Layer Credits: USDA-FSA-APFO Aerial Photography Field Office

- Proposed Action*
- Alternative Route Segment
- Route Segment Node
- Proposed Series Compensation Station
- Alternative Series Compensation Stations (2 possible site locations; ~75' feet apart)
- Substation
- Harquahala Power Plant
- Devers-Palo Verde 500kV Transmission Line*
- Existing WAPA 161kV Transmission Line
- BLM Field Office Boundary

Tortoise Habitat on BLM-Managed Land
- Category 1
- Category 2
- Category 3

0 9 18 Miles

1:570,240 (At original document size of 11x17)

* = Existing DPV1 follows the Proposed Action. DPV1 and the Proposed Action are cartographically offset for display purposes. Because the routes are cartographically offset, in some cases, the routes do not precisely depict the estimated TWL alignment.

Figure 3-6
Ten West Link
Sonoran Desert Tortoise
Habitat Classification on BLM Land

- **Category 3**: Habitat area not essential to maintenance of viable populations, where most conflicts are not resolvable; there are low- to medium-density populations not contiguous with medium- or high-density populations and stable or decreasing population.

The route segments located on land managed by the BLM do not cross any Category 1 Sonoran desert tortoise habitat. The eastern portion of the study area is dominated by Sonoran desertscrub vegetation, providing habitat crossing the Harquahala and Ranegras plains; passing through foothills and bajadas north of the Eagletail Mountains; crossing sections of the Bighorn, Plomosa, and New Water mountains; and skirting the edge of the Livingstone Hills. Project segments pass through Sonoran desert tortoise habitat in the Dome Rock Mountains. All Project alternatives pass through Sonoran desert tortoise habitat and the quality of that habitat improves where alternatives are closer to the mountains (i.e., BLM category 2 habitat).

The only Category 2 habitat crossed by the Project is in the Ranegras Plain and in the Plomosa Mountains just north of I-10. Route segments cross Category 3 habitat in the Harquahala Plain at the southern end of the Big Horn Mountains, in the Ranegras Plain at the southern end of the Little Harquahala Mountains, in the La Posa Plain west of Quartzsite, and throughout the Dome Rock Mountains. Route segments through the Kofa NWR cross good-quality Sonoran desert tortoise habitat in the New Water Mountains and Livingston Hills, but habitat on the refuge has not been classified based on BLM rankings. Segment p-06 crosses areas on the refuge that has a habitat potential index as high as 0.8 (Nussear et al. 2009) (Figure 3-6).

Birds

At least 36 special status bird species, in addition to the threatened and endangered birds could be present in or near the Project Area. Golden eagle nest locations are widely scattered across the region in Arizona (Figure 3.4-4, Appendix 7) and have been documented nesting in the New Water, Eagletail, and Plomosa mountains, and potential nest sites have been identified elsewhere near the Project Area (G. Ritter, AGFD, personal communication. February 10, 2016). No known nest sites are within 1 mile of Project segments; the entire study area is considered potential foraging habitat.

Mammals

There are a total of 21 special status mammal species present in or near the Project Area (Table 3.4-9, Appendix 3).

Other Special Status Wildlife Species – California

Special status wildlife species are listed at Tables 3.4-14 through 3.4-16 in Appendix 3 (not including Federal ESA-listed species) that are present or could be present in and near the Project Area in California.

The Mojave fringe-toed lizard, a BLM sensitive species and DRECP LUPA focus species, is only found in habitats with loose sand, and is considered common on the Palo Verde Mesa. The habitat model developed for the DRECP maps most of the Palo Verde Mesa as potentially suitable habitat for the Mojave fringe-toed lizard. However, the DRECP model is based on general habitat conditions and includes areas where the Mojave fringe-toed lizard is not expected to be found. To refine the model, documented occurrence records and habitat maps from the CNDDB were plotted with the California Geologic Survey soil map (Figure 3-2) showing a close correlation with active wind-blown sand deposits. However, some locations do not fall within the mapped dune system, perhaps reflecting the dynamics of sandy soils and the patchy nature of these habitats not evident

due to the mapping scale. In an effort to more accurately map suitable Mojave fringe-toed lizard habitat on the Palo Verde Mesa, the locations from the CNDDB of Harwood's eriastrum, another sand dune obligate species, was plotted with the Mojave fringe-toed lizard occurrences and soils data. These data tended to cluster and polygons of presumed suitable Mojave fringe-toed lizard habitat were mapped (Figure 3-7). This map was used to calculate the linear distance of potentially suitable Mojave fringe-toed lizard habitat that would be crossed by each route segment on the Palo Verde Mesa (Table 3.4-17 in Appendix 3).

Wildlife Corridors and Wildlife Management Areas

The length of wildlife corridors and WHMAs crossed by segments in the study area are listed in Table 3.4-18 in Appendix 3 and are shown on Figure 3.4-5 (Appendix 7).

3.5 CULTURAL RESOURCES

Cultural Resources are defined as including archaeological sites; historic buildings, structures, or places; and places of traditional cultural or religious significance. The following definition of "Cultural Resource" is abridged from the BLM H-8100 handbook:

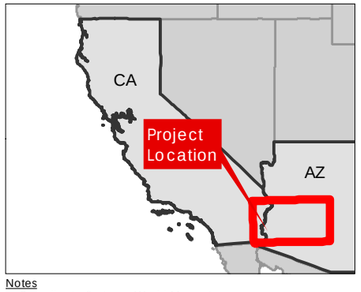
> …any definite location of past human activity, occupation, or use, identifiable through field inventory (survey), historical documentation, or oral evidence; such terms may include archaeological, historic, or architectural sites, structures, or places or sites, or places of traditional cultural or religious importance to specified social and/or cultural groups, whether or not represented by physical remains.

Information contained in this section is largely summarized from Brodbeck et al. (2017).

3.5.1 Analysis Area

The Area of Potential Effect (APE) for the Project would consist of a 200-foot-wide corridor where direct and indirect effects to cultural resources may occur. Direct effects are defined by areas where ground disturbance would be required for Project construction, such as structure locations, access roads, lay down areas, and spur roads. Indirect effects, such as visual, auditory, or atmospheric changes, would also be considered in the development of the Project's APE. The APE under Section 106 differs from the cultural resources analysis area discussed in this DEIS.

Cultural resources site information collected and compiled for this Project by the Class I inventory are presented in two tiers: (1) an area measuring 1 mile (0.5 mile on either side of the centerline) encompassing the Proposed Action and Action Alternatives; and (2) a 200-foot-wide corridor (measuring 100 feet on either side of the centerline) encompassing the Proposed Action and Action Alternatives. This level of investigation was considered to provide the most useful quantification of existing cultural resources data for analyses.



Notes
1. Coordinate System: World Mercator
2. Data Source(s): Project data - HDR; Land Status - BLM; Aeolian System Mapping - Lancaster 2014
3. Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

- Route Segment Node
- Proposed Action*
- Alternative Route Segment
- Substation
- Boundary of Presumed Fringe-toed Lizard Habitat

California Natural Diversity Database (CNDDB) Species
- Harwood's Eriastrum
- Mojave Fringe-toed Lizard

Aeolian System Mapping for the DRECP, California Geological Survey
- D - Developed areas
- Qe - Active windblown deposits > 1.5 m thick
- Qe/Qal -Active windblown deposits < 1.5 m thick
- Qoa -Pleistocene alluvial deposits
- Qw -Alluvial wash deposits
- Qye/Qal - Stabilized windblown deposits
- Qyf - Alluvial fan deposits
- br - Bedrock

* = Existing DPV1 follows Proposed Action. DPV1 is cartographically offset for display purposes.

0 0.75 1.5 Miles

1:48,000 (At original document size of 11x17)

Figure 3-**7**
Ten West Link
Presumed **Mojave** Fringe-toed Lizard Habitat

3.5.1.1 Class I Inventory

Class I inventory refers to the collection of data on previously conducted cultural resources investigations and the scope and adequacy of those investigations. The inventory includes the type, number, and NRHP status of previously recorded cultural resources; the presence of NRHP-listed historic properties; and areas of cultural significance to Tribal communities with ties to the Project Area. The Class I inventory provides data on the nature and density of existing cultural resources so that likely effects of new ground disturbance can be evaluated as part of the basis for recommending further cultural resource work. Many of the segments that comprise the Proposed Action and Action Alternatives have been intensively surveyed for cultural resources by other projects in the past, so the Class I overview provides substantial information about the types and distribution of known cultural resources in the Project Area. The BLM is using the substantial available Class I and ethnographic information, including feedback from the tribes, as baseline data to inform the analysis of alternatives to select the best route for the Project, should it be approved. Using this method, BLM is following Advisory Council on Historic Preservation (ACHP) guidance for coordinating Section 106 and NEPA processes for analysis (http://www.achp.gov/nepa.html).

Cultural Resources Sensitivity Analysis

The Class I inventory data available for the California portion of the Project has been compiled into a sensitivity analysis (Kline 2017). The results of the sensitivity analysis are discussed in association to relevant Action Alternatives and subalternatives. The sensitivity analysis is a specific Project requirement for compliance with the CDCA Plan as amended (BLM 1980) and the DRECP PA (BLM 2016). The sensitivity analysis is specific to the Proposed Action and is included in the Project record.

3.5.1.2 Indirect Effects Assessment Methodology

As a Federal agency, BLM is required to consider all effects of the Project to historic properties, including indirect auditory, atmospheric, and visual effects. Historic properties that are considered to be especially sensitive to indirect effects are typically those for which integrity of setting, feeling, and association are contributors to the property's NRHP eligibility and its ability to convey a sense of its own significance. Properties considered to be sensitive to indirect effects can be National Historic Landmarks (NHLs), traditional cultural properties (TCPs), National Historic Trails, and other classes of historic properties that are eligible under NRHP Criteria A, B, or C.

The analysis area for indirect effects to known places of Tribal concern from a visual standpoint includes 5 miles on either side of the Proposed Action and Action Alternative segments.

Government-to-government consultation with tribes, as well as consultation with other interested communities and parties, as required by the Section 106 and CEQA process to identify properties of concern and potential visual effects is currently ongoing. The BLM, as the lead Federal agency, is guiding these government-to-government consultation efforts.

3.5.2 Existing Conditions

3.5.2.1 Cultural History

A cultural history provides the interpretative framework for evaluating, interpreting, and understanding the cultural resources identified in the study area. To evaluate significance of cultural resources and their eligibility for inclusion on the NRHP, a site or property must be understood within an appropriate interpretive context. Historic contexts are established by theme, period, and geographic limits and provide guidance for assessing sites associated with the context.

3.5.2.2 Project-Specific Conditions

A total of 916 cultural sites were identified by the Class I investigations (604 in Arizona and 312 in California). The NRHP status of these sites is detailed in Tables 3.5–1 and 3.5-2 in Appendix 3. Previously recorded prehistoric site types include, for example, artifact scatters of different compositions (lithics, ceramics, and groundstone), quarries, rock rings and alignments, cairns, hearths, milling stations, ceramic scatters/pot drops, intaglios, petroglyphs, and trails. Previously recorded historic sites include, for example, trash dumps/scatters, historic campsites, agricultural canals and drains, a check dam, roads, transmission lines, railroad grade, military sites, mine pits and waste piles, mining camps, and structural remnants.

The information on cultural resources provided for Segments cb-03, i-06, i-07, and x-08 does not include any potential cultural resources or project data from the CRIT. Tribal data is sensitive information and can only be accessed through the Tribe.

Previous survey coverage of the 1-mile-wide and 200-foot-wide study areas were used to provide calculations for existing survey coverage and project site densities per 100-acre unit to provide a measure of comparison between segments of the Proposed Action and Action Alternatives.

Proposed Action

A total of 55 NRHP-eligible or unevaluated sites have been previously recorded within the 200-foot analysis corridor of the Proposed Action. Sensitive sites known to occur in the study area include trails, intaglios, and prehistoric habitation sites with human remains. Segments p-17 and p-18 of the Proposed Action cross the eastern base of the Palo Verde Mesa, a culturally sensitive area (AECOM 2012). Known cultural features in this area include plants of medicinal value, seasonal cultural habitation sites, calcined bone consistent with cremated human remains, trails, and important natural resource collection areas (Bean and Vane 1978). Of particular importance are mineral sources and plants used for medicinal purposes and basketry.

Alternative 1

A total of 25 NRHP-eligible or unevaluated sites have been previously recorded within the 200-foot analysis corridor of Alternative 1. Sensitive sites known to occur in the study area include prehistoric trails and intaglios.

Alternative 2

A total of 41 NRHP-eligible or NRHP-unevaluated cultural resources sites have been previously recorded within the 200-foot analysis corridor of Alternative 2. Sensitive sites known to occur in the study area include prehistoric trails and intaglios.

Alternative 3

A total of 41 NRHP-eligible or NRHP-unevaluated cultural resources sites have been previously recorded within the 200-foot analysis corridor of Alternative 3. Sensitive sites known to occur in the study area include prehistoric trails.

Alternative 4

A total of 45 NRHP-eligible or NRHP-unevaluated cultural resources sites have been previously recorded within the 200-foot analysis corridor of Alternative 4. Sensitive sites known to occur in the study area include prehistoric trails.

Cultural Resources of Concern

Petroglyph sites are recorded along Segment i-06.

Site AZ-050-0764 is located within the 200-foot-wide corridor of Segment i-07. The site consists of an intaglio and has not been evaluated for NRHP significance.

Site AZ R:7:55(ASM)/Limekiln Wash Intaglio, is located within the 200-foot-wide corridor of Segment p-13. The site consists of an intaglio and has been determined eligible for inclusion in the NRHP.

An anthropomorphic intaglio present at site AZ-050-0822 is located within the 200-foot-wide corridor of Segment p-13. This site has not been evaluated for NRHP significance.

One site of particular concern along Segment p-17 is CA-RIV-1821 (also identified as CA-RIV-1821/H), which includes calcined bone consistent with cremated human remains. The site was originally recorded in 1980 by the BLM during the Southern California Edison Devers–Palo Verde cultural resources survey (Day et al. 1980) and was subsequently revisited and updated several times. Applied EarthWorks revisited the site in 2017 during the survey for this Project (Gardner et al. 2018). The boundaries of the site were expanded significantly to incorporate 18 smaller previously-recorded cultural resources, including a continuous scatter of prehistoric and historic artifacts and numerous associated prehistoric and historic features. The calcined bone reported by previous researchers (Lerch et al. 2016; Way and Eckhardt 2004) was not identified by the Gardner et al. (2018) fieldwork.

Another cultural resource of special note near Segment p-17 is CA-RIV-773, the Mule Mountains Petroglyph and Intaglio District. The district is listed on the NRHP and is of known significance to Indian tribes. It is located outside the 1-mile-wide corridor but is close enough for consideration of potential indirect and cumulative effects.

As components of traditional native infrastructure, prehistoric trail segments may be sensitive to indirect effects considerations. Previously recorded cultural resources that contain prehistoric trail segments are located on Proposed Action Segments p-04, p-06, p-07, p-09, p-10, p-11, p-12, p-13, p-14, p-15e, and p-17, as well as Action Alternative Segments d-01, i-03, i-07, i-08s, qn-02, qs-01, cb-01, cb-02, cb-03, cb-05, cb-06, cb-10, x-02, x-04, x-05, x-06, x-07, x-08, x-15 and x-16.

Cultural Resources Sensitive to Indirect Effects

Indirect auditory, atmospheric, and visual effects to historic properties could occur with Project construction and would need to be assessed by indirect effect analysis. Specific cultural resources were identified as resources that the Project could potentially affect indirectly because of their sensitivity to visual changes.

On Segment p-06, the BLM Yuma Field Office archaeologist identified two sites that warrant an impact analysis. The Indian Well Site, AZ-050-1445 consists of two groups of petroglyphs near a spring or seep. Petroglyph sites associated with natural water sources are typically places of elevated cultural significance to Indian tribes. The other is an area of undocumented rock rings just west of site AZ-0502592.

The Eagletail Petroglyph Site, an NRHP-listed property, is located within the 5-mile indirect effects analysis area of Segment d-01 in the Eagletail Mountains. The site's NRHP eligibility and cultural significance to Indian tribes may include a visual component.

A recorded intaglio, site AZ-050-1887, is located within the 1-mile-wide corridor of Segment qn-02. The site has not been evaluated for NRHP eligibility.

Site AZ-050-1309 exhibits an intaglio, and prehistoric and historic petroglyphs. This site has been recommended eligible for inclusion in the NRHP and is within the 1-mile-wide corridor of Segment qs-02.

Petroglyph sites are recorded within the 1-mile-wide corridor of Segment i-08s.

Site AZ R:10:1(ASM)/Ripley Intaglio Site, is listed in the NRHP (#75000368; 11/20/1975). It is situated on the terraces overlooking the Colorado River on the Arizona side of the state line (Ezzo 1993; Holmlund 1993). In this zone, the site is located within the 5-mile indirect effects analysis area of Segment p-15e and includes a set of large anthropomorphic, geometric, and abstract figures etched into the desert surface.

CA-RIV-773/Mule Mountains Petroglyph and Intaglio District is located in the northern Mule Mountains to the southwest of Segments p-17 and p-18. It consists of an archaeological district that is listed in the NRHP and is culturally significant for the Indian tribes along the Colorado River. The district includes a natural water catchment and was—and is—an important junction of indigenous travel routes and a focal point of human activity. Numerous trails extend away from this district and are related to the intaglios and petroglyphs.

Site CA-RIV-000661 is a multicomponent site that consists of a cobble rock alignment and possible intaglio. It is located within the 1-mile corridor of Segments ca-07 and ca-09. The status of the site's NRHP eligibility is unknown.

Site CA-RIV-000662 consists of a cobble rock alignment and possible intaglio. It is located within the 1-mile corridor of Segment ca-09 and has not been evaluated for NRHP eligibility.

One previously unrecorded cultural resource is the Salome Emergency Airfield along Segment x-03. Identified on historic aerials, the airfield was built by American Airlines as an emergency landing strip for its Phoenix-Los Angeles route sometime in the 1920s or early 1930s. The airfield is listed in the 1934 US Department of Commerce, Bureau of Air Commerce *Description of Airports and Landing Fields in the United States*, as an "American Airline Field, auxiliary." Such sites would be evaluated under historic contexts related to early air transportation.

3.6 CONCERNS OF INDIAN TRIBES

3.6.1 Analysis Area

The analysis area for concerns of Indian tribes is the same as that described in Section 3.5.1.

3.6.2 Existing Conditions

The Project is within ancestral lands of Indian tribes, and tribal communities have maintained a spiritual stewardship and cultural connection to the landscape. The numerous natural and cultural resources in and around the Project Area contain cultural and spiritual significance for Indian tribes, and continues to play fundamental roles in cultural traditions, group identities, and ongoing religious and ceremonial traditions.

Information provided by tribes about areas of specific Tribal concern has been and will continue to be identified during Section 106 and Government-to-Government consultation processes and considered during the evaluation and assessment of effects under Section 106 and NEPA. An ethnographic overview has been prepared to present baseline information on Tribal cultural connections within the Project Area. As the Project develops, new historic properties become known, and input from Indian tribes is gathered and integrated into Project planning; the resulting information has been and will continue to be incorporated into resource assessments.

Given the physical length of the Project, several Indian tribes with affiliation to the greater Project Area have been identified during the initial consultation process (Section 3.6.2.2).

3.6.2.1 Potential Resource Types of Cultural Significance

In addition to more traditionally defined sites that may be evaluated under the NRHP criteria for eligibility, other types of cultural resources that may be of cultural and religious significance to Indian tribes within the Project Area should be addressed and evaluated as NRHP historic properties. The following cultural resources types are borrowed from AECOM's (2012) ethnographic assessment for the McCoy Solar Energy Project. Though cultural resources of these types may not qualify as eligible under the NRHP, or sometimes even as archaeological sites, certain types of cultural resources may still be considered significant. Such cultural resource types significant to Indian tribes include, but are not limited to:

A. *Traditional Origin and Mythological Places.* Such places are locations associated with beliefs concerning Tribal origins and mythology or the nature of the world. Physical

archaeological evidence may not exist at such locations and they may consist only of geographic features.

B. *Ceremonial Locations.* Ceremonial locations include places where religious practitioners go, either in the past or present, to perform ceremonial activities based on the traditions of the culture. Examples could include rock art sites, dance sites, hot springs, and places where objects have been ritually placed. These locations may or may not show evidence of archaeological use; and, even if archaeological remains are present, the function of the site may not be readily apparent.

C. *Historical Tribal Locations.* Historical Tribal locations are places where an important historical event has occurred relating to particular Indian tribes. This category might include battle sites, sites associated with historic Tribal members, or locations where treaties were negotiated.

D. *Ethnohistoric Habitation Sites.* These are habitation sites known to have been used by a particular tribe or culture. The location of such sites may be known through either written or oral histories. Most of these sites will likely contain archaeological evidence.

E. *Trails.* Trails, particularly those associated with migration or traded routes, are considered culturally significant by many Indian tribes. Trails represent links between various tribes and regions and may also lead to places of spiritual significance. The act of following a trail can be a spiritual journey in itself.

F. *Burial Sites.* Burial sites are culturally significant to Indian tribes. The exact locations of burial sites are not always known or divulged.

G. *Resource Collection Areas.* Resource collection areas include a wide variety of places from which plants, animals, minerals, and water are gathered for medicinal or other subsistence purposes. It is sometimes difficult to establish concise boundaries for these locations. Examples of resource collection areas include groves of ethnobotanically important plant materials, quarries, lakes, and springs.

Given the nature of cultural resources of these types, it can be concluded that not all of these sites are tangible or observable locations and, as such, may or may not be readily identifiable during an archaeological survey. Nevertheless, such site types may be culturally significant and therefore should be taken into consideration. Certain locations may only be known through oral traditions or recorded through ethnographic work.

3.6.2.2 Project-Specific Concerns of Indian Tribes

Based on communications with Indian Tribal representatives from the CRIT, Quechan Tribe of the Fort Yuma Indian Reservation, Twenty-Nine Palms Band of Mission Indians, and the Gila River Indian Community, several issues of Tribal concern were identified. These are not all inclusive, and other areas of Tribal concerns may be identified during continued Section 106 consultation.

- Existing Access: Tribal representatives from the CRIT, Quechan Tribe of the Fort Yuma Indian Reservation, and the Twenty-Nine Palms Band of Mission Indians all expressed concerns regarding construction of the Project limiting existing access into areas of spiritual use, especially in the Mule Mountains.

- New Access: Tribal representatives from the CRIT, Quechan Tribe of the Fort Yuma Indian Reservation, and the Twenty-Nine Palms Band of Mission Indians all expressed concerns regarding construction of the Project providing new access into areas that were previously inaccessible. Concerns were expressed that new access routes would lead to increased OHV use and lead to the damage and vandalism of historic properties.
- Native Infrastructure and the Interconnection of the Cultural and Natural Environment: the CRIT, Quechan Tribe of the Fort Yuma Indian Reservation, the Torres Martinez Desert Cahuilla Indians, and Twenty-Nine Palms Band of Mission Indians all expressed concerns regarding the interconnectedness of cultural resource sites, natural features of the landscape, and prehistoric trail networks. Concern was expressed regarding the cumulative effects of projects erasing the ancestral footprint of the Tribes from the landscape.
- Places of Elevated Spiritual Importance to Tribes: the CRIT, Quechan Tribe of the Fort Yuma Indian Reservation, and Twenty-Nine Palms Band of Mission Indians all expressed concerns regarding specific culturally-sensitive areas, especially in the Mule Mountains. Concern was expressed regarding visual impacts to other areas of elevated spiritual importance to tribes, such as the Ripley Intaglio Site. Formal evaluation and consultation on these specific areas as TCPs would need to be conducted by BLM. In consultation (Madrigal [Twenty-Nine Palms Band of Mission Indians] to MacDonald [BLM], 5/12/2017), the Twenty-Nine Palms Band of Mission Indians additionally noted that the Project may cross into a culturally sensitive area, and that a culturally sensitive site not previously identified by the background research was located within or near the Project. Formal consultation would need to be conducted by the BLM to identify and evaluate these locations, as applicable.
- The Colorado River: the CRIT, the Quechan Tribe of the Fort Yuma Indian Reservation, and the Twenty-Nine Palms Band of Mission Indians all expressed concern about the Colorado River, and its influence on their spiritual belief and cultural history. As such, the Colorado River crossing and the indirect and direct effects of its siting on the landscape and potential impact to historic properties are of great concern to Indian tribes.
- Treatment of Human Remains: The CRIT expressed concern regarding the treatment of human remains and mortuary items. It is their belief that if human remains are encountered, they should not be removed but avoided entirely and left in place.
- Intrusion on Pristine Landscapes: The CRIT, the Quechan Tribe of the Fort Yuma Indian Reservation, and the Twenty-Nine Palms Band of Mission Indians all expressed desire to restrict Project disturbance to areas already disturbed in order to limit impacts to pristine landscapes. Pristine and undisturbed landscapes are important to Tribal spiritual life and are high-energy places that should be preserved.

3.6.2.3 Project-Specific Conditions

Not all of the cultural resources discussed have been formally evaluated for NRHP significance; as a result, the term “cultural resources” is used throughout except in cases where NRHP eligibility is known. This is not a comprehensive list; it is expected that additional resources would be identified during the life of the Project through ongoing Section 106 consultation.

Intaglio/Rock Art/Petroglyphs

Intaglio, petroglyph, and rock art sites are often of significance to Tribal groups. Several such sites are within the study area.

One site located along Segment p-06 is reported as containing petroglyphs. Petroglyph sites may have a ceremonial function and are typically places of elevated cultural importance to Indian tribes.

Eagletail Petroglyph Site

The Eagletail Petroglyph Site is located in the Eagletail Mountains within the 5-mile indirect effects analysis area of Segment d-01. The Eagletail Mountains are a culturally important feature of the environment, and the petroglyph site is of particular importance as a node of cultural activity (Berry 1978). The site is listed in the NRHP (#88001570; 9/28/1988). Information on the Eagletail site is restricted; however, the site is well-known among the general public for its impressive collection of petroglyphs, which number in the thousands. The visual setting could be an important component of the site's NRHP eligibility.

Indian Well Site

The Indian Well Site, AZ-050-1445, consists of two groups of petroglyphs near a spring or seep. Petroglyph sites associated with natural water sources are typically places of elevated cultural importance to Indian tribes. It is located within the 5-mile indirect effects analysis area of Segment p-06. Little information about the site was included in the Class I data.

Limekiln Wash Intaglio

Site AZ R:7:55(ASM)/Limekiln Wash Intaglio, is located within the 200-foot-wide corridor of Segment p-13. The site consists of an intaglio and has been determined eligible for inclusion in the NRHP.

Ripley Intaglio Site

Site AZ R:10:1(ASM)/Ripley Intaglio Site, is listed in the NRHP (# 75000368; 11/20/1975). It is situated on the terraces overlooking the Colorado River on the Arizona side of the state line (Ezzo 1993; Holmlund 1993). The site is located within the 5-mile indirect effects analysis area of the Proposed Action and includes a set of large anthropomorphic, geometric, and abstract figures etched into the desert surface. The Ripley Intaglio Site may represent a healing dance area (Johnson 1985).

Other Sites

Site AZ-050-1887, an unevaluated intaglio site, is within the 1-mile corridor of Segment qn-02.

Site AZ-050-1309 exhibits an intaglio, and prehistoric and historic petroglyphs. This site has been recommended eligible for inclusion in the NRHP and is within the 1-mile corridor of Segment qs-02.

Site AZ-050-0764 is located within the 200-foot-wide corridor of Segment i-07. The site consists of an intaglio and has not been evaluated for NRHP eligibility.

Petroglyph sites are also recorded along Segments cb-05 and i-08s.

Site CA-RIV-000661 is a multicomponent site that consists of a cobble rock alignment and possible intaglio. It is located within the 1-mile corridor of Segments ca-07 and ca-09. The status of the site's NRHP eligibility is unknown.

Site CA-RIV-000662 consists of a cobble rock alignment and possible intaglio. It is located within the 1-mile corridor of Segment ca-09 and has not been evaluated for NRHP eligibility.

Trails

Trails are of potential significance to Indian tribes as part of traditional native infrastructure associated with travel across the landscape. The significance of specific trails can be understood in their relationship to specific geomorphological settings, connection to known resource areas, and habitation sites in the regional settlement pattern. These occur along Proposed Action Segments p-04, p-06, p-07, p-09, p-10, p-11, p-12, p-13, p-14, p-15e, p-16, and p-17; and along Action Alternative Segments d-01, i-03, qn-02, qs-01, cb-01, cb-02, cb-03, cb-05, cb-06, cb-10, i-06, i-07, i-08s, ca-01, ca-02, x-02, x-04, x-05, x-06, x-07, x-08, x-15, and x-16.

The Coco-Maricopa Trail

The Coco-Maricopa Trail was a heavily traveled east-west trade route connecting the Los Angeles Basin with the Colorado River at the Palo Verde Valley. It also continued eastward to the Maricopa villages on the Gila and Salt rivers in the Phoenix area. The trail was first noted by Euro-Americans in the early 1800s as a route used by the Halchidhoma (Lerch et al. 2016). The physical location of the entire trail is not known and only a few segments have been recorded.

Unnamed North-South Trails

While the Coco-Maricopa Trail is the most well-known trail through the area, AECOM (2012) also notes the likely presence of north-south running trails through the Palo Verde Mesa. North-south trails have been associated with a specific mourning ritual, or *keruk*, that involved following the path between two spiritual peaks: *Akikwalal* at Pilot Knob near Yuma and *Avikwami* in the Newberry Mountains near Needles. This trail is also referred to as *Xam Kwatcan* Trail (Lerch et al. 2016).

Salt Song Trail

In addition to these known and recorded trail systems, the Project Area is within the general area described by the Salt Song Trail (Lerch et al. 2016; AECOM 2012). The Salt Song Trail is considered to be the path to the afterlife used by the Chemehuevi, Southern Paiute, and Hualapai. The Salt Song Trail is described in the Salt Songs, which are a series of songs sung at funerals. The path is metaphysical and the locations identified in the Salt Songs can be considered to be Traditional Origin and Mythological Places. While the trail itself is not considered an on-the-ground cultural resource, consultation received from the Twenty-Nine Palms Band of Mission Indians notes that locations named in the Salt Songs may be tied to physical locations of importance in or around the Project (Madrigal [Twenty-Nine Palms Band of Mission Indians] to MacDonald [BLM], 5/12/2017).

CRIT Cultural Resources

Cultural resources located on CRIT lands have not been identified, as their locations are confidential, and the distribution of confidential data requires special consideration from the CRIT Tribal Council. For segments that include CRIT lands, more information would be required to ensure the identification of potential historic properties.

Colorado River

Many of the most sensitive tribal cultural resources are located around the Colorado River. The high density of known cultural resource sites in the Mule Mountains and on the Palo Verde Mesa indicates that this area was significant in the prehistoric past and continues to be important to Indian Tribal communities today. Significant known cultural resources include trails and intaglio/petroglyph/rock art sites. The types of prehistoric sites, their distribution and density, as well as the environmental setting of this area offers an insight into the regional settlement and land use pattern operating during prehistory and demonstrate the interconnectedness of the cultural and natural environment. Two NRHP-listed properties, AZ R:10:1(ASM)/Ripley Intaglio Site and CA-RIV-773/Mule Mountains Petroglyph and Intaglio District, are located in this area.

The Mule Mountains

The Mule Mountains are south of the Project Area within line-of-sight of Segments p-17 and p-18. Previous research has suggested that the Mule Mountains contain sensitive archaeological sites including trails and ceremonial sites (AECOM 2012, AECOM 2016). The mountains also form the center of a regional trail network (Leard and Brodbeck 2017). Bean and Vane (1978) describe "A rock tank in this area stores up water when it rains, and may have been a permanent water source in past years. Consequently, this is a site where travelers, traders, and ritualists probably stopped off regularly."

CA-RIV-773/Mule Mountains Petroglyph and Intaglio District is located in the northern Mule Mountains southwest of Segments p-17 and p-18. It consists of an archaeological district that is listed in the NRHP. The district includes a natural water catchment and was—and is—an important junction of indigenous travel routes and a focal point of human activity. Numerous trails extend away from this site district and are related to the intaglios and petroglyphs (Brodbeck et al. 2017).

Palo Verde Mesa

While not a specific property, AECOM (2012) describes the eastern base of the Palo Verde Mesa as a culturally and biologically sensitive area of great importance. Known features in this area include plants, seasonal habitation sites, graves, trails, and important natural resource collection areas (Bean and Vane 1978). Of particular importance are mineral sources and plants used for medicinal purposes and basketry. Mineral resources can include clay for ceramic production and crystal sources for ceremonial purposes.

CA-RIV-1821, an artifact scatter with thermal features and cremated human remains, is a known area of sensitivity to the CRIT and Quechan Tribe of the Fort Yuma Indian Reservation. The site has been determined eligible for inclusion in the NRHP. It is located along an existing access road in Segment p-17.

3.7 LAND USE

3.7.1 Analysis Area

The general land use study area is a 4,000-foot corridor encompassing the Proposed Action route and Action Alternative segments. A 2-mile-wide study area was used for military land because typically the DOD requests large buffers around their properties to both protect the public and provide secure grounds for military uses.

3.7.2 Existing Conditions

3.7.2.1 Land Jurisdiction and Plans

Broad areas of the land use study area are Federally owned; these are managed by the US Department of the Interior (the BLM, Reclamation, or the USFWS) or by the DOD. Tribal lands of the CRIT are located along the Colorado River, mostly on the Arizona side of the river. Also present are ASLD lands that are often leased to companies or individuals for grazing or agricultural use. There are no California state lands in the land use study area with the exception of the Colorado River (over which the State Lands Commission [SLC] has jurisdiction). Private lands, including lands with residential, commercial, agricultural, and other uses, are mostly smaller parcels (Figure 1-1). Federal land use plans that govern federal land in the Arizona portion of the land use study area include the Yuma RMP. Potential amendments to the Yuma RMP include permitting ROWs for the Project outside existing utility corridors, expanding existing utility corridors to accommodate the Project, and modifying visual resource management (VRM) Classes to address Project non-conformance issues.

In California, federal land in the land use study area is governed by the Yuma RMP and the 1980 CDCA Plan (BLM 1980), as amended by the DRECP (BLM 2016a). The DRECP (BLM 2016a) Land Use Plan Amendment (LUPA) contains CMAs for each land use allocation, as well as certain types of use. CMAs are the specific set of avoidance, minimization, and compensation measures, and allowable and non-allowable uses for siting, design, pre-construction, construction, maintenance, implementation, operation, and decommissioning activities on BLM land. The DRECP LUPA included land use allocations such as Development Focus Areas (DFAs) that supported the DRECP's overall renewable energy and conservation goals, as well as measures designed to protect other values and uses of the public lands. The Project would cross one DFA identified in the DRECP. Projects in DFAs are pre-screened and available for renewable energy development and transmission and benefit from consistent and predictable mitigation requirements identified in the DRECP. The DRECP streamlines development on public land and allows the development of new transmission line infrastructure outside of utility corridors within DFAs.

The USFWS and the BLM developed the Kofa National Wildlife Refuge and Wilderness and New Water Mountains Wilderness Interagency Management Plan and Environmental Assessment to describe the management objectives for the refuge (USFWS and BLM 1997). The Kofa NWR utilizes USFWS policies on appropriateness (USFWS 2006a) and compatibility (USFWS 2000) when processing ROW applications.

The La Paz County Comprehensive Plan (La Paz County 2005) does not expressly identify utility corridors for transmission infrastructure, it states that "[a]ny new industrial development should be located along a major arterial corridor, rail connection, [or] state highway, or in close proximity to the Interstate corridor."

The Town of Quartzsite General Plan (Town of Quartzsite 2014) does not identify particular corridors for utilities, the strategy supporting this goal is to coordinate infrastructure improvement with existing and projected development activity and, therefore, place utilities in areas that are beneficial to the community and complement the plan.

3.7.2.2 Land Uses

The land use study area includes mainly rural, sparsely populated lands under Federal management (Figures 3.7-1 through 3.7-4, Appendix 7).

Where the Proposed Action and Action Alternative segments cross Federal lands, they are mostly within existing BLM RMP-designated utility corridors and/or WWEC 30-52. Of the 58.3 miles of Proposed Action segments that fall on BLM or Reclamation land, 98 percent also overlap BLM RMP-designated utility corridors or WWEC 30-52. Of the 183.3 miles of Action Alternative segments that fall on BLM or Reclamation land, 62 percent also overlap BLM RMP-designated utility corridors or WWEC 30-52. Where the Proposed Action segments cross non-Federal lands, or lands managed by the USFWS or DOD, they are entirely located parallel to the existing DPV1 ROW. While some of the Action Alternative segments are located parallel to existing utility ROWs, several Action Alternative segments cross outside designated utility corridors between the Proposed Action and Action Alternative segments routed along I-10.

Residential

The land use study area as a whole includes large areas of public land and relatively little private residential land. Residences are typically scattered on large lots (1 to 40-plus acres) and generally increase in density in the vicinity of cities and towns within the Project Area.

Agriculture including Williamson Act Lands

Agricultural lands are present throughout the land use study area. The BLM and ASLD have authorized grazing on their rangelands, and ASLD also leases some State Trust land for agricultural purposes (Figures 3.7-5 and 3.7-6, Appendix 7).

Other Land Uses in the Study Area

Commercial land uses are typically assigned to areas that are used or planned for general commerce. Industrial land use in the study area includes several existing and approved, but not yet constructed, solar energy facilities.

The YPG is the only military installation in the military land use study area. In regard to open space, open space in the land use study area are under the jurisdiction of the BLM or the USFWS.

Colorado River Indian Tribes Land

The study area for land use includes the southeastern tip of the CRIT reservation (Figure 1-1).

Public Facilities, Utilities, and Rights-of Way

A variety of existing utilities are present in the land use study area, including water, oil, natural gas pipelines and smaller distribution lines; underground and aboveground electricity transmission lines; and buried fiber optic cables. These utilities may or may not utilize designated corridors. Utilities that occur on BLM land are generally authorized under a ROW grant.

3.7.2.3 Land Use Study Area Overview

High level land use issues associated with the Proposed Action and Action Alternative segments are listed below.

- Segment p-06 crosses Kofa NWR for about 24 miles, crossing about 2 miles south of the northern boundary of the refuge and adjacent to the DPV1 ROW.
- Segments qn-01, qn-02, qs-01, and qs-02 pass through the Quartzsite incorporated boundaries north and south of the most developed part of town.
- Portions of the land use study areas for Proposed Action segment p-11 and Acion Alternative Segments cb-03, i-06, i-07, and x-08 overlap with the CRIT reservation.
- As the majority of Proposed Action Segments p-15e through p-18 and Action Alternative Segments ca-01, ca-02, ca-04 through ca-07, ca-09, i-08s, x-09 through x-16, and x-19 are on privately owned land, they do not coincide with designated utility corridors. However, portions of Action Alternative Segments ca-07, ca-09, and x-19 overlap with the WWEC 30-52 west of Blythe.
- BLM-administered land in California crossed by Proposed Action Segments p-15e through p-18 and Action Alternative Segments ca-01, ca-02, ca-04 through ca-07, ca-09, i-08s, x-09 through x-16, and x-19 are classified as a DFA, where activities associated with solar and wind development and operation will be allowed, streamlined, and incentivized (BLM 2016a). There is one existing solar energy facility in these land use study areas: the NRG Blythe solar energy facility. One approved but not yet constructed solar energy facilities will be constructed in the land use study area: the Blythe Mesa Solar Project. Two proposed solar energy facilities, the Desert Quartzite Project and the BrightSource Energy Sonoran West Project (also known as Crimson Solar), are located in the land use study area.

3.8 RECREATION

3.8.1 Analysis Area

The recreation study area is a 2-mile-wide corridor encompassing the Proposed Action and Action Alternative segments. However, the area used for the description of the affected environment for recreational resources includes the entirety of recreation areas intersected by the Proposed Action and Action Alternative segments, adjacent recreation areas (within 1 mile), and areas that could be directly or indirectly affected by the Project.

3.8.2 Existing Conditions

Recreational activities in the recreation analysis area include camping, nature viewing, amateur geology (i.e., rockhounding), team sports, water sports, OHV use, hiking and backpacking, rock climbing, and hunting.

3.8.2.1 Recreation Management

The BLM uses a planning tool known as the Recreation Opportunity Spectrum (ROS) that inventories, classifies, and maps public lands according to their suitability for various types of recreational activity based on the presence of physical setting characteristics. The system defines six classes of recreation opportunity ranging from natural, low-use areas to highly developed, intensive use areas: these include Rural Natural, Rural Developed, Urban, Suburban, and Semi-Primitive. The classes are defined by setting, the types of recreational activities appropriate to that setting, and the types of recreation experience the setting offers to visitors. BLM designates Special Recreation Management Areas (SRMAs) to help direct management priorities in areas with a high amount of recreational activity and increased resource values and public concern (Figure 3.8-1, Appendix 7). BLM also issues Special Recreation Permits (SRPs) for LTVA use (Section 3.8.2.3).

3.8.2.2 Recreation Areas

Recreation areas are used by the public for both dispersed and developed recreation and are managed by a Federal, state, or municipal agency. There are 18 recreation areas located within the study area.

3.8.2.3 Long-term Visitor Areas

LTVAs are specially designated areas on BLM-administered land that allow visitors to stay for longer periods of time than are typically spent camping on Federal lands. Only one LTVA is located within the recreation analysis area: The La Posa LTVA near Quartzsite.

3.8.2.4 Hunting

The AGFD manages hunting within seven game management units (GMUs) in the recreation analysis area in Arizona (Figure 3.8-2, Appendix 7). The CDFW manages hunting in the analysis area in California within its Inland Desert Region.

3.8.2.5 Off-Highway Vehicles

OHV use is popular in both Arizona and California in the recreation analysis area. Use is generally classified as “heavy” use in the BLM’s route inventory for the analysis area. OHV activities include day use and multiday overnight trips along historic routes and in remote natural areas, such as the proposed Arizona Peace Trail.

In managing OHV use on BLM-administered land, lands are designated as “Open”, “Open to All Uses”, “Limited to Authorized Use”, or “Closed”. The BLM does not maintain specific data regarding unauthorized or illegal OHV use of BLM lands, but some problems exist with illegal OHV use (Personal Communication, Ron Morfin, 8/6/2016).

3.8.2.6 Recreation Study Area Overview

Recreation facilities associated with the Proposed Action and Action Alternative segments are shown on Figures 3.8-1 through 3.8-6 (Appendix 7), highlights include:

- The proposed Arizona Peace Trail is crossed by Proposed Action Segments p-06 and Action Alternative Segments i-03 and x-04. Proposed Action Segments p-10 through p-13 run parallel to a portion of the proposed Arizona Peace Trail, just north of the YPG.
- The La Posa SRMA is crossed by Proposed Action Segments p-07, p-08, p-09, p-10, and p-11, as well as Action Alternative Segments p-13 and i-06.
- Action Alternative Segments i-05, qn-01 and qn-02, qs-01 and qs-02, x-05, x-06 and x-07 pass through the La Posa Destination SRMA and Action Alternative Segments qs-01, qs-02, x-06, and x-07 are along or within the La Posa LTVA.
- Action Alternative Segments cb-01 through cb-06, i-06, i-07, and x-08 cross the La Posa Destination and Colorado River Destination SRMAs.
- The proposed Arizona Peace Trail is crossed by Action Alternative Segment qn-02 north of Quartzsite. In addition, while the proposed Arizona Peace Trail is within the La Posa LTVA, it runs along Action Alternative Segment qs-01 for less than 1 mile and is crossed by Action Alternative Segments x-07 and qs-02.
- Action Alternative Segment cb-02 runs parallel to a portion of the proposed Arizona Peace Trail and Johnson Canyon, and the trail is crossed by Action Alternative Segment cb-05.
- Action Alternative Segments qn-02, qs-02, and i-06 pass through the Dome Rock 14-Day Camping Area.
- The Proposed Action and Action Alternative segments cross the proposed Arizona Peace Trail, including Johnson Canyon, in the Copper Bottom Zone at various points, with the greatest parallel length to Johnson Canyon being with Segment cb-02.
- Proposed Action Segments p-11 through p-14 cross the Colorado River Destination SRMA.
- The Mule Mountains ACEC is 0.8 mile from Proposed Action Segment p-17.
- The Colorado River Corridor Destination SRMA is 0.5 mile from Action Alternative Segment x-11.

3.9 SOCIOECONOMICS

3.9.1 Analysis Area

The study area for the socioeconomics resource analysis is the entirety of the three counties (Maricopa and La Paz Counties, Arizona; Riverside County, California) containing the Proposed Action and Action Alternative segments. Socioeconomic data are readily available for counties and most urban areas, but are difficult to gather for rural areas. Some elements of the analysis look at socioeconomic resources (i.e., population, age distribution, and housing units) specifically in the US Census block groups that are within 0.5 mile of the route segments or resources in

municipalities or census designated places (CDPs). This latter area is called the block group study area.

3.9.2 Existing Conditions

3.9.2.1 Population

Table 3.9-1 in Appendix 3 presents the population of the socioeconomics study area by US, state, county, and block group for 2000, 2010, and 2014. Figure 3.9-1 (Appendix 7) shows the block groups analyzed. As of 2014, the three counties in the socioeconomics study area had a total population of 6.2 million. More than 63 percent of this population resides in Maricopa County, and Riverside County accounts for just over 36 percent of the total population in the study area. La Paz County accounts for the smallest share, with 20,348 residents, or about 0.3 percent of the total for the socioeconomics study area, but it is more representative of the rural nature of the Project Area. As of 2014, the population in the block group study area was 21,710.

While the population of the overall socioeconomics study area increased from 2010 to 2014, the population of the block group study area decreased by 0.9 percent (203 residents). Within the block group study area, the block groups in Maricopa and La Paz Counties lost residents overall, while the block groups in Riverside County gained residents overall. Although this percentage change is small compared to the trends in the counties, states, and US, the size of the population in the block group study area is very small to begin with, so even small changes could be substantive locally.

It is important to note that the population data do not reflect the winter visitors and part-time residents in the socioeconomics study area, notably important for Quartzsite in La Paz County. However, much like the declining population of permanent residents in La Paz County, the Quartzsite area has also seen a decline in long-term winter visitors.

Local governments provide public services such as police, fire, and emergency medical services; education; and waste management services to the permanent residents, as well as the winter tourists and temporary residents. These services are primarily based out of the Town of Quartzsite and the City of Blythe for the residents within the socioeconomics study area.

In 2014, the median age in Maricopa County was 35.3 years, while in Riverside County it was 34.2 years. However, in La Paz County, the median age was much higher at 54.6 years. Given that the US median age was 37.4 years, the population in La Paz County is much older than the national average, while the populations in Maricopa and Riverside Counties are slightly younger than the national average. Again, these figures do not reflect the long-term winter visitors, many of whom are above the average age for La Paz County.

From 2000 to 2014, the median age increased in all jurisdictions and the median age in the socioeconomics study area increased faster than in the US as a whole. In Maricopa and La Paz Counties, it increased by 7.0 percent and 16.7 percent, respectively, while in Riverside County it increased by 3.3 percent. This compares with an increase of 5.9 percent in the US overall, a rate that is lower than in the Arizona counties but higher than in Riverside County.

Population age distribution and its change over time in the socioeconomics study area, in the block group study area, and across the US is illustrated in Table 3.9-2 in Appendix 3. The table demonstrates that, except for La Paz County, the largest population group in both 2010 and 2014

was younger working adults ages 18 to 44, while seniors 65 years and older were the smallest population age group. Similar to La Paz County as a whole, the block group study area has a relatively higher share of older population and smaller shares of younger working adults and children than the comparison areas. Since the 2010 Census, the share of the population in the block group study area under age 18 has decreased, while the share of the population 65 years or older has increased. This trend toward an older population decreases the size of the workforce available in this rural area.

The following sections describe population trends, including population totals and age distributions, by census block group adjacent to the Proposed Action and Action Alternative segments. Compared to the analysis by county, this analysis by block group looks at areas that are closer to the Proposed Action and Action Alternative segments but might overstate the population in the immediate area that would be affected by the Project. Where relevant, data for towns and CDPs along the Proposed Action and Action Alternative segments are also included. Because new census tracts and block groups were created between the 2000 and 2010 Censuses, only data from 2010 and 2014 are presented in the following sections.

3.9.2.2 Housing

From 2000 to 2014, the number of housing units in the socioeconomics study area increased from 1.85 million to about 2.46 million, which is an increase of about 34 percent. The largest portion of this increase occurred in Maricopa and Riverside Counties, which also account for the larger shares of housing units. This increase, however, occurred outside of the vicinity of the Project Area.

As of 2014, there were 13,750 permanent housing units in these block groups in the block group study area. This accounts for 0.55 percent of the total housing units in the socioeconomics study area, an indication of the rural nature of the socioeconomics study area. The number of housing units in the block group study area declined from 2010 to 2014. Details are provided in Table 3.9-3 in Appendix 3.

Trends in housing stock are frequently compared against trends in household formation. The relative magnitude and changes in the two series can provide some insight regarding the housing market situation and possible pressures on the demand (buying) or supply (selling) sides. Table 3.9-4 in Appendix 3 shows the number of households in 2000, 2010, and 2014. During this time, the number of households in the US and in the block group study area declined, while the number of households in Arizona, California, and the three counties increased slightly. The decline in the number of households nationally despite the increased population is likely due to an increase in the average household size, which suggests that, on average, dwelling units had more people living in them in 2014 than in 2010. In the block group study area, the average household size has generally decreased during this time, as has the overall population.

Table 3.9-5 in Appendix 3 shows trends in the average property prices (ownership residential housing units) in the socioeconomics study area as well as overall trends in the US. The table shows that Riverside County had the highest property values in the study area, followed by Maricopa County. These property values tended to be much higher than the US average. The higher property values in both Riverside and Maricopa Counties are skewed by areas that are outside of the immediate Project Area and closer to Los Angeles and Phoenix, respectively.

From 2007 to 2014, property values declined in all of the areas examined here; however, the socioeconomics study area had much greater declines than did the US on average. In Riverside County, property values fell by more than 40 percent; in Maricopa County, they fell by more than 29 percent. La Paz County had a smaller decline of 4.3 percent (though from a much lower base price). This latter decline is similar to the average reduction of 3.4 percent across the US.

Housing vacancy rates were examined separately for ownership housing and for rental housing, though both rates consider seasonally vacant properties as vacant. The vacancy rates for both property types in Quartzsite and La Paz County are noticeably higher than the state and national averages, due at least in part to the seasonal nature of housing occupancy in the area.

3.9.2.3 Employment

The following data is drawn from reflects the most reliable data sources for employment from the Bureau of Labor Statistics and the Bureau of Economic Analysis (BEA) at the county level. The county-level data presented likely does not reflect the exact local conditions in the socioeconomics study area adjacent to the Proposed Action and Action Alternatives. The information for La Paz County is likely to best represent the overall study area conditions, since the parts of Maricopa and Riverside Counties in the study area are rural and are more similar to La Paz County than to the urban centers that dominate the Maricopa and Riverside data.

In all three counties, using data from 2001 through 2014 (Table 3.9-6 in Appendix 3), employment peaked in 2007 and declined from 2008 to 2010. Employment started increasing again in 2011. La Paz County, which is the most representative of the study area, has added a net of more than 800 new jobs compared to 2001, but that is still 275 fewer jobs than the peak in 2007 of 8,173. Employment in La Paz County has not yet returned to pre-recession levels. The annual data compiled by the BEA do not include the seasonal fluctuations associated with Quartzsite and its seasonal economy. As further shown in the table, from 2001 to 2014, employment increased more in Arizona and California (by 21.9 percent and 13.5 percent, respectively) than in the US as a whole (12.3 percent). La Paz County was the only area that had lower employment growth (11.5 percent) than the national level.

Trends in unemployment rates in the socioeconomics study area are given in Table 3.9-7 in Appendix 3. From 2000 to 2015, Maricopa County had the lowest unemployment rate (below the national rate). The unemployment rates in La Paz and Riverside Counties exceeded the relevant state averages and the national average. These study area trends were broadly consistent with national trends, with La Paz County exceeding the state and national unemployment rates. During the economic recession, unemployment rates in all of Riverside County exceeded 10 percent, with a peak of 13.8 percent in 2010, compared with rates of less than 10 percent in Maricopa County and the US. The Riverside County unemployment rate declined to 6.7 percent in 2015, but still remains above the US average and the Maricopa County rate. The La Paz County unemployment rate ran around 8 percent during the economic recession of 2008 and rose to a high of about 10 percent in 2010. Since 2010, the unemployment rate in La Paz County has dropped to 7.6 percent, which is higher than the US average and the Arizona average.

Table 3.9-8 in Appendix 3 and associated text show total employment by industry in the socioeconomics study area in 2001 and 2014. The tables demonstrate that the industrial structure

of employment and trends in the socioeconomics study area are broadly consistent with the structure and trends in the US overall. The key characteristics of this structure are the following.

- Government or retail trade is the largest employment source in every area examined, with health care and social assistance the second or third largest employment source.
- Except for Maricopa County and the three-county socioeconomic study area, the largest share of employment is in government (Federal, state, and local).
- The second-largest share of employment was in retail trade and/or health care services, at over 10 percent of total employment (for each geographic area in the table).
- The share of the manufacturing industry in the socioeconomics study area is smaller than the US average (about 5 percent versus 7.5 percent in 2014).
- The number of construction jobs also declined from 2001 to 2014 in all areas.
- The share of the finance and insurance industry in Maricopa County is larger than the share in the other counties and larger than the Arizona share and the US average share. This share increased from 2001 to 2014. The many finance and insurance industry jobs in Maricopa County are likely in the Phoenix area rather than the part of the county along the Proposed Action and Action Alternative segments.
- Farm employment plays a larger role in La Paz County than in the other counties, Arizona, and the US as a whole. As of 2014, farm employment accounted for 4 percent of the total La Paz County employment.

3.9.2.4 Income

Average personal income data (including earnings, dividends, interest, rent, and transfer payments[1]) per capita in the socioeconomics study area is provided in Table 3.9-9 in Appendix 3. The data demonstrates that, from 2001 to 2014, average per-capita personal income in the study area was, with the exception of Maricopa County in 2006, lower than the average for the US overall. The data for Maricopa County reflect the well-paying jobs in the Phoenix metropolitan area, with Maricopa County exceeding the Arizona average every year, while the average for rural La Paz County was consistently well below both the Arizona and US averages. California consistently had higher average per-capita personal income than the US average, but Riverside County's average fell short of both the California and US averages.

In 2014, Maricopa County had the highest average per-capita personal income in the three-county socioeconomic study area at $41,222, followed by Riverside County at $33,590 and La Paz County at $29,219. For the same year, the US average was $46,049. This is an income difference between the US average and averages in the socioeconomics study area of about $4,800 for Maricopa County, about $12,460 for Riverside County, and $16,830 for La Paz County. The per-capita income gap between the counties in the socioeconomics study area and the US has grown over time, from a difference of $13,808 for La Paz County in 2001 to $16,830 in 2014. The gap in Riverside County has doubled from $6,057 in 2001 to $12,459 in 2014. The gap in Maricopa County has grown from $1,118 in 2001 to $4,827 in 2014, even though the county exceeds the state average.

[1] Transfer payments are government redistribution programs and include Social Security, the Supplemental Nutrition Assistance Program, Women Infants and Children, and other similar programs.

Earnings generate the largest share of personal income in all geographic areas evaluated here, and the breakdown of per-capita personal income composition (earnings; dividends, interest, and rent income; and transfer payments) is included in Appendix 3, Table 3.9-10 and associated text. Of the counties, states, and US, La Paz County has the lowest share of income from earnings (44.7 percent) and the highest share from transfer payments (36.4 percent). This is a much higher share of transfer payments than in Arizona (20.4 percent) and the US (17.2 percent).

3.9.2.5 Tax Revenues

Similar to employment and income data, tax revenues cannot readily be examined below the county level. For this reason, this information is presented at the county level only, with the information for La Paz County being the most relevant to the study area.

The key components of tax revenues available to local governments are property taxes and sales taxes. Details on each of these are included in Table 3.9-11 in Appendix 3 in this section shows that, in Maricopa and Riverside Counties, tax distributions increased initially (from 2006 to 2007). However, from 2008 to 2010, they decreased each year compared to the previous year. In 2011, tax distributions started increasing again. However, in Maricopa County, they have not fully recovered to the pre-recession 2007 peak. In La Paz County, tax distributions also decreased over the same period but recovered more quickly to the pre-recession level. Municipal distributions to Quartzsite have not recovered to the pre-recession level, while those to Blythe exceeded their pre-recession levels two of the last three years.

Property tax revenues and assessed property values as used for tax calculations in the socioeconomics study area from 2006 to 2015 are also provided in Tables 3.9-12 and 3.9-13 in Appendix 3. In La Paz County, tax revenues remained stable or increased over this period; in Maricopa and Riverside Counties, property tax revenues increased until 2009 and then started decreasing. In Maricopa County, property tax revenues reached a bottom minimum in 2013 and increased in 2014 and again in 2015. However, they have not fully recovered to the 2009 peak. In Riverside County, property tax revenues fluctuated somewhat from 2010 to 2013, and by 2015 they exceeded the pre-recession 2009 peak. Assessed property values increased until 2008–2010 (with some differences across the three counties) and then started decreasing. In Maricopa and Riverside Counties, property values started increasing again within the last 2 years with available data (that is, 2014 and 2015), but they have not fully recovered to the pre-recession level.

While the majority of the Proposed Action and Action Alternative segments avoid incorporated and other populated areas, they are located near the Town of Quartzsite, Arizona and the City of Blythe, California. The Town of Quartzsite General Plan details growth areas out to the year 2035 and beyond. None of the Proposed Action segments cross Tier II growth areas, which are indicated in the plan to be used for water, sewer, and roadway expansion. Segment qn-02 crosses a Town of Quartzsite General Plan Tier III growth area, which is slated for development and town growth in the year 2035 and beyond.

Payments in Lieu of Taxes from the Federal Government

Payments in lieu of taxes (PILT) are payments made to certain counties by the Federal government to account for losses in property taxes due to the presence of Federally-owned land within the county. Federally-owned lands are not taxable. The PILT program, which is administered by the

US Department of the Interior's (DOI's) Office of the Secretary and PILT amounts paid to each county between 2000 and 2016. Federal land accounts for 68 percent of the land base in the Project Area in La Paz, Maricopa, and Riverside Counties. As such, the PILT received by each of the counties in the Project Area is important. PILT payments totaled $1,848763, $2,434,825, and 2,389,185 in 2016 for La Paz, Riverside, and Maricopa Counties, respectively (Table 3.9-14 in Appendix 3).

3.9.2.6 Nonmarket Values and Ecosystem Services

Non-Market Values

The Proposed Action and Action Alternative segments were designed to minimize impacts to urban areas and population centers, though the construction of any new transmission line would alter the natural landscape. These changes in the natural landscape may be noticeable for residents and visitors who place a high value on the natural beauty of the environment, including the beauty of the natural landscape and access to hunting, fishing, and other recreational opportunities, as part of their quality of life. These are considered non-market value resources – those that are not easily quantified or monetized, but may contribute to and affect the economic success of the region.

Ecosystem Services

The nature of the non-market resources in the study area substantially overlaps with the topic of recreation opportunities, which are discussed in Section 3.8. The Proposed Action and Action Alternative segments are within the diverse ecosystem of the Colorado River Basin. Construction of any new infrastructure may alter production or delivery of current levels of ecosystem services to the population, both locally and regionally. Ecosystem services drive much of the recreation-based economy in the study area, including OHV usage, camping, hiking, wildlife viewing, and hunting. The availability of these resources is critical to the regional economy in the study area, in addition to farther-reaching functions such as carbon cycling, air quality, water quality, and wildlife habitat. As with non-market values, it is difficult to place a monetary value on many ecosystem services. Further, while not labeled as such, the current conditions of these ecosystem services are discussed at length in their resource sections of this DEIS and respective baseline technical reports (HDR 2016b-d, 2017a-k).

3.9.2.7 Tourism and Recreation's Contribution to Local Economies

All three counties in the socioeconomics study area have a range of tourism and recreation uses and resources including hunting, fishing, wildlife watching, OHV use, and recreation on the Colorado River and its tributaries. Statistics on the total number of visitors to the socioeconomics study area and their impact on the local economy have been estimated in several studies. Some of the studies are targeted on specific forms of recreation (i.e., hunting, fishing, wildlife watching, OHV use) and include both residents and non-residents. Other studies focus on non-residents, regardless of their motivation for visiting.

Tourism-related visitor spending and tax revenues for 2014 (Arizona Office of Tourism 2016; Visit California 2016), shown in Table 3.9-15 in Appendix 3 shows that spending ranged from about $137 million in La Paz County to $6.6 billion in Riverside County to $9.5 billion in Maricopa County. In La Paz County, this equates to visitor spending per resident of nearly $6,800.

In Maricopa and Riverside Counties, this per-resident spending was much lower but still well above $2,000 per resident.

Tourism-related tax collections ranged from about $10 million in La Paz County to $557.6 million in Riverside County to $946 million in Maricopa County. Table 3.9-15 in Appendix 3, provides sales tax information and demonstrates that these tourism-related tax receipts by the states are substantially larger than the taxes distributed to each county by the state government. La Paz County receives just under 30 percent of the sales taxes that are levied and Riverside County receives just under 45 percent of the sales taxes collected.

Employment in 2014 in tourism-related industries that could be directly attributed to serving visitors is tabulated in Table 3.9-16 in Appendix 3 and shows that this employment amounted to 1,385 jobs in La Paz County, 94,200 jobs in Maricopa County, and 72,800 jobs in Riverside County.

3.9.2.8 Summary

Overall, the block group areas along the Proposed Action and Action Alternative segments are economically depressed when compared with the county, state, and country as a whole. The Proposed Action and Action Alternative segments have generally been designed to follow existing ROWs and avoid population centers and sensitive socioeconomic areas, though some of the Action Alternative segments cross near population centers in the Town of Quartzsite and City of Blythe.

Winter tourism and recreation play a substantial role in the economy of the socioeconomics study area, particularly in La Paz County, which is the most representative of the Project Area out of the three counties. Although precise data are difficult to locate, the RV parks and the BLM's LTVAs house thousands of temporary residents during the winter months (Wolinsky 2016). These visitors are essential to the local economy; however, they are not included in population estimates due to their temporary presence in the area.

3.10 ENVIRONMENTAL JUSTICE

3.10.1 Analysis Area

The EJ study area is a 1-mile corridor encompassing the Proposed Action and Action Alternative segments. The analysis area includes the study area and all census block groups crossed by the Proposed Action and Action Alternative segments. This ensures the inclusion of adjacent and nearby communities that may be affected.

3.10.2 Existing Conditions

3.10.2.1 Block Groups

The block groups within 0.5 mile on either side of the Proposed Action and Action Alternative segments comprise the EJ study area, as shown on Figure 3.9-1 (Appendix 7).

3.10.2.2 Minority Populations

Population and minority data are presented Table 3.10-1 in Appendix 3 for the two states, three counties, relevant cities and CDPs, census county division (CCD) areas, the EJ comparison area, and the individual block groups. The data in this table will be used for comparison purposes to determine whether the individual block groups have potential EJ populations.

In Maricopa County, Arizona, based on aerial imagery, it does not appear that there are any residential, commercial, or industrial uses within a 1-mile corridor along the Proposed Action and Action Alternative segments.

In La Paz County, Arizona, a review of aerial photographs showed that, within a 1-mile corridor along the Proposed Action and Action Alternative segments in Block Group 3, Census Tract 201, there is a largely undeveloped natural area with very few residential, commercial, or industrial uses (Figure 3.10-1, Appendix 7). Block Group 2, Census Tract 206.02, and Block Group 2, Census Tract 9403, both run along the eastern bank of the Colorado River, with the first mostly south of I-10 and the second mostly north of I-10 on CRIT lands. A review of aerial imagery shows some development within the EJ study area, or within the 1-mile corridor, for the area of Block Group 2, Census Tract 206.02. This includes open space, agricultural lands, RV parks, and commercial areas.

In Riverside County, California, as shown in Figure 3.10-12 (Appendix 7), there are commercial and recreational uses, including those along the Colorado River banks, as well as residences and agricultural uses.

Environmental Justice Comparison Area

The percentage of minorities in the overall EJ comparison area (sum of the three counties) is 49.3 percent, which is slightly higher than Arizona (43.1 percent) and lower than California (60.8 percent). It is also lower than two of the four CCD areas and higher than five of the eight cities and places (CDPs).

State, County, Census County Division, and Census Designated Places

The states of Arizona and California have overall minority populations of 43.1 and 60.8 percent, respectively. Riverside County has a minority population (61.7 percent) that is slightly (1.5 percent) greater than the state percentage, while La Paz and Maricopa Counties have minority populations (39.1 and 42.2 percent, respectively) slightly lower than that of Arizona as a whole. The city of Blythe (CDP) and the CCD area of Blythe both have percentages of minorities around 70 percent. Ripley CDP, which is south of Blythe, has a very high percentage of minorities (95 percent).

Block Groups

The block groups with relatively high minority populations are shaded in red on Figure 3.10-1 (Appendix 7). The following block groups have EJ minority populations with percentages at least 10 percent greater than the EJ comparison area percentage of 49.3: Maricopa County, Arizona (Block Group 3 in Census Tract 506.03); La Paz County, Arizona (Block Group 2 in Census Tract

9403); and Riverside County, California (Block Group 1 in Census Tracts 459 and 469, and Block Group 2 in Census Tracts 459 and 462.

Colorado River Indian Tribes

Within the EJ study area, Block Group 2, Census Tract 9403, with a minority percentage of 98.0 percent, includes CRIT lands. However, there are no residential or commercial areas that have been identified on CRIT lands within the 1-mile Project corridor. Census Tract 206.02 (including Block Groups 1 and 2) does not show a population of minorities greater than the total percentage of minorities within the total EJ comparison area. The Proposed Action and Action Alternative segments that are under CRIT jurisdiction include part of Segment p-11 and Segment cb-03.

3.10.2.3 Low Income Population

Relevant population and poverty data are presented in Table 3.10-2 in Appendix 3. The data in this table will be used for comparison purposes to determine whether the individual block groups have potential EJ populations with respect to low-income status. The EJ comparison area, or the sum of the three counties, has a percentage of low-income persons of 17 percent.

State, County, Census County Division, and Census Designated Places

For Arizona and California, the percentages of their respective populations living below the poverty level are 18.4 and 16.4 percent, which are close to the study's comparison area value. The City of Blythe (CDP) and the CCD area of Blythe both have a low-income population of about 24 percent. Ripley CDP, which is south of Blythe, has the highest low-income population percentage at 33.7 percent, while Mesa Verde CDP has the second highest (24.6 percent) out of the CDPs and CCDs evaluated. These local areas along the Proposed Action and Action Alternatives have low-income percentages that are greater than the EJ comparison area low-income population percentage of 17.

Low-income Data from Block Groups

The block groups with relatively high minority populations are shaded in purple on Figure 3.10-2 (Appendix 7). The following block groups have percentages of low-income populations greater than the EJ comparison area percentage of 17: Maricopa County, Arizona (Block Group 3 in Census Tract 506.03); La Paz County, Arizona (Block Group 3 in Census Tract 201 and Block Group 2 in Census Tract 206.02); and Riverside County, California (Block Group 2 in Census Tracts 459, 462, and 470 and Block Group 1 in Census Tract 469.

3.10.2.4 Environmental Justice Communities

Over the entire Proposed Action and Action Alternative segments, potential EJ populations for both minority and low-income data were identified at the block group level. Regionally, potential EJ populations were identified in Arizona between Delaney Substation and Quartzsite and east of the Colorado River, while in California, potential EJ populations were identified in five of the six block groups in the EJ study area in Blythe. These are shown in Figure 3.10-3 (Appendix 7). Table 3.10-3 in Appendix 3 identifies those block groups that are potential EJ populations for low-income and/or minorities, as well as the applicable Proposed Action and Action Alternative segments.

Block Groups with Higher Percentages of Minority and Low-Income Populations than the Environmental Justice Comparison Area (EJ Populations)

In Maricopa County, Arizona, one block group out of three was identified with a minority population percentage greater than the overall minority population percentage in the EJ comparison area. In La Paz County, Arizona, three block groups out of ten were identified with minority or low-income population percentages greater than the EJ comparison area percentages; two had higher percentages of low-income population percentage and one had a higher percentage of racial or ethnic minority population. In Riverside County, California, five of the six block groups have minority and/or low-income populations greater than the EJ comparison area percentages. Four of the block groups have minority population percentages greater than the EJ comparison area's minority population percentage, and four of the block groups have a low-income population percentage greater than the comparison area's low-income population.

For the Town of Quartzsite, Arizona CDP, the census data show 4.1 percent minority representation and a low-income population of 9.6 percent. Data for the city of Blythe CDP and the CCD area of Blythe reveal that both have a low-income population of about 24 percent. Ripley CDP, which is south of Blythe, has the highest low-income population percentage, at 33.7 percent, while Mesa Verde CDP has the second highest (24.6 percent) of the CDPs and CCDs evaluated. These local areas along the Proposed Action and Action Alternatives have low-income percentages that are greater than the EJ comparison area low-income population percentage of 17.

Colorado River Indian Tribes

A portion of Segment p-11 is adjacent to CRIT reservation lands, and Segments i-06 and cb-03 would cross CRIT reservation lands. The block group data covering this area show a 98 percent minority population, with 26.5 percent Native Americans. The lands crossed by all three of these segments are undeveloped.

As Federally recognized Native American Tribes, the CRIT are considered an EJ Population under Council on Environmental Quality (CEQ) and EPA guidelines (CEQ 1997; EPA 2014a), with mitigation ensured through the consultation process documented in Section 5.3.2. Scoping consultation with the CRIT resulted in a request for further, detailed consultation regarding its lands and adjacent areas (Section 3.6, Concerns of Indian Tribes).

3.11 VISUAL RESOURCES

3.11.1 Analysis Area

The study area for visual resources encompasses the Proposed Action and Action Alternative segments that would connect the Delaney Substation near Tonopah, Arizona with the Colorado River Substation west of Blythe, California. This study area includes an area 5 miles from the centerline of each Proposed Action and Action Alternative segment to cover an area 10 miles wide around each potential route.

3.11.1.1 KOP Identification and Selection

Measuring or rating the degree of contrast is done from the selected critical viewpoints or Key Observation Points (KOPs). KOPs are stationary points, or linear travel routes that are used to describe impacts to visual resources. KOPs typically are areas that have a public sensitivity (scenic vista, scenic highway, recreational trail, etc.). Multiple sources of information regarding public sensitivity to the study area were considered and field reconnaissance was conducted in the process of identification and selection locations for KOPs (Figure 3-8).

3.11.2 Existing Conditions

3.11.2.1 VRI & VRM in Study Area

VRI classes have been defined for BLM-administered land under the Hassayampa, Palm Springs, and Yuma Field Offices. VRI classes are unavailable for BLM-administered land under the Lake Havasu and Lower Sonoran Field Offices. The data collected on scenic quality, viewer sensitivity, distance zones, and VRI classifications describe much of the study area in both Arizona and California and aided in describing the environment around the KOPs.

The VRI for the BLM YFO (EPG 2016) and the PSFO included areas where the Proposed Action and Action Alternative segments are located within the boundaries of the YFO and PSFO, respectively. VRI classes were assigned to these areas based on factors of scenic quality, sensitivity level, and distance zones. These classes and factors are shown in Figures 3.11-1, 3.11-2, 3.11-3, and 3.11-4 (Appendix 7).

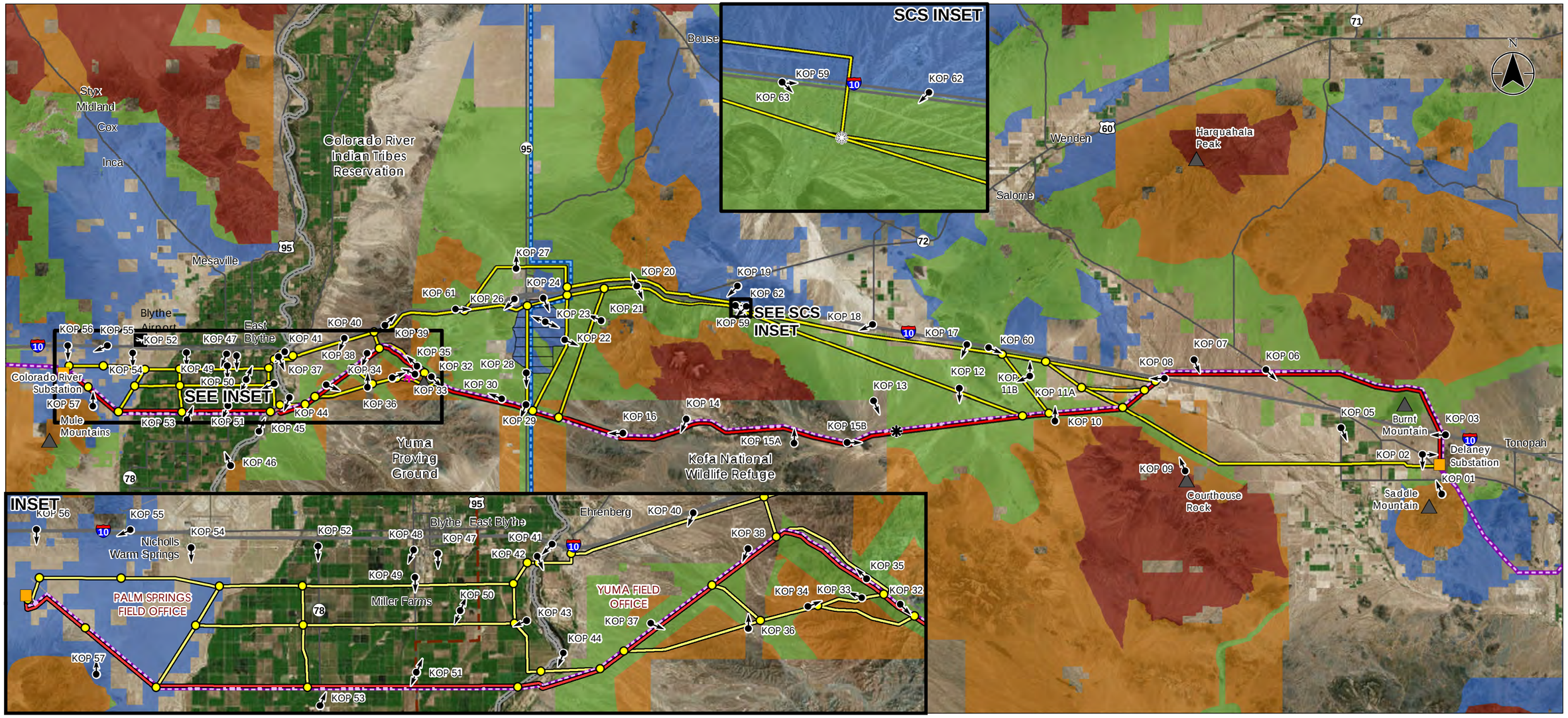
VRM Classes in the study area are presented in Figure 3-8.

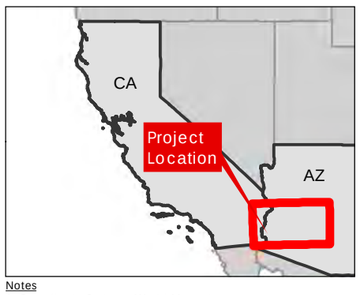
3.11.2.2 Visual Resources Study Area Overview

Mountains frame the study area and include Harquahala Mountain to the north of the first Proposed Action segment and Saddle Mountain located just south of the Delaney Substation. Harquahala Mountain is the tallest mountain visible—at over 5,600 feet in elevation (BLM 2014c)—and is in the seldom-seen distance from all primary travel routes. Saddle Mountain is in the foreground-middleground to background distances for the start of the Proposed Action and Action Alternative segments near Delaney Substation.

The characteristic landscape in the study area consists of desert vegetation and major cultural modifications such as the towns of Tonopah and Quartzsite and the city of Blythe; surrounding agricultural land; existing transmission and distribution lines; and major roadways that include I-10, SR 95 in Arizona, and US 95 in California. The vegetation and soil colors represented in the undeveloped landscape consist of earth tones: browns, tans, grays, and greens.

The Proposed Action and Action Alternative segments would be visible from several areas, including I-10, state highways, local roads, residential developments, and recreational areas. Some of the closest residences to the routes in the study area are houses in Blythe, recreational vehicles (RVs) in McIntyre County Park, and Snow Bird West RV Park.





Notes
1. Coordinate System: World Mercator
2. Data Source(s): Project data - HDR; Land Status - BLM
3. Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

- Key Observation Point (KOP)
- Substation
- Proposed Series Compensation Station
- Alternative Series Compensation Stations (2 possible site locations; ~75' feet apart)
- Johnson Canyon
- Route Segment Node
- Proposed Action*
- Alternative Route
- Existing DPV1 Transmission Line*
- Existing WAPA 161kV Transmission Line
- BLM Long-term Visitor Area
- Peak

BLM VRM Class
- I
- II
- III
- IV

* = Existing DPV1 follows the Proposed Action. DPV1 and the Proposed Action are cartographically offset for display purposes. Because the routes are cartographically offset, in some cases, the routes do not precisely depict the estimated TWL alignment.

Figure 3-**8**
Ten West Link
KOPs and VRM Classes

Some of the major features in or near the study area (such as prominent landscape features, major tourist attractions/outdoor recreation areas, and important utilities, etc.) include the Kofa NWR southeast of Quartzsite; YPG south of Copper Bottom Pass; the Colorado River Indian Reservation; Eagletail WA; Central Arizona Project Canal; and the Colorado River. Many recreationalists use the Copper Bottom Area located southwest of Quartzsite. Johnson Canyon is one of the most visited areas within the Copper Bottom Area, with several OHV trails open for use. The proposed Arizona Peace Trail winds through the study area, generally trending north-south, and follows or is in close proximity to several Proposed Action and Action Alternative segments in the Copper Bottom area.

The eastern portion of the study area is distinguished by a broad desert plain rimmed with rugged angular mountains. Mountain features within three WAs are visible: Big Horn Mountains WA, Eagletail Mountains WA, and New Water Mountains WA. Additionally, a portion of the Kofa NWR is intersected by a segment of the Proposed Action.

I-10 runs east and west across the northern portion of the study area, while numerous two-track, gravel, and hardened surface local routes crisscross the plain. I-10 offers distant scenic views of the mountain ranges rimming the plain. The area is dotted with a few residences and agricultural operations, and a few businesses are located at or near I-10 exits. The main development is the Delaney Substation, the DPV1 transmission line, and a power plant with monopole transmission lines connecting to the substation. The largest number of sensitive viewers are travelers on I-10, along with travelers on local routes, recreationists, and the few residents of this sparsely populated area.

The Proposed Action and Action Alternative segments would cross a north-south trending valley between two mountain ranges with the Town of Quartzsite located along I-10 in the northern portion of the valley. The eastern side of the valley is delineated by mountains that enclose around I-10, creating a somewhat tight pass as travelers move between the broad open desert approaching the Town of Quartzsite. In addition to I-10 (east-west), the main transportation route through the valley is US 95 (north-south), although there are a myriad of dirt roads and two-track routes throughout the area. Vegetation communities vary in diversity and visual interest by elevation and scenic mountain ranges attract attention. The valley is attractive and heavily used for winter tourism and recreation, including the BLM's La Posa LTVA, extensive areas of BLM-administered land open for 14-day camping, OHV routes and trails, the Town of Quartzsite Rock and Gem Show, and more than 25 campgrounds and RV parks. As such, the largest number of sensitive viewers in this area are tourists and recreationists, along with travelers on I-10.

The Copper Bottom Pass Area is scenic, mostly rugged and mountainous, and is valued and heavily used for winter recreation in conjunction with tourism and recreation. I-10 passes through the northern portion of the area and the Copper Bottom Pass Road traverses the Dome Rock Mountains. While there are a myriad off-road trails and routes in the area, aside from Copper Bottom Pass Road, the only other route through the Dome Rock Mountains is through Johnson Canyon, which is valued for the technical OHV route it offers. Vegetation is denser and uniform at the lower elevations surrounding the mountains and becomes more diverse and contributes to the scenic value. The main developments in the Copper Bottom Pass area are the DPV1 transmission line, a communications site atop Cunningham Peak, and a distribution power line on monopoles providing power to the communications site. A small residential development is located west of US 95 and off of Pipeline Road. The largest number of sensitive viewers in this

area would be travelers on I-10; however, recreationists in this heavily used area would be more sensitive to visual changes. West of the Colorado River, the floodplain is private land that is irrigated and cultivated for a variety of agriculture uses. The area around the Colorado River is scenic and contains residential developments. The western end of the study area near the Colorado River Substation is BLM-administered lands that are flat desert plain with deep sands between the Mule Mountains to the south and the McCoy Mountains to the north. Native vegetation in this portion of the desert plain is very sparse and homogenous, which does not contribute to scenic values in the area. I-10 traverses the northern portion of the study area in California, while numerous gravel and hardened surface local routes crisscross the agricultural floodplain, which appears rural and pastoral. The area offers broken views of distant rugged mountains in all directions. Visible development in the area includes a gas pipeline crossing the river, the City of Blythe, the Blythe Airport west of Blythe, the town of Ripley south of Blythe, the DPV1 transmission line, the Colorado River Substation, a power plant, a solar generating facility, gen-tie lines, and numerous other transmission lines connecting to the substation. Other development in Blythe is concentrated at the I-10 exits and along the main route through town. Also notable are proposals for development of new solar generating facilities east of, west of, and surrounding the Colorado River Substation. The largest number of sensitive viewers in the area is travelers on I-10, along with residents and workers in the City of Blythe and Ripley areas.

Sources of nighttime light and glare include the Delaney Substation, the existing DPV1 line with its Federal Aviation Administration-required safety lights, lights from the occasional rural residence and agricultural operations, the lights from vehicles along I-10 and other highways; Town of Quartzsite businesses and residential development; during the winter visitor use season, campers using the surrounding BLM-administered land; the City of Blythe and surrounding rural communities with rural residential and commercial development; and the Colorado River Substation.

3.11.2.3 KOP Overview and KOP Descriptions

There are 61 KOPs selected for analysis (Figure 3-8), some of which have views in multiple directions, providing representative views of the Proposed Action and Action Alternative segments. Figures 3.11-5, 3.11-6, 3.11-7, and 3.11-8 (Appendix 7) present a more detailed look at KOP locations and relationships to VRM Classes. Tables 3.11-1 through 3.11-5 in Appendix 3 provide a detailed overview of the KOPs that were examined for the Project, including BLM VRM and VRI information by segment. Those KOPs that are key to evaluating the Proposed Action and Action Alternative segments and/or are needed for potential VRM Class changes and RMPAs are described in the sections that follow. Visual Contrast Rating Forms have been completed through Section B (Characteristic Landscape Description) for each KOP and are included in the Project record. Information for confidential sites relative to sensitive cultural resources and Concerns of Indian Tribes is also contained in the Project record.

KOP 20 – Gold Nugget Road

KOP 20 is located east of Quartzsite along Gold Nugget Road south of I-10 on BLM-administered land designated VRM Class III. The area is used for dispersed camping and other recreational uses, and therefore represents the views of recreationists in the area that would be looking north-northwest at Segment in-01 and south-southeast at Segment i-04, which are both on BLM-administered land designated VRM Classes III. Segment in-01 would be on BLM-administered

land that are designated VRI Class II and III, comprised of scenic quality B and C, and high sensitivity, within the foreground-middleground distance zone. Segment i-04 would be on BLM-administered land that are designated VRI Class II and III, comprised of scenic quality B and C, and high sensitivity, within the foreground-middleground distance zone. The view from KOP 20 looking north-northwest (Figure 3.11-9a, Appendix 7) is somewhat enclosed to the east by rocky low hills and mountains. There are dark brown rocky hills and mountains in the foreground-middleground, with faint distant views of blue-gray mountains in the distant background. There is an open, light gray and relatively flat and smooth, largely unvegetated area in the foreground surrounded by sparse clumped wispy vegetation. Green, yellow-green, and gray-green vegetation becomes lumpy to uniform with distance. The mountains form a rough and jagged horizontal line at the skyline, while the flat unvegetated plain and vegetation band in the foreground create distinct flat horizontal lines. A few isolated saguaros create short vertical lines. Development visible included a few white structures in the foreground-middleground that appear as white dots. Overall, the scene is very natural and only minimally impacted by development but may appear more developed and disturbed with the presence of RVs when used for dispersed camping.

The view from KOP 20 looking south-southeast (Figure 3.11-9b, Appendix 7) is somewhat enclosed by rocky low hills and mountains. There are dark brown rocky hills and mountains in the foreground-middleground, with distant views of rugged dark mountains in the middleground to background. The immediate foreground consists of rolling and undulating rocky to pebbly light tan to gray desert with sparse clumped wispy vegetation and punctuated by occasional saguaros. Green, yellow-green, and gray-green vegetation becomes lumpy to uniform with distance. The mountains form a rough and jagged horizontal line at the skyline. The exposed earth and vegetation band in the foreground create subtle horizontal lines at the base of the mountains. Evidence of off-road travel creates curvilinear lines in the exposed earth. Aside from evidence of off-road travel, no development is visible.

KOP 59 – I-10 South of Brenda

KOP 59 (Figure 3.11-10, Appendix 7) is located along the shoulder of eastbound I-10 south of Brenda, Arizona. The KOP represents the views of travelers on eastbound I-10 looking east-northeast at Segment in-01 crossing from BLM-administered land on the south to the north side of I-10. Segment in-01 would be on BLM-administered land that are designated VRI Class II and III, comprised of scenic quality C and B, and high sensitivity, within the foreground-middleground distance zone. The view from KOP 59 is slightly enclosed to the north by a gently rising rugged domed mountain in the distant foreground-middleground. The domed mountain is coarsely textured rock and drainages that are softened by vegetation growing on the slopes. The exposed earth in the immediate foreground is light gray-tan and rocky to stippled. Vegetation is shades of yellow-green, dark green, gray-green, and light gold; densely clumped and wispy but punctuated by occasional cylindrical saguaros; and becomes uniform and indistinct with distance. A gently undulating horizontal line is created by the domed mountain at the skyline and a short less distinct horizontal line occurs where dense vegetation in the foreground meets the skyline. The black freshly paved I-10 and its associated tan gray shoulder create strong horizontal and diagonal lines that draw the viewers eye to the east. With exception of I-10, the landscape is soft, mounded, and horizontal, with the only vertical elements provided by the short vertical lines of the saguaros.

KOP 22 – BLM LTVA #1

KOP 22 (Figure 3.11-11, Appendix 7) is located southeast of Quartzsite on BLM-administered land, within the BLM's La Posa LTVA, which is designated VRM Class IV. KOP 22 represents the views of users at the eastern edge of the LTVA looking east-southeast at Segments x-05 and x-06, also on BLM-administered land. Segment x-05 would be on BLM-administered land that is designated VRM Class II and/or IV, comprised of lands designated VRI Class III, scenic quality B and C, and high sensitivity, within the foreground-middleground distance zone. Segment x-06 would be on BLM-administered land that are designated VRM Class III, IV, and II comprised of lands designated VRI Class III, scenic quality C and high sensitivity, within the foreground-middleground distance zone. The view from KOP 22 looking east-southeast is open, flat desert plain in the foreground stretching to the base of tan to brown rugged and Rocky Mountains in the middleground. Exposed tan to gray earth in the foreground is rocky to pebbly with textures ranging from course to stipple to smooth. The immediate foreground is sparsely vegetated with wispy green, yellow-green, and gray green vegetation that is punctuated by scattered saguaros and becomes lumpy to uniform in the distance. Two-track routes create light tan-gray banded horizontal lines in the immediate foreground. Vegetation on the plain at the base of the mountains creates a subtle horizontal line that is further emphasized by vegetation in the immediate foreground; while the mountains themselves create a rough and jagged horizontal line at the skyline. Aside from the two-track routes, no development is visible. This KOP is located at the eastern edge of the LTVA. During the heavy use visitor season, it is possible that RVs, associated camping accoutrements, and OHVs would be visible, making the view appear more developed and busy.

KOP 24 – RV Park Quartzsite

KOP 24 (Figure 3.11-12, Appendix 7) is located outside an RV park on private property south of Quartzsite, Arizona and north of the BLM's La Posa LTVA. The KOP represents the views of RV park residents looking south-southeast who would be viewing Segments qs-01 or x-06 on BLM-administered land designated VRM Class III. Both Segments qs-01 and x-06 would be on BLM-administered land designated either VRM Class II, III, or IV, comprised of lands designated VRI Class III, and comprised of scenic quality C and high sensitivity, within the foreground-middleground distance zone. The view from KOP 24 is open and panoramic. Viewers are looking at flat desert plain in the immediate foreground, with a rugged mountainous middleground to background. Sparse green, dark green, and yellow-green native vegetation is clumped and rounded in the foreground, becomes more uniform with distance to form an irregular green horizontal line at the base of the mountains. Variations in the light gray, dark gray-brown and light tan exposed earth create irregular but subtly horizontal lines and give the foreground a banded appearance. The rugged mountains create a jagged and broken irregular horizontal line at the skyline. The light gray to dark gray paved roads and their shoulders create distinct horizontal lines in the immediate foreground. Brown fence posts create short distinct vertical lines that are regularly repeated and connected by short undulating horizontal lines of chain. The series of metal monopoles of the WAPA 161kV transmission line create a series of repeated strong vertical lines that are reduced in intensity by background topography and intervening vegetation, and fade into the distance. The associated power lines are faintly visible as diagonal and undulating.

KOP 26 – Quartzsite Civic Event Parcel

KOP 26 (Figure 3.11-13, Appendix 7) is located along the gravel frontage road on the south side of I-10 south of Quartzsite, Arizona and north of the BLM's La Posa LTVA. The KOP represents the views of drivers on the frontage road and RV park residents looking southwest, who would be viewing Segment qs-02 weaving through the mountains within an area designated VRM Class III, and a portion of which would cross the LTVA. Segment qs-02 would be on BLM-administered land that are designated VRI Class II and III, comprised of scenic quality B and C, and high sensitivity, within the foreground-middleground distance zone. The view from KOP 26 is open and panoramic. Viewers at the KOP are looking at a gravel parking lot within an RV park in the immediate foreground; however, viewers within the RV park may be closer. Dark brown low hills and rugged mountains are in the middleground, and gray-blue rugged mountains are in the background. The parking lot is flat and uniformly light tan-gray and stippled. Sparse golden tan rounded shrubs line the frontage road and sparse clumped green, dark green, and yellow-green native vegetation quickly becomes more uniform with distance to form an irregular green horizontal line at the base of the low hills and mountains. The hills and rugged mountains create a jagged and broken irregular horizontal line at the skyline. Tire tracks in the gravel of the frontage road create converging vertical lines in the foreground. Brown fence posts create short distinct vertical lines that are irregularly repeated and occasionally connected by short undulating diagonal lines of chain. Numerous single wood power poles create scattered strong vertical lines that are faded with distance. A lattice structure with a cylindrical tank on top is in the immediate foreground, while road signs and colored business signs line I-10. Several small cubical buildings and white RVs are visible. During the winter heavy visitor season, the RV park would likely be full of RVs, which would partially block the view of the low hills and mountains.

KOP 27 – Boyer Road – Quartzsite North Side

KOP 27 (Figure 3.11-14, Appendix 7) is located on Boyer Road on the north edge of Quartzsite, Arizona. The KOP represents the views of residents of a neighborhood block looking northeast, north, and northwest, who would be viewing Segment qn-02 that would cross BLM-administered lands designated VRM Class III and IV to the northeast and northwest, and State lands to the north. Segment qn-02 would be on BLM-administered land that are designated VRI Class III and II, comprised of scenic quality C and B, and high sensitivity, within the foreground-middleground distance zone. The view from KOP 27 is open and panoramic. Viewers are looking at flat desert plain framed by rugged mountains in the background to the northeast and northwest. Exposed tan-gray earth in the foreground has been heavily impacted by a maintained dirt road and off-road travel. Native vegetation is absent in the immediate foreground, and is sparse green, dark green, and yellow-green, clumped and rounded in the distant foreground; becoming dotted to uniform to create a green horizontal line at skyline and base of the mountains. The rugged mountains create a jagged and broken irregular horizontal line at the skyline. The edges of the dirt road and tracks from off-road travel create converging diagonal to curvilinear lines going into the distance. The communications tower is a prominent vertical focus of attention, while the short vertical lines of the WAPA 161kV monopoles are barely visible to the northeast.

KOP 28 – Highway 95 LTVA

KOP 28 (Figure 3.11-15, Appendix 7) is located at the intersection of US 95 and North 53rd Street south of Quartzsite, Arizona. The KOP represents the views of travelers on US 95 or 53rd Street

at the intersection, looking south viewing Segment x-07 on BLM-administered land designated VRM Class III. Segment x-07 would be on BLM-administered land that are designated VRM Class III, comprised of lands designated VRI Class III, scenic quality C and high sensitivity, within the foreground-middleground distance zone. The view from KOP 28 is open and panoramic. Viewers are looking at flat desert plain with rugged mountains in the middleground to background. Exposed tan-gray earth in the foreground is stippled. Native vegetation is very sparse in the immediate foreground, and is sparse green, dark green, and yellow-green, clumped and rounded with distance; becoming dotted to uniform and punctuated with saguaros, forming an irregular green horizontal line at skyline and base of the mountains. The rugged mountains create a jagged and broken irregular horizontal line at the skyline. The light gray and white striped road surface creates clear horizontal and diagonal lines in the foreground, with the color banding in the road shoulders repeating some lines. The WAPA 161kV H-frame structures create strong vertical and geometric repeated lines going into the distance, while the monopoles on the opposite side of the road also somewhat repeat vertical lines. The transmission line itself is faintly visible, horizontal to curvilinear. Road signs and other signs at the intersection add colors and irregular short vertical lines that look jumbled.

KOP 29 – Highway 95 Crossing

KOP 29 (Figure 3.11-16, Appendix 7) is located south of Quartzsite, Arizona at the intersection of US 95 and the gravel road that travels west-northwest through Copper Bottom Pass, or east providing access along the DPV1 line. The KOP represents the views of travelers on Highway 95 or Copper Bottom Pass Road at the intersection, looking southeast, viewing Segments x-07, x-06, x-05, p-07, and p-08 on BLM-administered land. Segments x-05, 06, and 07, and p-07 and 08 would all be on BLM-administered land that are designated VRI Class III, comprised mostly of scenic quality C and high sensitivity, within the foreground-middleground distance zone, and on lands designated either as VRM Class II, III, or IV. The view from KOP 29 is open and panoramic. Viewers are looking at flat desert plain with rugged mountains in the middleground to background. Exposed tan-gray earth in the foreground is stippled. Vegetation is very sparse in the immediate foreground, and is sparse green, dark green, and yellow-green, clumped and rounded with distance; becoming dotted to uniform and punctuated with saguaros, forming an irregular green horizontal line at skyline and base of the mountains. The rugged tan, dark brown, black, and blue-gray mountains create a jagged and broken irregular horizontal line at the skyline. The gravel road texture variation creates diagonal and slightly curvilinear banding. The WAPA 161kV H-frame structures, monopole distribution structures, and DPV1 lattice structures create strong vertical and geometric repeated lines, but the scene appears cluttered jumbled with differing structure types and intervals. The transmission line itself is horizontal and curvilinear. Overall, the scene is developed with the lines created by the various structure types. The naturalness of the surroundings is diminished by the amount and variety of development.

KOP 61 – I-10 Eastbound West of Quartzsite

KOP 61 (Figure 3.11-17, Appendix 7) is located along eastbound I-10 west of Quartzsite, Arizona. The KOP represents the views of eastbound I-10 travelers looking east at Segments i-06, qn-02, or qs-02, all of which would be located on BLM-administered land. The portion of Action Alternatives viewed from this KOP would all be on BLM-administered land that are comprised of scenic quality B and C, and high sensitivity, within the foreground-middleground distance zone, and VRM Class III & IV. The extent of the view from KOP 61 is limited by views of rugged blue-

gray mountains in the background and smaller rugged light tan to dark brown hills in the distant foreground-middleground. Viewers are looking at a light tan slightly rolling desert plain in the immediate foreground that appears coarse and rocky to stippled, and sparsely vegetated. Vegetation is shades of yellow-green, dark green, and gray-green, mostly clumped and wispy, that becomes uniform and indistinct with distance. The desert plain gently slopes lower in elevation and the Town of Quartzsite (approximately 5 miles away) appears as a horizontal elongated cluster of dots in the middleground. A series of subtle horizontal lines are created in the foreground where vegetation follows undulation in the desert plain and meets the base of the nearest rugged hills, while the mountains create a jagged and undulating horizontal line at the skyline. The diagonal and flat gray paved I-10 is prominent in the view and leads the viewer to look east into the distance. Fence posts provide a series of short vertical lines barely noticeable in the vegetation to the south. Vehicles are dotted in the distance on I-10.

KOP 30 – Copper Bottom Pass Road #1

KOP 30 (Figure 3.11-18, Appendix 7) is located south of Quartzsite, Arizona along the gravel road that travels west-northwest through Copper Bottom Pass, west of the intersection with US 95. The KOP represents the views of travelers on Copper Bottom Pass Road looking west-northwest, viewing Segments p-09 and p-10 on BLM-administered land designated VRM Class III. Segment p-09 is designated within either VRI Class II or III (or both), comprised of scenic quality B and high sensitivity, within the foreground-middleground distance zone, and are on BLM-administered land designated VRM Class II. The view from KOP 30 is views flat desert plain with rugged mountains in the middleground to background enclosing the view. Exposed tan-gray earth in the foreground is stippled to coarse and rocky. Vegetation is very sparse in the immediate foreground, and is sparse green, dark green, and yellow-green, clumped and rounded with distance; becoming dense and uniform, forming a soft green horizontal line at the base of the mountains. The rugged tan, dark brown, and black mountains create a jagged and broken irregular horizontal line at the skyline. Tire tracks in the gravel road and other changes in texture create diagonal and curvilinear tan-gray banding. The monopole structures and DPV1 lattice structures create strong vertical and geometric repeated lines, but with slightly different intervals. The transmission line itself is horizontal and curvilinear. As travelers move through the landscape along the road, the utility structures become sky lined and visible, and attract more attention than the picture might otherwise indicate.

KOP 32 – Copper Canyon

KOP 32 (Figure 3.11-19, Appendix 7) is located in the Copper Bottom Pass area, west-southwest of Quartzsite, Arizona. The KOP represents the views of travelers on the gravel road through Copper Bottom Pass looking at Segments p-09, p-10, and cb-01 on BLM-administered land. Segments p-09 and p-10 are designated either VRM Class II, III, or both, comprised of VRI Class II and III, or both, have scenic quality of either C and B or both, comprised of lands with high sensitivity in the foreground-middleground zone Viewers are looking at the canyon bottom in the foreground enclosed by rugged mountains on either side, focusing the view on the middleground where the canyon opens up to the open desert plain with distant rugged blue-gray mountains at the skyline in the background. Horizontal to diagonal striations in the geology of the canyon walls converge at the mouth of the canyon emphasizing the focus on the distant views. Exposed tan-gray earth in the foreground is rocky to stippled. Native vegetation is dotted on the sides of the canyon, clumped in the foreground, becoming more uniform in the canyon bottom, in shades of green, dark

green, and yellow-green. The rugged distant mountains create a short faint jagged horizontal line at the skyline. There are two existing power lines that are visible but not noticeable in the landscape from this KOP: a distribution line on monopoles delivering power to the communications site on Cunningham Peak and the DPV1 line on lattice structures. However, while driving along the gravel road, both the monopoles and lattice structures are more visible, obvious, and attract attention in a way that is not conveyed from this KOP. The KOP demonstrates how well the existing power infrastructure blends with the landscape under certain circumstances.

KOP 33 – Johnson Canyon

KOP 33 (Figure 3.11-20, Appendix 7) is located in Johnson Canyon in the Copper Bottom Pass area, west-southwest of Quartzsite, Arizona. The KOP represents the views of hikers and OHV recreationists looking at Segment cb-02 (which would be upslope to the left within the canyon) on BLM-administered land designated VRI Class II and III, comprised of scenic quality B and high sensitivity, within the foreground-middleground distance zone; and VRM Class II and III. Viewers are looking west-southwest at the enclosed landscape of the meandering canyon bottom in the foreground, enclosed by rugged mountains on either side, focusing the view where the canyon walls converge at the wash bottom. Land forms in the canyon are bold, angular, and somewhat conical. Repeated diagonal striations in the geology of the canyon walls and the diagonal slope lines point to the wash bottom, focusing the convergence. Exposed tan-gray earth in the foreground contains boulders and is rocky to stippled. Vegetation is dotted on the sides of the canyon, clumped in the foreground, punctuated by occasional saguaros, becoming more uniform with distance along the wash bottom, in shades of green, dark green, and yellow-green. The canyon walls form a sharp jagged horizontal line in the foreground-middleground. The wash bottom creates a light gray-tan irregular and indistinct curvilinear band. No development is visible, and despite the fact that the canyon is favored for OHV recreation, there are only minimally noticeable signs of use.

KOP 34 – Copper Bottom Alternatives Intersection

KOP 34 (Figure 3.11-21, Appendix 7) is located southwest of Quartzsite, Arizona, west of Copper Bottom Pass. The KOP represents the views of recreationists and backroad travelers looking east-northeast at the point where either Segment cb-01 or cb-02 would join with Segment cb-04 on BLM-administered land designated VRI Class II, comprised of scenic quality B and high sensitivity, within the foreground-middleground and seldom seen distance zones; and VRM Class II and III. The view from KOP 34 is enclosed by rugged angular pyramidal mountains in the foreground-middleground sloping down to the desert plain and lower angular rugged hills in the foreground. The rough and rocky to stippled wash bottom in the foreground is dotted with rounded shrubby green and yellow-green vegetation that becomes more uniform at the base of the mountains, and again becomes dotted on the hillsides. Occasional saguaros and ocotillos are visible and add to the diversity of vegetation. Vegetation at the base of the mountains forms a faint horizontal line that becomes sharp and distinct for a short distance at the horizon. The mountains create a jagged and undulating horizontal line at the horizon. A short segment of a rough two-track dirt road, along with rocks and vegetation along the wash create gently curvilinear gray-tan banding in the scene. Communication towers on top of Cunningham Peak are faintly visible as short thin vertical lines.

KOP 35 – Copper Bottom Pass Road #2

KOP 35 (Figure 3.11-22, Appendix 7) is located in the Copper Bottom Pass area, west-southwest of Quartzsite, Arizona. The KOP represents the views of travelers on the gravel road through Copper Bottom Pass looking at Segment p-11 on BLM-administered land designated VRI Class II and III, comprised of scenic quality B and high sensitivity, within the foreground-middleground and seldom seen distance zones; and VRM Class III. Viewers are looking at the canyon bottom in the foreground enclosed by rugged mountains on either side, focusing the view on the middleground where the canyon opens up to the open desert plain with distant rugged mountains at the skyline in the background. Diagonal striations in the geology of the canyon walls converge at the bottom of the canyon emphasizing the focus on the distant views. Exposed tan-gray earth in the foreground is rocky to stippled. Native vegetation is dotted on the sides of the canyon, sparsely clumped in the foreground, becoming more uniform in the canyon bottom, in shades of green, dark green, and yellow-green. The rugged distant mountains create a short faint jagged horizontal line at the skyline. The gravel road is visible as tan-gray curvilinear banding in the canyon bottom going into the distance. The existing DPV1 transmission line and lattice structures are noticeable in the foreground, and continue on down the canyon, but blend with the landscape to the point of being barely noticeable. However, while driving along the gravel road, the lattice structures are more visible, obvious, and attract attention in a way that is not fully conveyed from this KOP. The KOP helps to demonstrate how well the existing power infrastructure blends with the landscape under certain circumstances.

KOP 36 – Dome Rock Mountains

KOP 36 (Figure 3.11-23, Appendix 7) is located southwest of Quartzsite, Arizona, west of Copper Bottom Pass on Reclamation-managed public lands. The KOP represents the views of recreationists and backroad travelers looking north at Segment cb-05 or cb-06 on Reclamation-managed public lands. Segments cb-05 and 06 would both be on BLM-administered land that are comprised of scenic quality B and C, and moderate sensitivity. Portions would also be within either the foreground-middleground and seldom seen distance zones and designated VRI Class III and/or IV, and VRM Class II and/or III. The view from KOP 36 is open and panoramic with flat desert plain in the foreground-middleground and low hills and rugged angular pyramidal mountains in the middleground and background. The gravely to stippled exposed earth in the foreground has clumped rounded shrubby green, yellow-green, and gray green vegetation that becomes more uniform with distance. Vegetation at the base of the low hills and mountains forms a distinct horizontal line. Another irregular horizontal line is created by light tan vegetation or exposed earth. The mountains create a jagged and undulating horizontal line at the skyline. Communication towers on top of Cunningham Peak are faintly visible as short thin vertical lines. Lattice structures of the DPV1 line are regularly spaced and faintly visible at the horizon in the distance. Rocks have been arranged to create a fire ring in the immediate foreground.

KOP 37 – Ehrenberg Cibola Road

KOP 37 (Figure 3.11-24, Appendix 7) is located southeast of Ehrenberg, Arizona, on BLM-administered land. The KOP represents the views of recreationists and backroad travelers looking south-southeast at Segments p-13 or cb-05 on BLM-administered land. Segment p-13 would be within lands designated VRI Class III and/or IV, comprised of scenic quality C and/or B and moderate sensitivity, within the foreground-middleground and seldom seen distance zones; and

designated VRM Class II and/or III. The view from KOP 37 is open and panoramic with flat desert plain in the immediate foreground, low hills in the foreground-middleground, and rugged angular pyramidal mountains in the background. The gravely to stippled exposed earth in the foreground has sparse clumped rounded shrubby green and yellow-green vegetation that becomes dotted with distance. Vegetation at the low hills and mountains is not discernable. The mountains create a jagged and undulating horizontal line at the horizon. Lattice structures of the DPV1 line are regularly spaced geometric structures that attract attention in the foreground and run perpendicular to Ehrenberg Cibola Road. Transmission lines are soft horizontal curvilinear lines. The graded dirt road is visible in the foreground as a strong horizontal linear feature that disappears into the middleground. However, as it is simply bladed native materials, the color blends with the surrounding landscape. The road, tracks in the dirt, and shoulders create banding in shades of tan-gray. The associated fence line is faint in the foreground-middleground.

KOP 38 – Ehrenberg Wash

KOP 38 (Figure 3.11-25, Appendix 7) is located east-southeast of Ehrenberg, Arizona, in Ehrenberg Wash on Reclamation-managed public lands. The KOP represents the views of recreationists and backroad travelers looking south-southeast to southwest at Segment p-12 and Segment cb-06 or Segment cb-05 on BLM-administered land. Segments p-12 and cb-05 would be within lands designated VRI Class II, III, and IV; comprised of scenic quality C and B, and moderate or high sensitivity, within the either the foreground-middleground and seldom seen distance zones, and designated VRM Class III. The view from KOP 38 is open and panoramic with flat desert plain in the foreground-middleground and hills and rugged angular pyramidal mountains in the background, which form a jagged line at the horizon. The gravely to stippled exposed earth in the immediate foreground is devoid of vegetation, transitioning to clumped rounded shrubby green, yellow-green, and gray green vegetation in the foreground that becomes dense and uniform with distance. Vegetation forms a broken and irregular horizontal line at the horizon west of the mountains. A diagonal line is created by a bladed road in the foreground. There are two yellow road signs visible in the foreground, one along the road and the other in the vegetation indicating the presence of another road. Lattice structures of the DPV1 line are regularly spaced and faintly visible in the foreground-middleground with transmission lines that form faint undulating horizontal lines.

3.11.2.4 Linear KOPs

I-10 Linear KOP

Traveling westbound along I-10 at highway speeds and entering the study area from the east, there are low rough hills on either side of the highway. The viewer can see the DPV1 structures crossing the highway, coming out from behind the hills to the south, then going north in front of the hills. Once the viewer crosses under the eastern crossing of I-10 by the DPV1 line and through the hills either side of the highway, the view opens up to a wide desert plain. The Delaney Substation is tucked slightly behind the hills south of I-10, and is difficult for westbound travelers to see, but is more clearly visible for eastbound travelers. Figure 3.11-2 (Appendix 7) shows that the scenic quality ratings for the area visible around I-10 are higher to the south than to the north. While mountainous terrain is visible in both directions, the higher scenic quality to the south, including views of Saddleback Mountain, Courthouse Rock, and mountains areas of the Kofa NWR attract the attention of viewers traveling along I-10.

Continuing west on I-10, viewers see the DPV1 line merging with and crossing I-10 from north to south, then diverging from I-10 as viewers continue to travel west. Views remain open and unimpeded except for a slight enclosure where the highway passes through another small range of low rugged hills. Views to the south continue to demand attention and evolve as the viewer comes closer to the New Water Mountains WA, Kofa NWR, and Kofa WA. Views along westbound I-10 gradually become enclosed by mountains. KOP points representing views of travelers on I-10 in the eastern portion of the Project Area include KOPs 3, 8, 17, 18, 20, 59, and 60.

Viewers emerge from the enclosed views of the Plomosa Mountains looking across a north-south trending valley that dips down to the Town of Quartzsite, then increases in elevation as I-10 continues westward through the Dome Rock Mountains. While views are scenic looking both north and south, southern views of the Kofa WA and NWR attract viewers' attention.

During the winter months (roughly October through March) viewers traveling along I-10 will notice individual, clustered RVs in campsites in the low hills or wash areas; and densely occupied areas of RVs on the desert plain as they approach Quartzsite. Also, while approaching Quartzsite from the east, viewers will see monopole structures and conductors of the WAPA 161kV transmission line crossing I-10 after circumnavigating Quartzsite to the north, then briefly crossing the BLM La Posa LTVA to the south.

Passing through Quartzsite, the scene is typical of small towns along interstate or other major highways, with fast food restaurants, gas stations, truck stops, lodging, and residences. In the winter months, Quartzsite appears bustling and congested with packed RV parks, people, and vehicles in the area, especially during the Gem and Rock Show in January. The small town enjoys a backdrop of scenic mountains near the highway and enclosing views to the south, and somewhat more distant to the north. West of Quartzsite, the view becomes rapidly enclosed as the highway enters the Dome Rock Mountains. KOP points representing the views along I-10 in the vicinity of Quartzsite include KOPs 26 and 61.

West of Quartzsite, views are enclosed to the north and south by the rugged and scenic Dome Rock Mountains. Emerging from the Dome Rock Mountains to the west, the scene opens up and becomes panoramic, offering views of the west side of the Dome Rock Mountains and the desert plain to the west, approaching the Colorado River. When traveling east on I-10 through the Copper Bottom Pass area, viewers can look southeast up Copper Bottom Pass and see the DPV1 transmission line emerging from and approaching I-10, before diverging from the highway and fading into the distance. Westbound travelers see the DPV1 line approaching and diverging from I-10, but because of the angle of view, cannot easily see up Copper Bottom Pass. This area is also used for dispersed camping and may be dotted with individual or groups of RVs during the heavy visitor use season. KOP points representing the views of travelers on I-10 in the area of Copper Bottom Pass include KOPs 39 and 40.

Westbound travelers on I-10 see the desert plain transitioning to agricultural areas and riparian vegetation approaching Ehrenberg and the Colorado River. Travelers crossing the Colorado River looking south see residential and commercial development along the banks of the river, and a pipeline bridge also crossing the river. Once across the river, looking south the view is of the river floodplain that is developed for agriculture. Traveling through the City of Blythe is similar to Quartzsite in that I-10 is rimmed with fast food establishments, restaurants, gas stations, truck

stops, lodging, and residential areas; however, the backdrop to the City is mostly agricultural with distant mountain views.

West of the City development, the agricultural plain rises to desert bluffs, that become desert plain. Development becomes more industrial in nature, with views of the Blythe Airport, a power plant, a solar generating facility, and several transmission lines leading to the Colorado River Substation. Just south of the Highway and Airport is the small residential community of Nichols Warm Springs. The Colorado River Substation comes into view approximately 1 mile south of I-10, along with numerous gen-tie and transmission lines. The DPV1 transmission line can be seen distantly approaching the substation.

Because the Proposed Action would be approximately 6 miles south of I-10, and the majority of the Action Alternatives would be a few miles south of I-10, KOPs were mainly established to view the Colorado River Substation area. Therefore, KOP points representing the views of travelers along I-10 include KOPs 55 and 56.

US 95 Linear KOP

US 95 travels north-south through the north-south trending valley containing the Town of Quartzsite. The stretch of US 95 south of Quartzsite in the study area is heavily used for recreation access in the Quartzsite area. The La Posa LTVA is accessed from US 95 just south of Quartzsite, and gravel roads from US 95 offer access to the Kofa NWR to the east and the Copper Bottom Pass area in the Dome Rock Mountains to the west.

Southbound travelers on US 95 south of Quartzsite are looking at the relatively narrow desert plain between the Plomosa and New Water Mountains on the east and Dome Rock Mountains on the west. On the east side of the highway are monopole and H-frame structures of the WAPA 161kV transmission line. On the west side of the highway are single wood pole structures for local distribution and/or telephone lines. The La Posa LTVA is located on both the east and west sides of US 95, with occasional visitor contact stations. In winter months, the area would be densely occupied with RVs. In times outside of the heavy visitor use season, the area appears even more sparsely vegetated than the surrounding landscape and dotted with occasional RVs. Pipeline Road west of US 95 provides access to a small residential community that is distantly visible from the Highway. KOP points representing the views along Highway 95 south of Quartzsite include KOPs 28 and 29.

3.12 PAST, PRESENT, AND REASONABLY FORESEEABLE FUTURE PROJECTS

3.12.1 Introduction

NEPA identifies three types of potential impacts: direct, indirect, and cumulative. A cumulative impact is the impact on the environment that results from the incremental impact of the Proposed Action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time (40 CFR §1508.7).

Within the cumulative effects areas (CEAs), a list of past, present, and reasonably foreseeable future projects that could result in related or cumulative impacts was developed. To collect data for the past, present, and reasonably foreseeable future projects list, general plans and other publicly available documents were reviewed, agency and county representatives were contacted, and developers were contacted to gather additional information on planned projects (HDR 2017k). Agencies contacted include the BLM field offices, Reclamation, DOD YPG, ASLD, California SLC, as well as Maricopa, La Paz, and Riverside Counties.

3.12.2 Cumulative Effects Areas

For most resources, the CEA is an area that includes the Proposed Action and the Action Alternative segments, and a buffer of 2 miles from the outermost segments. This was selected because it is equal to the resource's study area and the impacts identified for those resources would not have an effect outside of the area. However, the range of the CEA for some resources is larger than the general 2-mile buffer due to the nature of the resource and the impact study area. Air quality has a CEA with a 31-mile radius because air impacts can affect the entire basin in which they occur. The traffic and transportation, visual, cultural resources, and Concerns of Indian tribes' CEA is up to 5 miles from the outermost segment. For the EJ and socioeconomic resource areas, the CEA encompasses the entire three county areas. Figure 3.12-1 (Appendix 7) presents the CEAs for these environmental resource areas.

3.12.3 Past, Present, and Reasonably Foreseeable Actions

Land ownership plays an important role in how land is managed and the types of activities that take place. All CEAs for the Project include a mix of Federal, State, Indian, and private lands. Public lands managed by the BLM are used for a variety of purposes including dispersed recreation, wildlife, livestock grazing, mining, and transportation and utility corridors. Public lands are also managed for special values, including the Big Horn Mountains WA, Hummingbird Springs WA, New Water Mountains WA, Kofa NWR, Dripping Springs Area of Critical Environmental Concern (ACEC), and Mule Mountains ACEC. Public lands managed by Reclamation are managed to operate dams, power plants, and canals providing water and hydroelectric power. State trust lands are generally managed for commercial uses that generate revenue for the benefit of Arizona or California schools, or managed for wildlife (and their habitat), or recreation. State trust lands are also developed for public purposes such as roads, utilities, and other infrastructure. Private lands have been developed for residential and commercial purposes, agriculture, roads, highways, landfills, airports, etc. The lands included in all of the CEAs contain a mixture of undeveloped lands, agriculture, cities and towns, roads and highways, utilities, commercial and residential development, military facilities, and mining.

Table 3-1 details the land ownership by CEA. The information in Table 3-1 is referred to throughout the discussions by resource topic in the proceeding sections.

Table 3-1 Land Ownership within the 2-Mile and 5-Mile CEAs

LAND OWNERSHIP	TOTAL 2-MILE CEA		TOTAL 5-MILE CEA	
	AC	%[1]	ACRES	%[2]
BLM	395,687.5	55.6	655,709.2	55.8
Reclamation	12,828.1	1.8	13,109.5	1.1
USFWS	68,583.4	9.6	116,008.6	9.9
Military	14,618.1	2.1	39,866.8	3.4
Indian Lands	8,718.0	1.2	27,957.7	2.4
County	15.5	<0.1	15.5	<0.1
Private	148,933.9	20.9	237,617.8	20.2
State - Arizona	62,138.7	8.7	84,350.6	7.2%
State – California	49.2	<0.1	924.2	<0.1
Total All Owners	711,573.1	100	1,175,643.6	100.0

[1]percentages based on the total acres within the 2-Mile CEA.

[2]percentages based on the total acres within the 5-Mile CEA.

Past, or existing, land uses from which disturbance can be inferred have been quantified (Table 3-2) for the General CEA (2-mile) and the 5-mile CEA. These calculations provide a baseline for general conditions within the CEAs. Specific present and reasonably foreseeable future projects that could contribute to cumulative impacts are listed in Table 3.12-1 and Table 3.12-2 in Appendix 3. These tables indicate the project name and project type, as well as its location and status. Each project is identified by a map number, keyed to Figure 3.12-1 (Appendix 7). This figure shows the locations of projects that could result in impacts within the CEAs.

Table 3-2 Quantifiable Land Use within the 2-Mile and 5-Mile CEAs

LAND USE	TOTAL 2-MILE CEA		TOTAL 5-MILE CEA	
	ACRES	%[1]	ACRES	%[2]
Agriculture[3]	43,976.6	6.2	76,796.9	6.5
Public Lands (BLM)[4]	387,009.3	54.4	636,423.9	54.1
Reclamation[3]	12,645.8	1.8	12,916.9	1.1
Commercial[3]	2,953.0	0.4	4,615.8	0.4
County	15.5	<0.1	15.5	0
Indian Reservation	8,633.4	1.2	27,572.5	2.4
Industrial[3]	3,261.9	0.5	3,273.6	0.3
Local	527.4	0.1	751.6	0.1
Military	14,663.7	2.1	39,885.1	3.4
Mixed Use[3, 5]	4,544.5	0.6	6,010.8	0.5
Open Space	5,630.7	0.8	9,465.3	0.8
Open Water	212.4	<0.1	265.2	<0.1
Public/Semi-public[3]	2,649.1	0.4	3,921.6	0.3
Urban Residential[3]	7,988.8	1.1	22,496.1	1.9
Rural Residential[3]	65,819.5	9.3	95,291.8	8.1
Solar Facility[3]	12,291.7	1.7	23,399.6	2.0
Special Designation Lands	39.3	<0.1	211.9	<0.1
State Lands	61,557.4	8.7	84,475.1	7.2
Transmission Lines[3,6]	995.0	0.1	1,107.2	0.1
Transportation[3,6]	8,071.2	1.1	11,515.8	1.0
USFWS	68,077.0	9.6	115,231.3	9.8
Totals	711,573.1	100.0	1,175,643.6	100.0
Total Acres Disturbance[3]	165,197.1	23.2	261,346.1	22.2

[1]percentages based on the total acres within the 2-Mile CEA.

[2] percentages based on the total acres within the 5-Mile CEA.

[3]for purposes of quantification, these categories are considered disturbances.

[4]land use either undeveloped or unspecified in GIS data

[5]mixed use includes multi-family commercial use, employment centers, neighborhood commercial, planning development, and undetermined uses.

[6]Road centerlines were buffered from 10 (i.e., driveway) to 60 feet (i.e., freeway) depending on road type; transmission lines assume 50-foot ROW

Collectively, these projects represent known and anticipated activities that may occur in the general Project vicinity and that have the potential to contribute to a cumulative impact. Because the Project would be linear, most of the projects in Table 3.12-1 and Table 3.12-2 in Appendix 3 would not contribute to cumulative impacts along the entire route. These projects are limited in their geographic extent. Others, such as the DPV1 and the El Paso National Gas pipeline, are linear facilities that would parallel or overlap with segments of the Project over great geographic distances, in multiple counties. The majority of the planned projects in the CEA are located in Riverside County, California (Figure 3.12-1, Appendix 7).

3.12.4 Cumulative Project Scenario by Resource

3.12.4.1 Soil Resources

Geographic Scope

The CEA for geology, soils, and minerals is the area that includes the Proposed Action and Action Alternative segments, and a 2-mile-wide buffer surrounding them. The CEA for Geology, Minerals, and Soil Resources encompasses 711,573 acres.

Cumulative Conditions

Potential impacts on geology and mineral resources could consist of mineral resource depletion, removal of mineral resources from availability for development, and topographic changes. Past and present activities such as road building, mineral extraction, and other infrastructure projects, have impacted the geology of the area due to terrain modifications and extraction of minerals (Table 3-2 above and Table 3.12-1 in Appendix 3). The past and present activities, such as road building, mineral extraction, and other infrastructure projects have impacted the geology of the area due to terrain modifications and extraction of minerals.

The BLM Legacy Rehost 2000 System (LR2000) database indicates that there are numerous mining claims in the CEA. Known active existing mines and planned projects in the general vicinity of the Project include the following:

- Plomosa 9 Placer Claim – Potential project would be located on a 20-acre mining claim within La Paz County in the Plomosa Mountains just southeast of Quartzsite and adjacent to alternative Segment x-05. The claim is owned by Jackpot Minerals LLC and overseen by the BLM's YFO under the serial number AMC396777. (Figure 3.12-1, site #8, Appendix 7)
- West Port Gold Project – This project, operational in 2017, includes the development of a 500-ton per day, aboveground, open pit operation that would produce between 5,000 and 10,000 ounces of gold per year for 10 to 15 years. The mine would be located approximately 1 mile north of I-10 and about 6 miles west of Quartzsite, just north of alternative Segment i-06. The project owner is ITEC Solutions Inc. (Figure 3.12-1, site #11, Appendix 7) (ITEC Solutions 2016)
- Ehrenberg Wash Pit – The operation consists of mining or quarrying crushed and broken stone on BLM-administered lands. The operation is expanding the 40-acre open pit by an additional 20 acres.

- Plomosa Mine Quarry – Quartz-based decorative rock is mined, crushed, screened, stockpiled, and hauled out at this active operation located southeast of Quartzsite. This claim includes 180-acres of BLM-administered land. A 20-acre expansion was proposed in 2015 and a FONSI was signed in February of 2016.

In addition to the active and planned mining projects noted, construction of roads, utilities, and other types of development could modify surface topography, thus altering drainage and erosion.

3.12.4.2 Biological Resources

Geographic Scope

The CEA for biological resources, including vegetation and wildlife resources, is the general CEA which includes the Proposed Action and Action Alternative segments and a 2-mile-wide buffer (711,573 acres).

Lower Sonoran Desert

- Approximately 43 percent of the Lower Sonoran region is in Federal ownership, 23 percent is private, 10 percent is state trust lands, and 24 percent is tribal land.

Upper Sonoran Desert

- Approximately 47 percent of the Upper Sonoran region is in Federal ownership, 12 percent is private, 17 percent is state trust lands, and 24 percent is tribal land.

Cumulative Conditions

Past and present land uses have altered the extent, structure, and composition of native vegetation communities in the CEA. Commercial and residential developments and associated infrastructure, as well as agricultural development, results in clearing native vegetation; grazing by livestock can contribute to increased competition with native species for forage, facilitating the spread of noxious and non-native invasive weeds, changing the structure and composition of native plant communities, and degrading water quality. Undeveloped lands generally retain their native vegetation communities, with noxious and invasive weed species often taking root, especially in areas near roads and other disturbances.

Past and present actions in the CEA (Table 3-2 above and Table 3.12-1 in Appendix 3) have resulted in negative impacts to wildlife at various levels. The primary impact to wildlife resources within the CEA include habitat loss and fragmentation, and displacement of wildlife as a result of human presence and habitat changes associated with past and present community development, roads, grazing, agricultural development, utility development (electric, water, gas, etc.), recreation, and mining. Smaller less mobile wildlife species are susceptible to crushing and mortality by vehicle traffic and other development activities.

The AGFD (2012) has summarized existing conditions and stressors that are important for the conservation of biodiversity in the Sonoran Desert region. The following summary is from that document and is generally applicable in most of western Arizona and eastern Riverside County in California.

Lower Sonoran Desert

- More than 21 percent of lower Sonoran desertscrub has been replaced by development or agriculture; this region is being further reduced by urban expansion and energy development.
- Much of the area has been degraded by livestock grazing.

Upper Sonoran Desert

- About 8 percent of this region has been replaced by development or agriculture.
- Invasion of nonnative plants and a resulting increase in the risk of wildfire in areas where fire was not a natural occurrence is an important threat to this region.

Potential impacts or threats to vegetation in the CEA and surrounding region include the following:

- Altered surface hydrology
- Disease
- Invasive plant and animal species
- Fire
- Power lines
- OHVs (especially in xeroriparian washes)
- Climate change
- Drought
- Canals and pipelines
- Military activities

Reasonably foreseeable future actions (Table 3.12-2 in Appendix 3) in the CEA include: additional transmission lines, roads, and other linear disturbances (e.g., transmission lines); large-scale energy development (i.e., solar facilities and a power plant); mine development; and additional OHV use and other dispersed and concentrated recreational activities. With the presence of the Project and added transmission capacity, the CEA may be more attractive to new utility scale energy development than without the Project.

The Project could contribute to the cumulative effects in the following ways:

- Habitat Loss – Some route segments, such as those close to I-10, are in areas with substantial existing disturbances; other route segments, such as in the Copper Bottom Pass and Johnson Canyon vicinity, are in largely pristine desert habitat.
- Habitat Fragmentation – This could be especially important on the Palo Verde Mesa near the Colorado River Substation where there are numerous recent and planned transmission lines and energy development projects; and crossing the Kofa NWR compounding the habitat fragmentation caused by DPV1.
- OHVs – Presence of a new access road, or improvement of existing roads, could increase access to otherwise remote habitats. There currently is substantial OHV activity around Quartzsite.
- Increased Risk of Bird Mortalities during Operations – This cumulative impact would be highest along the existing DPV1, including at the crossing of the Colorado River, and near the Delaney and Colorado River Substations, and in association with guyed V structures.

3.12.4.3 Cultural Resources

Geographic Scope

The CEA for the analysis of cultural resources is the Proposed Action and Action Alternative segments, and a 5-mile-wide buffer (1,175,644 acres). This is the area in which direct and indirect impacts to cultural and historic resources could occur through physical disturbance, encroachment, or visual impacts. A 5-mile buffer should encompass the extent of the visual analysis and the vantage points from which the Proposed Action and Action Alternative segments, and other past, present, and reasonably foreseeable disturbances can be discerned. Although the CEA for cultural resources was generally within 0.5-mile of the Proposed Action and Action Alternative segments, aerial photos for traditional and cultural properties within 5 miles of the segments were reviewed to take into account cultural, historic, and visual impacts.

Cumulative Conditions

Land ownership is detailed in Table 3-1. Approximately 655,709 acres (55.8 percent) of the CEA are managed by the BLM, 13,110 acres (1.1 percent) by Reclamation, 39,867 acres (3.4 percent) are military lands, and an additional 116,009 acres (9.9 percent) by the USFWS. This equates to 70.2 percent of the CEA under Federal regulatory oversight, subject to Section 106 of NHPA. An additional 84,350 acres (7.2 percent) are Arizona state lands and 924 acres (less than 0.1 percent) are California state lands, subject to state regulatory oversight.

Past and present disturbances to cultural resources in the CEA have been the result of utility installation, road development, ranching/agriculture, residential and commercial development, archaeological excavation, recreational activities, and likely vandalism and unauthorized artifact collection. The past and present land uses in the CEA have resulted in the loss, disturbance, theft, and burial of cultural artifacts and sites, as well as the modification and alteration of the setting of cultural sites and resources. The incremental degradation of cultural resources reduces the information and interpretive potential of historic properties. Development on state and Federal lands requires that cultural resource surveys be conducted to determine the presence of cultural resource sites eligible for listing on the NRHP. As directed by Section 106 of the NHPA, NRHP-eligible sites are generally avoided or mitigated if avoidance is not possible for projects with a Federal or state nexus. Projects/development disturbances conducted prior to 1966 (i.e., prior to NHPA) and/or those without a Federal or state nexus generally did not identify/quantify cultural resource sites or impacts to them.

Sites that have been determined to be ineligible for the NRHP did not require avoidance, have been discharged from management, and therefore have likely been impacted by the activities requiring the cultural resource inventory (i.e., development, utility installation, fence projects, road construction, etc.).

Impacts to cultural and historic resources would occur during construction if NRHP-eligible resources are disturbed or destroyed as a result of excavation and/or removal. Further ongoing impacts could occur as a result of visual impacts. Increased access to remote areas as a result of Project construction could result in increased vandalism of cultural resources.

Current and future development would contribute to cumulative cultural resources effects in the region.

3.12.4.4 Concerns of Indian Tribes

Geographic Scope

The CEA for the analysis of Concerns of Indian Tribes includes the Proposed Action and Action Alternative segments and a 5-mile-wide buffer surrounding them (1,175,644 acres). This is based on the scale of the Project and the vantage points from which the Proposed Action and Action Alternative segments, and other past, present, and reasonably foreseeable disturbances can be discerned from potential areas of importance to the tribes.

Cumulative Conditions

Various tribes have been consulted and informed of the Project. Tribes have expressed interest and concern about potential effects to the native landscape, the viewshed, trails and elements of Native infrastructure across the desert, cultural resource sites, and TCPs that are within their traditional territories and may have been inhabited or used by their ancestors. Noted concerns include the many transmission lines within the viewshed. Past actions affecting Concerns of Indian Tribes include vandalism and looting of prehistoric sites, unauthorized excavation of prehistoric sites, recreational use, roadway and infrastructure construction, and urban and rural developments. Current and future development (Appendix 3, Tables 3.12-1 and 3.12-2; Figure 3.12-1, Appendix 7) would contribute to cumulative impacts to Concerns of Indian Tribes in the region.

3.12.4.5 Land Use

Geographic Scope

The CEA for land use is the Proposed Action and Action Alternative segments and a 2-mile-wide buffer surrounding them, encompassing 711,573 acres.

Cumulative Conditions

Tables 3-1 and 3-2 present land ownership and land uses in the CEA from which land management and disturbances can be inferred. Of the 711,573 acres in the CEA (Table 3-1), 395,687 acres (55.6 percent) are BLM-administered land, 12,828 acres (1.8 percent) are Reclamation, 68,583 acres (9.6 percent) are USFWS, and 14,618 acres (2.1 percent) are military lands; therefore, 491,717 acres or 69.1 percent of the CEA is under Federal management. The dominant developed land uses (Table 3-2) in the CEA consist of 73,808 acres of residential lands (10.4 percent of CEA) and 43,977 acres of agricultural land (6.2 percent of CEA). Transmission lines and solar facility development total 13,287 acres (1.9 percent of the CEA).

Federal or public lands are managed for a variety of purposes, primarily related to preservation, recreation, and development of natural resources. State Trust lands are not public lands but are instead managed as a public Trust created to support the education of children which is accomplished in a number of ways, including the sale and lease of State Trust lands for grazing, agriculture, municipal, school site, residential, commercial and open space purposes.

Past and present developments and disturbances related to land use were presented in Section 3.7. In general, the CEA is characterized by open, desert lands used for grazing, mining, utilities, recreation, and dispersed residential development. In some areas, open desert has been converted

to residential, commercial, and industrial uses (e.g., YPG, power plants, electrical substations, mines). Reclamation managed lands include the CAP canal (which itself is managed by the Central Arizona Water Conservancy District).

Reasonably foreseeable future development in the region includes additional transmission lines, gas pipelines, roads, and other linear disturbances; large-scale energy development, especially in California; and additional OHV use and other dispersed and concentrated recreational activities. Transmission lines could result in visual impacts that could diminish the area's potential to support recreational uses. Placement of transmission line alternatives near towns and cities could reduce the number of options for compatible uses on nearby lands. The cumulative analysis will evaluate the Project's contribution to cumulative visual, recreational, residential, and agricultural impacts which could affect local land uses important to local economies.

3.12.4.6 Recreation

Geographic Scope

The CEA for the analysis of recreation is the general CEA that includes the Proposed Action and Action Alternative segments and a 2-mile-wide buffer (711,573 acres).

Cumulative Conditions

Lands with special designations provide opportunities for solitude and primitive, unconfined recreation and protect natural or undeveloped landscapes and resources. Lands within the CEA provide opportunities for dispersed and developed recreation. Dispersed recreation includes camping, hunting, wildlife observation, photography, backpacking, horseback riding, hiking, and backcountry driving. Developed recreation includes parks and OHV trails. Portions of the proposed Arizona Peace Trail are located within the CEA.

Residential and commercial developments have lead to surface disturbances and converted native vegetation communities to urban landscaping. Population growth has increased traffic and pressure in recreational areas. The mixture of land use development in the CEA has altered the land, its character, and the viewshed.

Reasonably foreseeable projects in the CEA include roads and other linear disturbances; large-scale energy development, especially in California; and OHV use and other dispersed and concentrated recreational activities.

3.12.4.7 Socioeconomics and Environmental Justice

Geographic Scope

The CEA for socioeconomics and EJ is Maricopa and La Paz Counties in Arizona and Riverside County, California. This is the geographic extent of the cumulative impact analysis because socioeconomic factors such as public services and utilities are provided by local jurisdictions or districts, and the local labor force is expected to come primarily from within these counties. In addition, public services and utilities plans and population and housing demand projections are prepared at the county level. The Environmental Justice CEA includes the three-county area and the Block Groups used for evaluating impacts for this topic area.

Cumulative Conditions

The range of potential cumulative impacts that should be considered in the cumulative socioeconomics and EJ analysis includes effects on local economies and local labor force demand. Future foreseeable projects such as planned solar energy projects and associated utilities in combination with the Project may require construction workers from within the same local labor force if they are constructed concurrently with the Project. The development of these projects in combination with the construction of the Project could result in an impact to the local housing market if construction workers were to relocate into the area.

Past development and population growth within the CEA have impacted employment, public services, utilities, and housing demands. Population increases have increased development in Riverside County and Maricopa County (mainly in incorporated areas), expanded the demand for housing, and increased the available workforce. Additional development both increases pressure on existing public services and utility systems and provides additional infrastructure to increase capacity and change employment opportunities.

The Project in conjunction with reasonably foreseeable energy, utility, and other infrastructure projects could support population increases in the area for the foreseeable future. The CEA has a rural character and local communities rely on that character to draw visitors that support their local economy.

3.12.4.8 Visual Resources

Geographic Scope

The CEA for the analysis of visual resources includes the Proposed Action and Action Alternative segments and a 5-mile-wide buffer surrounding them. This is based on the scale of the Project and the diminution of the apparent size of objects at greater distances. In general, taller structures can be viewed from greater distances.

Cumulative Conditions

Cumulative effects to visual resources occur where built facilities or activities occupy the same field of view as other built facilities or impacted landscapes, and an adverse change in the visible landscape character is perceived. These are often categorized as local viewshed effects. A cumulative effect could also occur if a viewer perceives that the general visual quality or landscape character of a localized or regional area (I-10 corridor) is diminished by the proliferation of visible similar structures or construction effects, even if the changes are not within the same field of view as existing (or future) structures or facilities. The result is a perceived “industrialization” or “urbanization” of the existing rural or undeveloped landscape character. These are often categorized as regional viewshed effects.

The types of past and present disturbances that have affected visual resources in the CEA include large scale energy development, transmission lines and other utility corridors, road construction, agricultural activities, residential development, and mining activity (Table 3-2). Specific projects and disturbances that have affected visual resources are described in Table 3.12-1 in Appendix 3. Specifically, in the western portion of the CEA, there are 7 existing solar facilities, along with their associated gen-tie lines; 6 transmission lines, and one combined cycle power plant that visually

contribute to a sense of industrialization, particularly in the vicinity of the Colorado River Substation.

Reasonably foreseeable future disturbances that may affect visual resources in the CEA include additional large scale solar facilities, a power plant, and mining activity (Table 3.12-2 in Appendix 3). Specifically, in the western portion of the CEA, an additional 3 solar facilities, along with their associated gen-tie lines are proposed; and an additional combined cycle power plant. The Project in conjunction with these would incrementally contribute to changes in the visual character and the scenic quality of the natural landscapes in the CEA.

To the extent that construction of the Project would be visible within the same field of view as one or more of the existing projects, those under construction, or reasonably foreseeable future projects, adverse cumulative visual impacts could result. The Project and the past, present, and reasonably foreseeable future projects combined would result in a perceived increase in industrialization of the landscape, diminution of visual quality, and increase in visual contrast. Also, in the cases where there appear to be multiple corridors due to greater separation between facilities, the projects would contribute to a sense of proliferation of energy infrastructure within the I-10 corridor.

Chapter 4 Environmental Consequences

CHAPTER 4 ENVIRONMENTAL CONSEQUENCES

4.1 INTRODUCTION

Section 4.1 provides an introduction to the chapter and the definitions for terms used to describe environmental effects.

Section 4.2 presents the non-key resource impact summaries for resources that are not key to distinguishing between alternatives or the decision-making process.

Sections 4.3 through 4.11 discuss the environmental consequences for each key resource brought forward for analysis, including direct, indirect, and cumulative effects. Residual, unavoidable adverse effects, irreversible and irretrievable impacts, relationship of short-term use versus long-term productivity, and MMs are also presented.

4.1.1 Impact Assessment

The Proposed Action and Action Alternatives may cause, directly or indirectly, changes in the human environment. This EIS assesses and analyzes these potential changes and discloses the effects to the decision-makers and public.

Many concepts and terms used when discussing impacts assessment may not be familiar to the average reader. The following sections attempt to clarify some of these concepts.

4.1.1.1 Mitigation for Impacts

Where applicable, Mitigation Measures (MMs) are proposed in this document. If residual effects remain after the mitigation is applied, those effects are described as well. Mitigation measures are a means to address environmental impacts that are applied in the impact analysis to reduce intensity or eliminate the impacts.

Under NEPA, reasonable mitigation is required to be identified and analyzed for adverse impacts by the CEQ Regulation 40 CFR 1508.20. The impact analysis in this EIS assumes implementation of all APMs and BMPs (Appendix 2A) as part of the applicant's Project description. However, where impacts are identified that are not precluded or adequately minimized by these APMs (applicant proposed measures) or BMPs (best management practices derived from RMPs), additional MMs are identified and analyzed. The MMs presented in this EIS are identified in the mitigation monitoring, compliance, and reporting tables at the end of each resource analysis.

For cultural resources and concerns of Indian tribes, mitigation would be part of the suite of approaches used to address or resolve adverse effects in accordance with the provisions of the PA (Appendix 2D). For these resources, resolution measures are presented.

For the purposes of this EIS, BMPs were assumed to be part of the Project and are not included as BLM MMs. However, APMs and BMPs would be compiled with the BLM-recommended MMs into the final Mitigation Monitoring, Compliance, and Reporting Program, which would be completed upon adoption of the final EIS.

4.1.1.2 Impact Indicators

An impact indicator is an element or parameter used to determine change (and the intensity of change) in a resource. Impact indicators are the consistent currency used to determine change (and the intensity of change) in a resource. Working from an established existing condition (i.e., baseline conditions described in Chapter 3) this indicator would be used to predict or detect change in a resource related to causal effects of proposed actions.

4.1.2 Environmental Effect Categories

The following environmental effect categories (Table 4-1) are presented to define relative levels of effect intensity and context and to provide a common language when describing effects. The definitions in the table below are general. Duration of Project disturbance has been described in Chapter 2 in terms of short-term (during construction) and long-term (life of Project, projected to be about 50 years). However, for purposes of impact analysis, duration of impacts does not necessarily correlate directly. General duration of effects is defined here; however, specific durations appropriate to individual resources are defined in the following resource sections where it differs from Table 4-1.

Table 4-1 Summary of Terms Used to Describe Environmental Effects in the EIS

ATTRIBUTE OF EFFECT		DESCRIPTION
Magnitude (Intensity)	No impact	There would be no change to the current condition of resource as a result of Project construction, operation, or maintenance.
	Negligible	No measurable change in current conditions.
	Minor	A small, but measurable change in current conditions.
	Moderate	An easily discernible and measurable change in current conditions.
	Major	A large, easily measurable change in current conditions.
Duration	Short term	During construction (1.5 – 2 years), up to 10 years.
	Long term	More than 10 years.

Note: Descriptions are typical but may vary by resource.

4.1.3 APMs, BMPs, and CMAs

APMs and BMPs have been identified for the Project and are described in Appendix 2A. The CDCA Plan of 1980 as amended contains CMAs, which include a specific set of avoidance, minimization, and compensation measures. The applicability of those measures to the Project was determined using a CMA checklist (Appendix 2C). Those CMA measures that were determined to be applicable to the Project are included in the Project APMs/BMPs (Appendix 2A) and are cross-referenced to the CMA checklist in Appendix 2C. Certain APM/BMPs may be called out specifically in the resource sections, however, for a complete list of applicable APM/BMPs see Appendix 2A.

4.1.4 Proposed RMP Amendments

Under the Proposed Action and Action Alternatives, amendments to the Yuma, Lake Havasu, and/or CDCA Plan would be required for the Project to comply with the plan(s).

Amending any of these plans would not actually involve any ground disturbing activities but would however, allow for ground disturbing activities to occur. Impacts from amending the plan(s) could affect a variety of resources. Changing the VRM Classification would affect the future management of visual resources. These impacts are discussed under the corresponding sections below. Because amending the plan(s) would not immediately involve ground disturbance or development, this action would not directly or indirectly impact the remaining resources. Direct or indirect impacts that arguably could be associated with amending a plan to establish a utility ROW outside a designated utility corridor would be the same impacts as those disclosed in relation to the Project's construction, operation, maintenance, and decommissioning activities.

4.1.5 Organization of Analysis

Segments are the building blocks of the full route alternatives; therefore, analysis of segments is foundational to analysis of the full route alternatives. First, impacts common to all Action Alternative segments are disclosed. Then impacts are analyzed by segment. Then each full-route alternative is analyzed with differences in impacts, if any, by subalternative following full-route discussions.

Chapter 4 includes a discussion of direct and indirect effects specific to Project segments to identify distinguishing characteristics associated with specific segments. If a specific-segment is not identified, it should be assumed that the general impacts described in Direct and Indirect Effects Common to All Action Alternatives for each resource would occur.

4.2 NON-KEY RESOURCES

4.2.1 Air Quality and Climate Change

All the Action Alternatives would result in emissions of criteria pollutants, hazardous air pollutants (HAPs), and greenhouse gases, but operational emissions and impacts would be much lower than construction phase emissions (Appendix 4, Tables 4.2-1 through 4.2-3). Fugitive dust, engine exhaust, concrete batch plant emissions, and sulfur hexafluoride (SF_6) emissions from gas-insulated circuit breakers in the switchyards would be the sources of air quality impacts. The emissions of criteria air pollutants would not exceed the conformity emissions thresholds for the Phoenix nonattainment/maintenance Area and the criteria pollutant emissions do not exceed the daily and annual Mojave Desert Air Quality Management District (MDAQMD) significance thresholds for the Riverside corridor. CO, $PM_{2.5}$, SO_2, and volatile organic compounds (VOCs) do not exceed the Arizona Department of Environmental Quality (ADEQ) Permitting Exemption thresholds, indicating that those emissions would not exceed the NAAQS. NO_x and PM_{10} emissions do exceed the ADEQ Permitting Exemption Thresholds, but they would not exceed the applicable ambient air quality standards.

There would not be an adverse impact on climate change because: construction GHG emissions are less than the 25,000 metric tons (MT) CO2e reporting thresholds and are short-term in nature; operational emissions are long term in nature, but substantially below the reporting thresholds. To the extent the Project allows for the displacement of fossil fuel energy generation with renewable energy sources there would be a beneficial contribution to anthropogenic climate change.

Because under any Action Alternative, air quality and climate change impacts would be negligible and similar, this resource is not considered key to distinguishing between the Action Alternatives or decision-making.

CMAs LUPA-AIR-1 through LUPA-AIR-3, LUPA-AIR-5, LUPA-BIO-6, and LUPA-BIO-13 would apply to the Project (Appendix 2C). The Project would comply with these CMAs through APM-AQ-01 and APM-AQ-02 and BMP-AQ-01, BMP-AQ-02, and BMP-AQ-05 (Appendix 2A). Further, the Project would not be a major stationary source of air quality or visibility deterioration (LUPA-AIR-1) (Appendix 2C).

4.2.2 Geology and Minerals

Because Project activities would have no means of influencing seismicity, the frequency and magnitude of earthquakes would not be directly or indirectly impacted from construction of any Action Alternative. Further, Project engineering would consider seismic hazards in design; potential impacts to the Project from earthquakes would be negligible and long-term. Because the Project would be designed to avoid steep slopes where possible and engineered solutions to mitigate for the potential for landslide/mass wasting events would be identified in geotechnical studies, the potential for landslides would not likely be changed by construction. Direct or indirect effects to the potential for landslides would not be anticipated, so impacts related to landslides would be short term and negligible. Liquefaction potential would also be determined by geotechnical studies and would be considered in engineering and design. Even where risk is potentially high west of the Colorado River, potential impacts to the Project from liquefaction would be negligible and long-term.

Construction would cause no direct or indirect impacts to operating mines and mining districts. Transmission lines typically have little impact to mining operations since span lengths are such that access to minerals can be accomplished between spans. The Project ROW would be on the surface only. It would not affect any claims or entries unless the presence of the line prevented access to develop the claim or occurrence, which would only be in the case of construction, and on an active mining operation. Operation and maintenance of the Project would not directly impact active mines or mining districts, although it could have potential long-term indirect impacts because underground subsurface resources would be encumbered by the transmission line ROW. The location of a valid mining claim gives a mining claimant possessory rights to the lands superior to any subsequent appropriations. Again, span lengths would generally prevent these impacts.

This resource is not considered key to distinguishing between the Action Alternatives or decision-making because the Project would either not have the potential to influence the resource, would have similar impact potential across all alternatives, or would be considered in Project engineering.

There are no CMAs related to geology and minerals that would apply to the Project.

4.2.3 Paleontological Resources

Ground disturbance during construction is expected with all Action Alternatives and may result in the damage or loss of paleontological resources; however, the number and types of resources affected would vary depending on the individual alternative. Specific impacts are unknown until identification studies of the selected route are completed. As a result, specific direct or indirect impacts to particular paleontological resources is not known. Direct effects common to all Action Alternatives include possible damage to paleontological resources and possible loss of associated data due to construction activities. The scientific information provided by fossils is maximized by discovery of fossil specimens preserved in place within the host geologic formations. Construction disturbance activities could result in the discovery of isolated fossil specimens. Further examination in the vicinity of these isolated finds could result in significant fossil discoveries. While some fossils may be damaged during construction, they may otherwise remain undiscovered. Therefore, use of construction equipment and blasting could have direct negative (i.e., damage) and positive (i.e., discovery) effects on paleontological resources. Impacts to paleontological resources would be negligible to minor and long-term. No direct effects to paleontological resources due to operations, maintenance, or decommissioning would be anticipated.

Once a route was selected, assessment and mitigation of adverse effects to paleontological resources would be conducted according to BLM Manual H-8270-1, "General Procedural Guidance for Paleontological Resource Management" (BLM 2008f). Mitigation measures would be developed and designed to minimize adverse effects.

Paleontological surveys would be conducted to identify fossil locations in areas of high or unknown sensitivity, micrositing would be done to avoid fossil locations by the Project, and monitoring would be conducted during construction activities. Because under any Action Alternative, impacts would be similar, this resource is not considered key to distinguishing between the Action Alternatives or decision-making.

CMAs LUPA-PALEO-1 and LUPA-PALEO-2 would apply to the Project (Appendix 2C) and would be satisfied by PFYC Figure 3.2-1 provided in Appendix 7 and compliance with applicable Federal laws, regulations, policies, and plans, respectively. LUPA-PALEO-3 and LUPA-PALEO-4 would also apply to the Project (Appendix 2C). The Project would comply with these CMAs through APM-PALEO-01 and BMP-PALEO-02 (Appendix 2A).

4.2.4 Grazing and Rangeland

Construction activities could have minor, short-term effects on livestock access to grazing, water sources, and seasonal movement of herds by causing temporary fragmentation of grazing allotments, ASLD lease lands, or the HMA. Construction activities involving helicopters could displace livestock grazing in the area. In addition, short-term disturbance within grazing allotments would reduce the forage available in the allotment until revegetation is successful on temporary disturbance sites. Degradation of forage by noxious weed encroachment during construction would be prevented by implementation of the Noxious Weed Management Plan. MM-GR-01 (Appendix 2, Section 2.4) would provide alternate livestock water sources during construction which would reduce impacts to negligible.

During Project operations, rangeland and pasture occupied by support structures, the SCS, or access roads would not be available for grazing. Maintenance activities would be unlikely to affect grazing and rangelands. Post-operation decommissioning of the transmission line would cause similar levels of disturbance and disruption as construction. However, once successful reclamation is complete, areas would be restored to the prior range condition.

Because under any Action Alternative, APMs and BMPs would require disturbance to be reclaimed and revegetated, and range improvements maintained, thereby minimizing impacts under any of the Action Alternatives, this resource is not considered key to distinguishing between the Action Alternatives or decision-making.

There are no CMAs related to grazing and rangeland that would apply to the Project.

4.2.5 Special Designations and Management Allocations

Potential direct effects from construction activities on special designations and management allocations would include direct ground disturbance and temporary increases in ambient noise levels in areas where the Project could intersect with these locations. Increases in ambient noise levels, the presence of equipment, and dust would be short-term indirect effects in areas adjacent to special designations and management allocations and would decrease with the completion of construction activities. Access to special designations and management allocations may be temporarily rerouted during construction, which would be a short-term indirect effect. Effects to special designations and management allocations during construction would be minor since the activities would be temporary in nature. The Project's control measures, APMs, and BMPs would minimize the potential for these effects, and therefore construction related impacts would be negligible.

Potential long-term effects to special designations and management allocations due to operations, maintenance, and decommissioning could occur where Project facilities would be sited near or within WAs, WHAs, or LWCs.

4.2.5.1 Wilderness Areas

There would be no direct effects on WAs, as the Project would not be within WA boundaries.

4.2.5.2 Wildlife Habitat Areas

Direct effects to WHAs would be unlikely because the management objectives of WHAs would not be affected by the presence of the Project. Indirect effects could occur due to potential changes in the character of the surrounding lands (e.g., visual changes, increase use due to access roads) but are considered to be negligible to minor.

4.2.5.3 Land with Wilderness Characteristics

There would be direct effects on LWC Polygon 35_SW, located north of I 10, west of the Town of Quartzsite (HDR 2017f), due to fracturing LWC polygons by road construction and affecting the primitive nature. The split would reduce the LWC polygon acreage below that required for

LWC designation, effectively eliminating it. These effects to LWC would be long-term and minor to major depending on the extent of effects and the Action Alternative.

4.2.5.4 Summary

Because under any Action Alternative, APMs and BMPs would require disturbance to be reclaimed and revegetated, thereby minimizing impacts to WAs and WHAs under any of the Action Alternatives. While LWCs could be eliminated, this resource is not considered key to distinguishing between the Action Alternatives or decision-making.

CMAs DFA-REC-1, DFA-REC-2, DFA, REC-4, DFA-REC-5, DFA-REC-7 would apply to the Project (Appendix 2C). The Project would comply with these CMAs through BMP-REC-01 (Appendix 2A).

4.2.6 Noise

Under any of the Action Alternatives, direct and indirect impacts from construction noise would be negligible to minor for the following reasons: construction impacts would be of limited duration (short term); construction activity needs to comply with local noise ordinances; expected noise levels near noise sensitive receptors are expected to be similar to existing levels of noise; and construction of the transmission line would primarily be limited to daytime hours so it is unlikely that construction equipment noise levels would cause sleep disruption for residents at the identified noise sensitive receptors.

During operations, corona noise could occur throughout the length of the Project. The Project location is generally considered to have fair weather during most of the year; however, foul weather, or rain conditions, occurs periodically and seasonally and this is when coronal noise could manifest. Predicted Project noise levels are in line with existing levels of ambient noise at the noise-sensitive receptors and the modeled results suggest some minor increases and decreases in audible noise with no significant impact expected. Noise impacts during operations would be long-term but negligible.

Maintenance and decommission activities associated with the Project would be similar in noise level to construction-related activities, but would be anticipated to occur less frequently, include fewer individual noise point sources, and would be of shorter duration.

Because under any Action Alternative construction would be short term and required to comply with local noise ordinances, this resource is not considered key to distinguishing between the Action Alternatives or decision-making.

CMA LUPA-BIO-12 would apply to the Project (Appendix 2C). The Project would comply with this CMA through APM-NO-01 and BMP-NO-07 (Appendix 2A).

4.2.7 Hazards and Hazardous Materials

For all Action Alternatives, the implementation of the Project would result in the use of regulated and hazardous materials and creation of solid waste during construction. The specific chemicals and materials, and their quantities, have not yet been determined. A “hazardous material,” as

defined by the EPA, is any physical, biological, or chemical item, which has the potential to cause harm to living organisms or the environment. Examples of regulated or hazardous materials associated with construction activity could include solvents, petroleum products (i.e., fuels, lubricants, oils, degreaser, etc.), paint, wood-treated products, detergents, sanitary waste, and other products typically associated with construction sites. Hazardous materials may also include pesticides (i.e., insecticides, fungicides, herbicides, rodenticides, etc.) and wash water associated with these products. Solid wastes may include paper, wood, metal, and general trash. With adherence to laws, ordinances, and regulations, as well as implementation of the APMs and BMPs described in Appendix 2A, there would be negligible impacts from construction-related hazardous materials. Use of rodenticides is prohibited in the CDCA Plan area where Focus and BLM Sensitive Species (including Mojave desert tortoise, Mojave fringe-toed lizard, and desert kit fox) are known or suspected to occur (BLM 2016a).

The Project would not impair or impede implementation of, or physically interfere with, an adopted emergency hazardous materials spill response plan or emergency evacuation plan. Structures would not be located in roadways or block transportation routes. Therefore, no impacts to adopted emergency hazardous materials spill response plans or emergency evacuation plans are anticipated.

APMs and BMPs for the Project (Appendix 2A) include APM-HAZ-01, the implementation of the BLM's Hazardous Substance and Emergency Response Procedures on BLM lands. These procedures identify methods and techniques to minimize the exposure of the public and site workers to potentially hazardous materials during all phases of Project construction through operation. APM-HAZ-01 is believed to be adequate to address all potential concerns currently identified, including hydrocarbons, agricultural chemicals, and natural gas facilities. APM-HAZ-02, Fire Avoidance and Suppression, ensures that workers would minimize the risk of igniting wildfires through their actions.

Once an Action Alternative were selected, micrositing would be done to avoid hazards and hazardous materials by the Project, thereby reducing impacts to negligible. Because under any Action Alternative, hazards and hazardous materials impacts would be negligible and similar, this resource is not considered key to distinguishing between the Action Alternatives or decision-making.

CMAs LUPA-BIO-9, LUPA-SW-6, LUPA-SW-7, and DFA-VPL-BIO-FIRE-1 would apply to the Project (Appendix 2C). The Project would comply with these CMAs through APM-HAZ-01 and APM-HAZ-02, and BMP-HAZ-03 (Appendix 2A).

4.2.8 Public Health and Safety

For any of the Action Alternatives, the Project's worker environmental awareness program would be used to communicate environmental issues and appropriate work practices specific to this Project. This awareness would include spill prevention and response measures and proper implementation of BMPs as described in Appendix 2A. The training would emphasize site-specific physical conditions to improve hazard prevention and would include a review of all site-specific BMPs, the Health and Safety Plan, and the Hazardous Substance Control and Emergency Response Plan. Considering that construction impacts would be short term, direct and indirect impacts to public health and safety in general during construction are expected to be negligible to minor.

During construction, activities such as refueling, welding, or blasting, and sparks from vehicles and other equipment could cause fires. Fuel and ignition sources can be addressed through vegetation management, fire prevention practices, planning, and education. The implementation of APMs and BMPs (Appendix 2A), such as APM-HAZ-02, Fire Avoidance and Suppression, ensures that workers would minimize the risk of igniting wildfires through their actions. Considering that construction impacts would be short term, direct and indirect impacts to public health and safety from fire during construction are expected to be negligible to minor. During operation, the presence of a transmission line can hinder fire containment and transmission line structures and conductors can pose a risk to firefighters; therefore, firefighting protocols require crews to maintain certain distances from energized lines. Fire managers coordinate with utilities on shutting down lines as needed. During operations, direct and indirect impacts to public health and safety due to fire are expected to be negligible to minor.

Public health issues associated with operating a transmission would also include the potential to be exposed to EMF and corona noise. EMF levels were modeled (Appendix 4, Tables 4.2-4 and 4.2-5) and would be at levels comparable to typical magnetic fields associated with common household appliances with EMF levels decreasing rapidly at increasing distance from the Project. Direct and indirect impacts to public health and safety due to EMF are expected to be long-term negligible to minor.

Radio and television interference from a transmission line are based on the electrical and physical characteristics of the transmission line. Therefore, potential interference is considered in the design of higher voltage lines (345kV and above). Radio noise from the Project would not occur until the transmission lines are actually energized. The level of interference would decrease with distance from the transmission line. The Project would operate under Federal Communications Commission (FCC) regulations (FCC, 1988: Vol II, part 15. 47CFR, Ch.1), which require that best engineering principles be used to guard against harmful interference to authorized radio users. In the event that interference occurs, the regulations require that the source be discontinued or adjusted to remedy the interference. Therefore, regulations require that the Project would minimize radio interference to a negligible level.

Structures with guy wires could pose safety risks in recreation areas (Section 4.8); mitigation measures would require different structure types in these areas. During operations, direct and indirect impacts to public health and safety due to guy wires are expected to be negligible to minor.

Workers, residents, or visitors to an area under construction have the potential to contract valley fever from exposure to disturbed soils that may contain the fungus *coccidioides* sp. fungus. APM-AQ-01, BMP-AQ-01, and APM-AQ-04 (Appendix 2A) would minimize the risk of exposure to valley fever for workers and the public as a result of Project construction to a minor, short-term effect.

Because under any Action Alternative, a health and safety plan, fire protection plan, environmental health and safety plan, emergency preparedness and response plan, and many others would be implemented (Appendix 2B), this resource is not considered key to distinguishing between the Action Alternatives nor decision-making.

CMAs DFA-VPL-BIO-FIRE-1 and DFA-VPL-BIO-DUNE-1 would apply to the Project (Appendix 2C). The Project would comply with these CMAs through APM-HAZ-02 and BMP-PHS-02 (Appendix 2A).

4.2.9 Traffic and Transportation

Direct effects common to all Action Alternatives during the construction phase would consist of construction-related traffic including include large trucks and potentially oversized loads. Increased traffic would occur on all types of roads in the Project Area, but would be phased, occurring at different locations at different times. An estimated total of 160 additional personal vehicles would be added to the roadway network before and after each shift under a maximum-case trip scenario. The intensity of traffic impact from construction in the Quartzsite area in particular would depend on the unique influx of visitors each winter; this minor to moderate effect would be site-specific and short-term. Construction would not cause severe road damage because construction would be short term, and roads used for construction would either already be at the appropriate design level for the construction traffic, or roads would be modified to the appropriate design level. Short-term traffic delays during construction could occur at locations where the transmission line crosses roads or where improvements might be needed at local roads, intersections, and bridges to accommodate overweight or oversize delivery vehicles. After construction of the Project, traffic generated by operation and maintenance activities would be intermittent, only require a small number of vehicles, and deliveries would not generally occur. Operation and maintenance traffic would not increase traffic on primary roads, and, subsequently, would not decrease the level of service for any primary roads. Decommissioning activities would have generally the same impacts to traffic and transportation resources as described for construction.

Operation of the Project may represent a collision hazard to pilots accessing private aviation facilities if structures are adjacent (within 0.5-mile) to the facility. This would be a moderate to major, long-term impact on such private aviation facilities. Voluntary marking of structures and lines at these locations would reduce the impact to minor to moderate (Appendix 2, Section 2.4, MM-TT-01). A major, long-term effect on airspace and aviation would occur under all Action Alternatives at the Blythe Airport due to structure height but would be mitigated to negligible by MM-TT-03. The Proposed Action and all the Action Alternatives would have a moderate to major effect on MTRs with a clearance of 100 feet in certain segments, but MM-TT-02 (Appendix 2, Section 2.4) would mitigate this effect to negligible.

Because under any Action Alternative, additional mitigation would be required to further reduce operational impacts to airports and MTRs, this resource is not considered key to distinguishing between the Action Alternatives or decision-making.

CMAs LUPA-BIO-13 and DFA-VPL-BIO-DUNE-1 would apply to the Project (Appendix 2C). The Project would comply with these CMAs through BMP-TT-04, BMP-TT-05, BMP-TT-06, BMP-TT-07, and BMP-TT-08 (Appendix 2A).

4.2.10 Water Resources

Construction activities would have minor, short-term effects to surface water quality due to inadvertent releases of petroleum products or other hazardous materials or due to sediment loading from ground disturbances. During both construction and operations, the functions of ephemeral channels (e.g., providing adequate capacity for flood control, energy dissipation, and sediment movement) could be affected. The Project's control measures, APMs, and BMPs would minimize the potential for these effects, and therefore impacts would be negligible. Impacts to the Colorado River and its adjacent wetlands and floodplain, common to all alternatives, would also be minimized by control measures, APMs, and BMPs. Flexibility with structure placement would also eliminate or reduce impacts to water resources. Proper implementation of design features, APMs, and BMPs (Appendix 2A) would protect groundwater quality; therefore impacts, if any, would be short term and negligible.

Because under any Action Alternative, APMs and BMPs would require disturbance to be reclaimed and revegetated, and other permits such as Section 404 and storm water permits would be required that would protect water resources including water quality, this resource is not considered key to distinguishing between the Action Alternatives or decision-making.

CMAs LUPA-BIO-9, LUPA-BIO-13, LUPA-BIO-14, LUPA-SW-16, LUPA-SW-18, LUPA-SW-21, LUPA-SW-22, LUPA-BIO-DUNE-2, and LUPA-BIO-DUNE-3 would apply to the Project (Appendix 2C). The Project would comply with these CMAs through APM-WQ-01 and BMP-WQ-04, BMP-WQ-05, BMP-WQ-06, and BMP-WQ-07 (Appendix 2A), and analysis in this section demonstrating requirements for floodplain management and protection of wetlands are met. Compliance with LUPA-SW-20 is demonstrated by the fact that no residual impacts are identified.

4.3 SOIL RESOURCES

4.3.1 Introduction

Impacts to soil resources are discussed in terms of acreage impacted and percent of disturbance.

4.3.2 Methods for Analysis

4.3.2.1 Analysis Area

The analysis area for soils resources is the 200-foot ROW for all of the Action Alternatives plus ancillary Project components resulting in new surface disturbance located outside the ROW.

4.3.2.2 Assumptions

Use of the NRCS STATSGO data (NRCS 2009), and SSURGO data where available, assumes mapped soil conditions are representative of actual conditions in the field (Appendix 3, Section 3.3). As with any mapped data, there is a certain amount of uncertainty related to the accuracy and scale of mapping; therefore, the actual soil conditions could vary substantially from those described at any particular location. The data used represent the best available information for evaluating soil resources. The inherent limitations of soil survey data are resolved with site-

specific soil investigations within the actual Project footprint that are part of the permitting and construction design process.

4.3.2.3 Environmental Effect Indicators, Magnitude, and Duration

The following impact indicators were considered when analyzing potential impacts to soil resources:

- loss of topsoil due to construction, operation, maintenance, and decommissioning activities (i.e., removal or mixing of topsoil);
- loss of soil productivity;
- soil compaction from vehicular traffic;
- soil erosion due to water and wind;
- loss of active sand dune habitat;
- shrink/swell potential; and,
- corrosion risk.

In order to determine impacts to soil resources from wind erosion, the Wind Erodibility Group index (WEG) was analyzed using the STATSGO database (Appendix 3, Table 3.3-1) and the SSURGO database. The WEG index groups soils that have similar properties affecting their resistance to wind erosion. The soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible.

Other soil properties used to determine impacts, from the same databases, included shrink/swell potential and corrosion of steel and concrete. Shrinking and swelling of soils can damage building foundations, roads, and other structures. A soils shrink/swell potential is provided as numerical ratings that indicate the severity of individual limitations. The ratings are provided as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00). The corrosion of steel and concrete can be a concern during the construction and maintenance phase of the Project. Only soils with a high probability of causing corrosion were used in this analysis.

Under any of the Action Alternatives, there would be negligible to minor short- and long-term effects to soils. There would be long-term loss of soil productivity on acres not reclaimed during the life of the Project. Other soils disturbed but reclaimed would likely have long-term loss of soil productivity that would improve over time because of reclamation efforts. Impacts to areas of wind-blown sand would range from no impacts if avoided to long-term negligible to minor impacts to dune habitat because of the intermittent nature of the structure foundations, and the spacing between structures.

4.3.3 No Action Alternative

Under the No Action Alternative, there would no direct or indirect impacts to soil resources from the Project.

4.3.4 Construction of Action Alternative Segments

4.3.4.1 Direct and Indirect Effects Common to All Action Alternatives

Topsoil would be stockpiled and covered during construction and reapplied during reclamation in order to minimize topsoil loss (Appendix 2A). Direct impacts to soil resources as a result of construction activities include the loss of soil productivity due to the removal of soils during new surface disturbance. Limited clearing of vegetation and topsoil, as well as grading, would be required and these activities could result in newly exposed, disturbed soils that could be subject to accelerated erosion by wind and water. Any soil removal associated with development of structure foundations and at the SCS would be permanent and would be a loss of soil productivity. One of the primary impacts of concern for construction is disturbance to soil biological crusts. It is expected that soils within the ROW have the ability to support soil biotic crust; therefore, it is expected that disturbance caused by excavation and compaction during construction may directly affect biological soil crusts. Clearing of the SCS site, ancillary facilities, and access roads could also adversely affect any soil biological crusts in the immediate vicinity. As described in Chapter 2, large portions of the Project have been routed to parallel existing linear infrastructure, thus reducing impacts to previously undisturbed soils. Additionally, during construction the use of roads already found within the ROW is expected to reduce impacts to soil resources within the ROW. Old roads which are not maintained are more susceptible to erosion by wind and water; therefore, any improvements to these roads would be a benefit to the soil resources.

Indirect impacts associated with topsoil removal may include invasive plant colonization, soil erosion, and reduction of soil water retention. Construction activities may also cause disturbance to fragile biological crusts, which could increase wind and water erosion and delay reestablishment of plant communities post construction. Other indirect effects are associated with the sediment redistribution of the soil resource as a result of wind and water erosion, which could cause damages to WOUS, prime farmlands, and air quality. Implementation of BMPs, APMs, reclamation, and other conservative measures would minimize loss of topsoil and soil productivity to short-term and minor.

Physical Changes to Soil Resources

Surface disturbance, including the removal of topsoil resources for replacement during reclamation, would result in direct impacts. Physical and chemical changes to the soil would be expected to be long-term and minor and would occur as a result of topsoil salvage and reclamation operations. Topsoil that is used to reclaim disturbed areas immediately after construction activities would begin to revert to more natural conditions.

Direct physical impacts to soil resources include compaction and crushing of the topsoil by equipment during salvage, stockpiling, construction, and reclamation activities. Potential physical effects of soil compaction may include reduced permeability and porosity, damage to microbiotic crusts, increased bulk density, decreased available water holding capacity, and increased erosion potential. With adherence to the APMs and BMPs in Appendix 2A (notably BIO-38 and SOIL-02), physical effects of soil compaction would be short-term, minor to moderate. Soil microorganisms such as bacteria and fungi, important in the decomposition of biological materials and the formation and improvement of soil, would be impacted. Natural processes, such as wind

and water transport of soil particles from surrounding areas would continually inoculate the site with these microorganisms.

Soil Loss/Erosion

Soil erosion potential is determined based on physical soil characteristics, k-factor rating, and slope. Areas located on steep slopes are inherently susceptible to erosion. The majority of reclaimed areas for all Action Alternatives would incorporate a generally flat to gently sloped surface during regrading and reclamation activities. Potential for erosion would be increased on disturbed areas after soil salvage operations due to removal of the vegetative cover and the loss of surface soil structure. Soil erosion after redistribution on re-graded sites would also have a greater potential until the soil is stabilized by successful revegetation. Soil characteristics identified in Appendix 3, Table 3.3-1 suggest that disturbed areas would experience low to high erosion potential either by wind or water. Windblown dust would result from the disturbance of fine-textured soils during construction and reclamation activities through the completion of the Project.

The majority of the impacts to soil resources would be short-term, until reclamation was complete. The footprints of the structures, the SCS site, and new access roads would result in long-term impacts to soil resources. Cutting and removal of vegetation may occur; however, where practicable, downed vegetation and undisturbed low vegetation would be left in place within the disturbance areas to serve as soil protection and erosion control. Vegetation would only be cleared to the extent necessary, minimizing impacts to soil resources. Adherence to APM-GEO-01 and APM-WQ-01 (Appendix 2A) would minimize soil erosion. Further, Project engineering would consider soil characteristics and hazard in design. Impacts from soil loss/erosion would be negligible to minor and short to long term as areas revegetate.

Soil Hazards

Project-related construction (and, to a far lesser extent, operation) fugitive-dust emissions could include emissions of spores from a soil dwelling fungus (*coccidioides immitis* and *c. posadasii*), which occurs across arid areas in the southwestern United States and may occur in the Project Area. When soil is disturbed by activities such as grading, digging, vehicle operation on dirt roads, or high winds, the fungal spores can become airborne and potentially inhaled (BLM 2015a). There is a risk of valley fever and exacerbation of spore emissions. Project construction conducted in a way that minimizes fugitive-dust emissions would minimize emissions of the fungal spores. Accordingly, APM-AQ-01, BMP-AQ-01, and APM-AQ-04 (Appendix 2A) would minimize the risk of exposure to valley fever for workers and the public. Soil hazard impacts would be negligible to minor and short term.

Soil characteristics identified in Appendix 3, Table 3.3-1 suggest that disturbed areas would experience low to high shrink/swell potential and low to high corrosion risk for concrete and uncoated steel, depending upon the segment. Project engineering would consider soil characteristics and hazard in design, reducing these impacts to negligible and long-term.

4.3.4.2 Direct and Indirect Segment-specific Effects

The following sections identify distinguishing characteristics associated with specific segments. If a specific-segment is not identified, it should be assumed that the general impacts described in Section 4.3.4.1 would occur. Further, while the actual risk of erosion, shrink/swell potential, and

corrosion varies by segment, as shown in Appendix 3, Table 3.3-1, the impact is similar for all segments due to APMs and Project engineering design. Therefore, those subjects were covered in Section 4.3.4.1.

However, perhaps the most sensitive issue for soils occurs on BLM administered lands west of Blythe and north of the Colorado Substation, due to the sand dunes' value as habitat for sensitive species (Section 3.4.2.1). Objects as low as 30 cm above the ground surface can interfere with sand transport, creating a "sand shadow" and reducing the size of downwind dunes (PWA 2011). The Colorado Substation was initially proposed to be constructed in the center of the sand dunes, but ultimately was constructed at its current site south of the dunes specifically to avoid impacting sand transport.

The Proposed Action along Segments p-17 and p-18 would site the transmission line south of the active windblown deposits (Figure 3-2) and would likely have negligible impacts on sand transport.

Segments p-17 and p-18 or ca-07, ca-09, and x-19 would need to be used to access the Colorado River Substation from the east. Tangent lattice structures would be used, regardless of the route taken. Because of their open design, tangent lattice structures would allow winds to essentially blow through the structure, minimizing the impact on sand transport (as compared to solid structures, like buildings or walls).

The foundations for the lattice tangent structures along Segments p-17 and p-18 (Figure 3-2) would run south of the active windblown deposits and would disturb only 1.3 acres for the long-term over a linear transmission line distance of 5.4 miles (Appendix 2, Table 2.2-11). Each corner of the self-supporting tangent structures would have a foundation of 6 feet in diameter and extend approximately two feet (61 cm) above ground level, which would intermittently interrupt sand transport on the upwind side. Access roads, as required, would be at grade and only minimally impact sand transport in the short term until sand obscures the routes. For Segments p-17 and p-18, access roads would impact 12.3 acres. These intermittent disruptions of the flow of sand across the surface of the landscape for short distances would have a very localized impact on sand transport in the immediate area of the access roads in the short term and structure foundations in the long term. Therefore, because of the distance between these segments and the active windblown deposits to the north, impacts to active windblown deposits would be negligible.

Alternatively, Segments ca-07, ca-09, and x-19 (Figure 3-2) would have a similar foundation footprint for tangent lattice structures of 1.6 acres over a linear distance of 6.6 miles (Appendix 2, Table 2.2-12), portions of which travel through the dunes. Access roads for these segments would impact 12.2 acres. These segments would have a greater impact on active windblown deposits because portions of the segments would cross more active areas of the dunes, but because of the widely spaced nature of the individual foundations and associated roads, that impact would be considered long-term and negligible to minor.

4.3.5 Operations, Maintenance, and Decommissioning

Impacts to soil resources as a result of operation and maintenance activities are expected to be minimal. Access roads would be maintained during operation and maintenance, which would result in less erosion occurring from wind and water than would be if these existing roads remained

in their current state. Minimal soil resource management would be needed during transmission line operation and most inspection activities would be carried out aerially. On-the-ground inspection would cause negligible damage to existing soil resources because vehicle use would be confined to existing roadways. No indirect effects are expected during the operation and maintenance activities.

Decommissioning activities, if and when they occur in the future, would have negligible impacts, as established access roads and other permanent impact areas would be used.

4.3.6 Mitigation Measures

APMs and the BLM developed required BMPs that would be implemented as part of the Project would minimize impacts to soil resources. Therefore, there are no MMs identified for soil resources for any of the specific segments and thus, no MMs have been identified for any of the full-route alternatives or subalternatives described below.

4.3.7 Construction of Full Route Alternative and Subalternative Effects

Table 4-2 shows the construction (short-term) disturbance and operations (long-term) disturbance associated with each of the Action Alternatives. Short-term acreage includes acreage that would not be reclaimed following construction (i.e., long-term disturbance).

Table 4-2 Soil Disturbance by Full Route Alternative in Acres

FULL ROUTE ALTERNATIVE	CONSTRUCTION DISTURBANCE (SHORT -TERM)	OPERATIONS AND MAINTENANCE DISTURBANCE (LONG-TERM)
Proposed Action	906	276
Alternative 1: I-10 Route	829	176
Alternative 2: BLM Utility Corridor	931	207
Alternative 3: Avoidance Route	924	201
Alternative 4: Public Lands Emphasis Route	850	136
Preferred Alternative	903	207

4.3.7.1 Proposed Action

Under the Proposed Action, there would be negligible to minor short- and long-term effects to soils. Approximately 906 acres of soils would be disturbed associated with transmission line construction, access roads, temporary use areas, and the SCS. Long-term loss of soil productivity would occur on 276 acres of disturbance that would not be restored during the term of the ROW permit. The remaining 630 acres would likely have long-term loss of soil productivity, but productivity would improve during the term of the ROW permit because of reclamation efforts that would be required.

As shown in Figure 3-2, the Proposed Action route south of the Colorado River Substation would avoid active windblown sand areas and habitat. Consequently, as described in Section 4.3.4.2, impacts to areas of active windblown sand would be negligible and long term.

4.3.7.2 Alternative 1: I-10 Route

Under Alternative 1, there would be negligible to moderate short- and long-term effects to soils and the effects would differ because of soil types. Approximately 829 acres of soils would be disturbed associated with transmission line construction, access roads, temporary use areas, and the SCS, a decrease in disturbance compared to the Proposed Action. Long-term loss of soil productivity would occur on 176 acres of disturbance that would not be restored during the term of the ROW permit. The remaining 653 acres would likely have long-term loss of soil productivity, but productivity would improve during the term of the ROW permit because of reclamation efforts that would be required.

As shown in Figure 3-2, Alternative 1 approaching the Colorado River Substation from the east would pass through portions of an active area of windblown sand. As described in Section 4.3.4.2, because of the intermittent nature of the structure foundations, and the spacing between structures, this would constitute a long-term, negligible to minor impact to the dune habitat.

Subalternatives to Alternative 1 (1A through 1E)

There would be minimal differences in the amounts of acres of soil disturbed between the Alternative 1 subalternatives (1A through 1E) and Alternative 1 as indicated in Chapter 2.

4.3.7.3 Alternative 2: BLM Utility Corridor Route

Under Alternative 2, there would be negligible to moderate short- and long-term effects to soils and the effects would differ because of soil types. Approximately 931 acres of soils would be disturbed associated with transmission line construction, access roads, temporary use areas, and the SCS, an increase in disturbance compared to the Proposed Action and Alternative 1. Long-term loss of soil productivity would occur on 207 acres of disturbance that would not be restored during the term of the ROW permit. The remaining 724 acres would likely have long-term loss of soil productivity, but productivity would improve during the term of the ROW permit because of reclamation efforts that would be required.

As shown in Figure 3-2, Alternative 2 approaching the Colorado River Substation from the east would pass through portions of an area of active windblown sand. As described in Section 4.3.4.2, because of the intermittent nature of the structure foundations, and the spacing between structures, this would constitute a long-term, negligible to minor impact to the dune habitat.

Subalternatives to Alternative 2 (2A through 2E)

There would be minimal differences in the amounts of acres of soil disturbed between the Alternative 2 subalternatives (2A through 2E) and Alternative 2 as indicated in Chapter 2.

4.3.7.4 Alternative 3: Avoidance Route

Under Alternative 3, there would be negligible to moderate short- and long-term effects to soils and the effects would differ because of soil types. Approximately 924 acres of soils would be disturbed associated with transmission line construction, access roads, temporary use areas, and the SCS, an increase in disturbance compared to the Proposed Action and Alternative 1 and similar to Alternative 2. Long-term loss of soil productivity would occur on 201 acres of disturbance that would not be restored during the term of the ROW permit. The remaining 723 acres would likely have long-term loss of soil productivity, but productivity would improve during the term of the ROW permit because of reclamation efforts that would be required.

As shown in Figure 3-2, Alternative 3 approaching the Colorado River Substation from the east would pass through portions of an area of active windblown sand. As described in Section 4.3.4.2, because of the intermittent nature of the structure foundations, and the spacing between structures, this would constitute a long-term, negligible to minor impact to the dune habitat.

Subalternatives to Alternative 3 (3A through 3M)

There would be minimal differences in the amounts of acres of soil disturbed between the Alternative 3 subalternatives (3A through 3M) and Alternative 3 as indicated in Chapter 2.

4.3.7.5 Alternative 4: Public Lands Emphasis Route

Under Alternative 4, there would be negligible to moderate short- and long-term effects to soils and the effects would differ because of soil types. Approximately 850 acres of soils would be disturbed associated with transmission line construction, access roads, temporary use areas, and the SCS, a decrease in disturbance compared to all alternatives, except for Alternative 1. Long-term loss of soil productivity would occur on 136 acres of disturbance that would not be restored during the term of the ROW permit. The remaining 714 acres would likely have long-term loss of soil productivity, but productivity would improve during the term of the ROW permit because of reclamation efforts that would be required.

As shown in Figure 3-2, Alternative 4 approaching the Colorado River Substation from the east would pass through portions of an area of active windblown sand. As described in Section 4.3.4.2, because of the intermittent nature of the structure foundations, and the spacing between structures, this would constitute a long-term, negligible to minor impact to the dune habitat.

Subalternatives to Alternative 4 (4A through 4P)

There would be minimal differences in the amounts of acres of soil disturbed between the Alternative 4 subalternatives (4A through 4P) and Alternative 4 as indicated in Chapter 2. However, Subalternative 4P would utilize the Proposed Action Segments p-17 and p-18, thus avoiding the area of active windblown sand; consequently, subalternative 4P would have less impact on the areas of windblown sand than Alternative 4 and subalternatives 4A through 4N.

4.3.7.6 BLM Preferred Alternative

Under the Preferred Alternative, there would be negligible to moderate short- and long-term effects to soils; the effects would differ by soil type. Approximately 931 acres of soils would be disturbed

associated with transmission line construction, access roads, temporary use areas, and the SCS, which would be more soil disturbance compared to the Proposed Action and Alternative 1. Long-term loss of soil productivity would occur on 207 acres of disturbance that would not be restored during the term of the ROW permit. The remaining 724 acres would likely have long-term loss of soil productivity, but productivity would improve during the term of the ROW permit because of reclamation efforts that would be required.

As shown in Figure 3-2, the Preferred Alternative approaching the Colorado River Substation from the east would pass through portions of an area of active windblown sand. As described in Section 4.3.4.2, because of the intermittent nature of the structure foundations, and the spacing between structures, this would constitute a long-term, negligible to minor impact to the dune habitat.

4.3.8 Residual Impacts

The APMs and BMPs described in Appendix 2A would likely alleviate most all impacts to the soil resources as a result of the Project, except for impacts to areas of active windblown sand under the Action Alternatives, where impacts would be negligible to minor following Project construction, as described in Section 4.3.4.2. Maintenance activities aimed at precluding soil erosion would be ongoing; therefore, impacts would be negligible following the Project construction.

4.3.9 CDCA Plan Compliance

Under LUPA-BIO-DUNE-1, evaluation of the Project found that:

- Portions of Segments ca-07, ca-09, and x-19 would cross areas of active windblown sand.
- Because portions of Segments ca-07, ca-09, and x-19 would cross areas of active windblown sand, those segments would be subject to dune/Aeolian sand transport corridor CMAs.
- Thus, alternatives exist that would avoid crossing identified areas of active windblown sand, and thus reduce impacts.

Under LUPA-BIO-DUNE-2, evaluation of the Project found that Segments p-17 and p-18 would result in fewer impacts to windblown sand than the Action Alternative segments, and thus better maintaining the quality and function of Aeolian transport corridors. However, the long-term impacts to areas of windblown sand from Segments ca-07, ca-09, and x-19 would be negligible to minor. Portions of LUPA-BIO-DUNE-2 and LUPA-BIO-DUNE-3 would be satisfied by application of BMP-WQ-06 and BMP-WQ-07.

CMAs LUPA-SW-1, LUPA-SW-2, and LUPA-SW-5 would apply to the Project (Appendix 2C) and would be satisfied by information provided in Appendix 2, Section 2.2.7.7, Appendix 4, Section 4.3, and Appendix 4, Section 4.19, respectively. LUPA-SW-6 through LUPA-SW-11 would also apply to the Project (Appendix 2C). The Project would comply with these CMAs through APM-GEO-01 and BMP-HAZ-01 and BMP-SOIL-04 through BMP-SOIL-07 (Appendix 2A).

4.3.10 Unavoidable Adverse Effects

Residual unavoidable impacts to soil productivity and areas of active sand transport in the Project area would remain after mitigation. The impacts would occur in those areas with structures and other permanent facilities, e.g., the SCS, permanent access roads, and transmission structures. Decreased soil productivity would result.

4.3.11 Cumulative Effects

The past uses in the CEA have had a direct effect on the soils, as described in Chapters 3 and 4. The use of land through activities such as mining, ranching, roads, solar projects, transmission lines, and OHV use have all shaped the current state of the soil resources. The impacts of present actions in the CEA would be very similar to the past actions.

Reasonably foreseeable actions in the CEA that, when combined with the Project construction, may have cumulative impacts to the soil resources, including increased wind and water erosion rates in areas where ground surface disturbance occurs. The reasonably foreseeable actions within the CEA are described in Appendix 3, Table 3.12-2.

During operation and maintenance of the Project, the interaction of the actions within the CEA and the Project could result in a beneficial, minor, and short-term cumulative effect for the soil resources. During this phase, roads would be maintained resulting in reduced wind and water erosion of soils. However, when the operation and maintenance of the Project is combined with future development, a minor cumulative effect would occur. Since the majority of the Project utilizes existing ROWs and disturbed areas, this use would result in a minor impact that would be long-term and for the life of the Project. Impacts would include the loss of soil resources from sites occupied by facilities or OHV use during construction on any of the reasonably foreseeable future projects identified with inadequate access control. Further, operation and maintenance activities of the Project would result in negligible cumulative effects post-construction. Standard operation and maintenance activities would be periodic and would not affect soil resources as they recover from construction impacts. Reclamation can recover some of the soil productivity, but is not 100 percent effective. The implementation of design features, APMs, BMPs, and reclamation on any of these projects would minimize soil impacts; therefore, both the short- and long-term cumulative impacts of the Project would be negligible.

The reasonably foreseeable future projects (Table 3.12-2) have the potential to disturb an estimated 22,661 acres. Any disturbance to surface soils through grading or other ground disturbance can potentially result in accelerated erosion at any one project site. However, with incorporation of APMs and BMPs, similar to those implemented by the Project to address erosion and loss of topsoil, and MMs if needed, impacts from erosion can be mitigated. Therefore, with those applied to the Project, even if a cumulative impact did exist given all the reasonably foreseeable future projects, the Project would not contribute to any considerable impacts caused by an acceleration of erosion during construction. The potential impact is localized to the Project site and proper mitigation is in place to ensure any direct, indirect, or cumulative impacts would represent a mitigated cumulative impact.

Climate change could impact soils, in particular due to intense wind or water erosion from extreme weather events, and when combined with already disturbed soils could lead to greater erosion impacts than might have been expected in the past (Brevik 2012).

Overall, when combined with past, present, and reasonably foreseeable projects, there would be negligible to minor cumulative effects to soils, except in the case of sand transport areas. The Project itself would have a negligible to minor impact on sand transport, as there would be only a few structures in the sand area. However, when combined with past, present, and reasonably foreseeable projects, such as the solar facilities (Blythe Energy Power Plant/Sonoran Energy Project, Blythe Mesa Solar Project, Desert Quartzite Solar Project, and Crimson Solar Project, as described in Appendix 3, Table 3.12-2), these could have a minor to major cumulative effect on the transport of sand.

4.3.12 Irreversible and Irretrievable Commitment of Resources

Environmental impacts that have irreversible negative effects on soil resources are situations where vegetation and topsoils are impacted and not restored. In most cases, reclamation efforts would be made, and irreversible impacts to the soil resources and associated vegetation would be minor, including unavoidable adverse impacts and residual impacts discussed above.

4.3.13 Relationship of Short-term Uses and Long-term Productivity of Resource

The productivity or function of soil resources would be affected by both short-term impacts and long-term impacts. Short-term impacts to soil resources would be present until reclamation is conducted. Following reclamation, short-term impacts would be alleviated to the soil resources given the suitable climate conditions. Desert environments are typically slow to recover following disturbance unless adequate precipitation is received. Relative to short-term impacts, long-term loss of soil resources would be minimal in spatial scale.

4.4 BIOLOGICAL RESOURCES

4.4.1 Introduction

The impacts described in this section are discussed in terms of impacts on vegetation communities, wildlife species, special status species of plants and animals and their habitats, special habitat management areas, and noxious weeds.

4.4.2 Methods for Analysis

4.4.2.1 Analysis Area

The analysis area for the purpose of evaluating impacts to biological resources includes the 200-foot-wide ROW for all of the Action Alternatives plus ancillary Project components that would result in new surface disturbance outside of the ROW.

4.4.2.2 Assumptions

This analysis assumes that the APMs and BMPs included as part of the Proposed Action and all of the Action Alternatives would be fully implemented to avoid, minimize, or mitigate impacts to biological resources. In the following analysis of Project-related impacts, the applications of these specific measures, as detailed in Appendix 2A, may be referenced by resource category and number (e.g., APM/BMP-BIO-#).

4.4.2.3 Environmental Effect Indicators, Magnitude, and Duration

Indicators used to assess Project-related impacts due to construction, operation, maintenance, or decommissioning of the Project include:

- Loss of natural, native species dominated vegetation communities or associations;
- Loss or degradation of aquatic, wetland, or riparian habitats caused by reduction in water quality, diversion of water sources, erosion or sedimentation from altered drainage patterns, or chemical contamination;
- Loss or degradation of terrestrial habitats due to clearing of vegetation, increased soil erosion, alteration in sand deposition, or introduction of invasive non-native plants;
- Loss of or impacts to rare vegetation communities or habitats that have a special designation by a Federal, state, or local agency;
- Introduction or increased spread of noxious weeds and other invasive exotic weed species;
- Loss of native vegetation communities, plants, and wildlife due to increased risk of wildfire from the spread of invasive and noxious weed species;
- Increased risk of collision of migratory birds due to presence of transmission line and associated structures;
- Increased risk of predation resulting from subsidized predator populations (increased food availability) or due to presence of transmission-related structures (perches and hiding structures);
- Loss of individuals or habitat of a plant or animal species that has been designated as special status by a Federal, state, or local agency;
- Displacement of, or disturbance to wildlife species due to noise and human activity associated with Project activities;
- Disturbance to wildlife from increased recreational access to remote areas accommodated by Project features;
- Increased risk of mortality to wildlife due to vehicle use and construction activities;
- Impacts to special designated management areas (e.g., wilderness area, habitat management area, ACEC, wildlife refuge);
- Habitat fragmentation, including a decrease in function of wildlife corridors, due to Project features; and,

- Lack of compliance with Federal or state statutes or policies.

Impact analyses are discussed in terms of short-term (construction period up to 2 years), long-term (greater than 2 years but less than 50 years), or permanent (continues for the 50-year life of the Project). Note that Section 4.1.2 defines short-term impacts as those that may last for up 10 years; however, the DRECP defines short-term impacts as up to 2 years, which is the timeframe used for this analysis of Biological Resources.

4.4.3 No Action Alternative

Under the No Action Alternative, no ROW would be granted for the Project and the transmission line, SCS, and ancillary facilities would not be constructed. Current biological resource conditions in the analysis area would continue under the No Action Alternative. Biological resources would not be altered beyond current conditions. The Project Area would remain undisturbed unless unrelated actions occur.

4.4.4 Construction of Action Alternative Segments

4.4.4.1 Direct and Indirect Effects Common to All Action Alternatives

Project construction and related activities associated with all Action Alternatives could result in temporary damage to and/or permanent loss of vegetation, habitat loss and mortality of general wildlife species, and temporary disturbance to and/or loss of individuals or habitats of special status plant and animal species. Other potential impacts include disruption of wildlife movements, and impacts to designated wildlife management areas (e.g., USFWS wildlife refuge and BLM WHMAs). Temporary disturbance includes short-term impacts (less than 2 years) associated with construction, such as noise and the presence of construction workers.

Given that restoration of desert habitats following vegetation removal and disturbance of surface soils takes many years, for purposes of analysis of impacts to biological resources, all ground disturbance is considered long-term, which also includes all loss of habitat associated with permanent Project features (e.g., new transmission structures, SCS, access roads) that would remain throughout the life of the Project (i.e., 50 years). For analysis purposes, it is assumed that each structure would impact 1.1 acres during construction, though more than 90 percent of ground disturbance associated with structures is expected to be reclaimed, as required by the BLM under the Reclamation and Restoration Plan (APM/BMP-BIO-15). The plan would specify processes for reclamation with the goal of restoration.

Tables 4.4-1 through 4.4-4 in Appendix 4 provide acres of long-term disturbance associated with each route segment (this is the combined acres of short- and long-term disturbance reported in Appendix 2, less the acres of permanent structure foundations that were included as a subset of short-term disturbance), length of the line segment in miles, and the number of structures associated with each segment. The long-term disturbance acreages estimate the generalized disturbance to wildlife and habitat along each segment.

Vegetation Communities

The Project would involve the removal of vegetation during construction activities, resulting in the direct reduction in the representation of plant communities. Vegetation removal and disturbance of soils could have a variety of effects on vegetation communities, ranging from changes in community structure and species composition to alteration of soil moisture or nutrient regimes. Removal of protective vegetation would also expose soil to potential wind and water erosion. This could result in further loss of soil and vegetation, as well as increased sediment input to water resources.

Fugitive dust from construction traffic has the potential to affect photosynthetic rates and decrease plant productivity. Clearing and grading could also result in the alteration of soil conditions, including the loss of native seed banks, and change the topography and drainage of a site such that the capability of the habitat to support native vegetation is impaired.

Though portions of each alternative pass through developed agricultural areas at the east and west ends of the Project, the majority of each alternative is within the Sonoran desertscrub biotic community. Trimming or removal of tall vegetation for conductor clearance would alter some of the more robust plants within the vegetation community and can leave these plants more susceptible to disease and possibly result in the death of those plants. The vegetation communities and plant associations within the Sonoran Desert are very slow to re-grow perennial species following disturbance, often taking decades to recover, if at all. These disturbed lands are highly susceptible to colonization and expansion of invasive annual plant species (especially red brome and Sahara mustard). The introduction and colonization of disturbed areas by invasive exotic plant species also could lead to changes in species composition of vegetation communities, including the possible shift to more wildfire-prone vegetation that favors invasive exotic species over native species.

Project activities associated with all Action Alternatives that would result in ground disturbance and loss of native vegetation include:

- Clearing and grading structure sites (three to eight structures per mile, approximately 1.1 acres of ground disturbance at each site);
- Widening of existing access roads to a width of 16 feet to accommodate construction equipment;
- Clearing and grading to establish new roads within the ROW to a width of 16 feet where no access road exists;
- Clearing and grading new spur roads to a width of 12 feet from existing roads to structure sites;
- Driving on and crushing vegetation where vegetation removal is not needed based on topography;
- Constructing temporary roads to a width of 12 feet for access to storage areas and pull sites;
- Clearing for temporary use areas including staging/storage areas (approximately 24 acres disturbance every 20 miles), batch plants (approximately 3 to 5 acres disturbance every 25

miles), pull sites (approximately 2.5 acres disturbance every 5 miles) and snub sites (approximately 1.1 acres disturbance every 5 miles);

- Clearing for permanent SCS (total disturbance 1.5 acres);
- Invasion and spread of nonnative plants in areas of soil disturbance; and,
- Trimming or removing tall vegetation such as saguaro cactus, ironwood, and paloverde growing under and adjacent to the path of the conductors to avoid flash over.

Project implementation would have direct and indirect impacts on vegetation resources located within areas disturbed by construction activity; however, these potential impacts would be minimized through implementation of various APMs and BMPs (Appendix 2A).

Special Status Plant Species

No plant species listed under the Federal ESA would be expected to occur in the Project Area. However, in Arizona more than 200 species protected by the Arizona Native Plant Law, including blue paloverde, foothill paloverde, velvet mesquite, desert ironwood, ocotillo, and various cacti (e.g., saguaro, cholla, barrel, hedgehog, and prickly pear) occur within the Project Area. In California, as many as 16 species considered rare by the CNPS and 1 plant species considered sensitive by the BLM has the potential to be impacted by Project activities.

Noxious and Invasive Weeds

The inadvertent introduction of non-native plant species is a threat to native desert plant communities. Since noxious and invasive weeds are typically effective competitors with native plants, disturbance of vegetative cover that facilitates their introduction, spread, and proliferation could alter plant community composition, reduce native plant species cover, and alter natural fire regimes. Because these weeds are often fire-adapted, they perpetuate increased fire risk once established. Noxious and invasive weed species of particular concern known to occur in the Project Area include Russian knapweed, diffuse knapweed, Russian thistle, brome grasses, and Sahara mustard.

The Project would remove native vegetation and disturb soils at structure construction sites, storage areas, along access roads, and wherever heavy equipment is used, providing suitable conditions for infestation by non-native plants. An influx of vehicles and machinery for construction of any of the Action Alternatives could facilitate weed introduction and spread into the ROW. Non-native plant seeds or plant parts could be transported on vehicles, construction equipment, or in materials such as dirt, straw bales, and wattles. Enhanced public access to the Project corridor during and after construction could also contribute to the spread of non-native plants. The Weed Control Plan (APM-BIO-12), to be approved by BLM, would require pre-construction surveys and regular monitoring for invasive and noxious weeds within the ROW, along permanent and temporary access roads, and any other sites where Project activities result in soil disturbance. The plan would include prevention and treatment methods that include cleaning equipment to prevent the spread of noxious weeds into or out of the Project Area. Chemical treatment for control of noxious weeds or invasive species within or adjacent to the ROW would only be applied if absolutely necessary by using only BLM-approved products, limiting applications within floodplains and washes, and conducting all activities in accordance with the Noxious Weed Management Plan (Appendix 2B).

Through Project implementation, direct and indirect impacts would occur to native desert plant communities and special status plants as a result of the spread of noxious and invasive plant species within areas disturbed by construction activity; however, these potential impacts would be minimized through implementation of various APMs and BMPs (Appendix 2A).

Wildlife

Direct impacts on wildlife anticipated as a result of the Project include the removal of vegetation that would result in the long-term loss of wildlife habitat along with the displacement and/or potential mortality of resident wildlife species, especially those that are less mobile such as snakes, lizards, and small mammals. Clearing and grading would generate the greatest construction impacts on wildlife. Injury or death of wildlife would result primarily from the use of construction vehicles, and the grading of access roads and laydown areas for structure erection. Fossorial species, such as small burrowing animals (e.g., lizards, snakes, and small mammals) may be harmed through the crushing of burrows, the loss of refugia, and direct mortality from construction activities. Various wildlife species could be trapped in holes or trenches created for construction purposes. Though there is little aquatic habitat, amphibians (e.g., Sonoran desert toad and Couch's spadefoot toad) may be present throughout the Project Area and especially near ephemeral washes following rain events, when they may be crushed by construction equipment, or be trapped in water-filled holes at construction sites. Construction could also result in an increase in accidental road-killed wildlife due to increased vehicle traffic along the construction corridor. Diurnally active reptiles (e.g., lizards and some snakes) and mammals (e.g., rabbits and ground squirrels) are the most likely to be subject to mortality from construction vehicles. More mobile species like birds and larger mammals are expected to disperse into adjacent habitat areas during the land clearing and grading phases associated with Project construction.

Removal of vegetation during Project construction would reduce the amount of habitat available for wildlife in a particular area. Individuals displaced from areas cleared of native vegetation could be lost if adjacent habitats are at carrying capacity or if they are exposed to an increased risk of predation.

Trash and discarded food items at construction sites could subsidize predators such as coyotes, foxes, and ravens. The presence of the transmission structures could provide perching and nesting habitat for ravens and raptors that prey on wildlife that would be more susceptible to mortality due to Project activities.

Construction may also result in fragmentation and degradation of adjacent native habitats due to use of and improvement to existing access roads, disturbance, noise, vibration, dust, increased human presence, and increased vehicle traffic. Use of and improvements to existing roads, and creation of new roads to access construction sites and support long-term Project maintenance, provides opportunities for increased human presence and disturbance to wildlife habitat by recreationists, and especially by off-highway vehicle enthusiasts.

Construction activities and human presence can alter, displace, or disrupt the breeding and foraging behavior of wildlife. Wildlife species are most vulnerable to construction-related disturbances during their breeding seasons when disturbances could result in nest, roost, or territory abandonment, and subsequent loss of reproductive effort. No known bat roosts or mines occur within the Project ROW; however, bats may use nearby cliffs and crevices for roosting. The use

on lights for construction activities during the night may attract insects that could attract foraging bats. Though construction activities are a potential source of disturbance, it is unlikely that roosting areas would be disturbed except perhaps if blasting occurs nearby and bats are temporarily frightened from their roosts.

Local wildlife populations along the ROW could temporarily decline or disperse during the construction phase of the Project but are expected to return to their pre-construction levels once construction workers leave the area and disturbed habitats are restored. For portions of the Project that would be constructed adjacent to existing roads, most of the wildlife present would be considered common, wide-ranging species already likely habituated to some level of on-going disturbance. Also, since construction is of short duration and limited to relatively small areas within a large expanse of desert habitats, wildlife would likely quickly return to the ROW as work crews move to new work locations. Nocturnally active wildlife would be affected less by construction than would diurnally active species. Construction activities associated with Project implementation would have direct and indirect impacts on general wildlife located within areas disturbed by construction activity; however, these potential impacts would be minimized through implementation of various APMs and BMPs (Appendix 2A).

Special Status Wildlife Species

Various special status wildlife species are known to occur or could occur within the Project Area Project activities could impact special status wildlife species in much the same way as discussed for common wildlife species. To avoid impacts to these species, pre-construction presence/absence surveys would be conducted for special status wildlife species, including nesting migratory birds such as the burrowing owl. Qualified biologists would follow established survey protocols and would conduct the surveys in locations where special status wildlife species are likely to occur within the Project ROW, and specifically locations where vegetation would be impacted. Though this approach should result in locating and moving animals present in construction areas out of harm's way, it is likely individuals of small, fossorial, and cryptic species such as small mammals, snakes, and amphibians would be missed. However, the amount of habitat that would be impacted by Project activities would be small in comparison to available habitat, and the loss of individuals would not impact local populations. The APMs and BMPs identified for general wildlife would apply to special status wildlife species minimizing Project-related impacts.

Sonoran Pronghorn

Project construction activities could frighten Sonoran pronghorn if they are in the area. Though the population would likely not substantially expand during the Project timeframe for construction, individual animals or small groups could wander to areas where construction would occur.

Mojave Desert Tortoise and Sonoran Desert Tortoise

Project-related impacts to desert tortoise are similar to those discussed for less mobile wildlife species that are susceptible to being killed during vegetation removal, crushed in burrows, and run over by construction equipment and vehicles. The desert tortoise is a long-lived species, taking many years to reach reproductive maturity. Any loss of a tortoise, especially a female, has serious ramifications to tortoise populations.

The Project presents other potential threats to the desert tortoise. Removal of vegetation and disturbance to soils increases the probability of invasion and spread of non-native plant species, especially annual brome grasses. These non-native plants provide poor quality forage for the desert tortoise and crowd out many native, more nutritious forage species. A proliferation of non-native plants can affect a habitat type conversion destroying native desert communities on which the tortoise depends. Compensatory mitigation for Mojave desert tortoise habitat would be addressed during micrositing and compiled in the Compensation Plan for the Project (Appendix 2C).

Common ravens are known to perch and nest on transmission structures, and they are also known to be opportunistic predators of various wildlife species, including juvenile desert tortoises. The potential of raven predation is a management concern for the desert tortoise. Improving existing roads and grading new roads into remote areas can lead to increased recreational access to remote areas and increase the potential for encounters (including illegal collection) between people and tortoises.

Construction activities associated with the Project could have direct and indirect impacts on the desert tortoise located within areas disturbed by construction activity; however, these potential impacts would be minimized through implementation of various APMs and BMPs (Appendix 2A).

Wildlife Corridors, Wildlife Habitat Management Areas, and Wildlife Waters

Construction activities in the Plomosa Mountains, Livingston Hills, and New Water Mountains, within Kofa NWR, and in the Dome Rock Mountains in the area surrounding Copper Bottom Pass areas could deter desert bighorn sheep from crossing into favored lambing grounds, keep them from water sources, or may cause them to disperse from the area entirely. Desert bighorn sheep need to move widely across the landscape as habitat conditions may vary dramatically between different locations based on sporadic and localized rainfall. Long-term impacts to the function of WHMAs and wildlife movement corridors, and disturbance to wildlife seeking access to watering sites may result from facilitating access to remote areas for recreational use; often signs and gates are not respected by OHV enthusiasts and others once a road has been cleared into a remote area.

Construction activities associated with Project implementation could have direct and indirect impacts on the use of wildlife corridors by desert bighorn sheep and other wildlife located within areas disturbed by construction activity; however, these potential impacts would be minimized through implementation of various APMs and BMPs (Appendix 2A).

Migratory Birds

Impacts could occur if trees and/or shrubs were removed that contained an active nest. The removal of habitat during the breeding season would likely result in the displacement of breeding birds and the abandonment of active nests. Burrowing owls may use their burrows throughout the year, where they could be crushed by heavy equipment.

The presence of transmission structures would provide perches as well as nesting sites for some raptor species. In some areas, the transmission line structures may be the only suitable nesting structures allowing some species to utilize areas that would otherwise be unsuitable.

Noise-related construction activities and increased human presence could affect raptor nesting, roosting, and foraging activities; some species such as golden eagles are especially sensitive to

disturbance. Changes to behavior could include increased alertness, turning toward the disturbance, fleeing the disturbance, changes in activity patterns, and nest abandonment. Raptors would be especially susceptible to disturbance early in the breeding season, possibly resulting in nest abandonment and failure. Soaring birds may collide with the transmission line, especially during poor weather conditions and along elevated terrain where soaring raptors would be at greater risk for collisions.

While night lighting associated with the Project would be minimal, constant-burn lighting on structures increases collision risk for night migrating birds.

Transmission lines crossing the Colorado River and its historic floodplain are a potential collision hazard for birds following the river corridor, especially during migration. Guy wires (associated with guyed V structures) are often difficult for birds to detect due to its narrow diameter compared to conductor bundles and are a collision hazard to birds in flight.

The Project has the potential to negatively impact migratory birds due to removal of nesting habitat during the breeding season, collision, and disturbance. Potential impacts to migratory birds would be minimized through implementation of various APMs and BMPs (Appendix 2A).

Habitat Quality

Though the quantification of the number of acres impacted by Project segments to vegetation communities and species' habitats provide an overall comparison of potential impacts for each segment, they generally do not account for habitat quality. Many factors influence habitat suitability to determine if a special species of plant or wildlife would even be present in the area. Factors such as long-term disturbance (e.g., roads, highways, utility corridors), past ground disturbing activities (e.g., agriculture, habitat fragmentation), barriers to wildlife movement and sources of potential mortality (e.g., canals, roads), human activities (e.g., recurrent OHV use), and persistent presence (e.g., roads, homes, businesses, free-ranging pets) all are to be considered in the assessment of habitat suitability and long-term wildlife management.

4.4.4.2 Direct and Indirect Segment-and Species-Specific Impacts

Direct and Indirect Segment-specific Effects

Appendix 4, Tables 4.4-1 through 4.4-4 detail the acreage of long-term disturbance by segment, which would be the generalized disturbance to wildlife and habitat along each segment.

Segment p-01

Segment p-01 passes across a desert bighorn sheep dispersal corridor between Burnt Mountain and the Big Horn Mountains and would temporarily disrupt movement for forage.

Segment d-01

Where Sonoran desertscrub communities are well represented along Segment d-01, Sonoran desert tortoise could experience some loss of habitat.

Segments p-04 and p-05

Habitat suitability improves for Sonoran desert tortoise and other wildlife closer to the Eagletail Mountains; consequently, development of these segments could contribute to additional habitat degradation.

Segments in-01 through i-04

Project development of segments adjacent to I-10 would have minimal impact on biological resources due to the on-going influence I-10 has on wildlife in the area.

Segment p-06

This segment is almost 36 miles long and follows the existing DPV1 line and corridor with approximately 25 miles crossing the Kofa NWR. Construction along this segment has the potential to alter habitats of various special status species including Gila monster, elf owl, gilded flicker, LeConte's thrasher, and Lucy's warbler. The portion of this segment near and through the Kofa NWR has the potential to disrupt desert bighorn sheep movement and habitat use, as well as impact good quality habitat for the Sonoran desert tortoise, and disturb golden eagles. Three wildlife waters (New Water Well, Scott Well, and Twelve Mile Well), developed primarily for desert bighorn sheep, are within 0.7-mile of the route, and wildlife may avoid these sources of water during the construction period. The route crosses between the Livingston Hills and New Water Mountains, an identified desert bighorn sheep dispersal corridor, temporarily disrupting movement for forage. This segment, along with most alternative segments to Segment p-06 are within the designated experimental nonessential population area for the Sonoran pronghorn; except within the Kofa NWR the Sonoran pronghorn is protected under the same standards as for a threatened species. Sonoran pronghorn may avoid the area during construction, thereby disrupting natural movement patterns, and forage habitat would be lost in the short term until construction areas are revegetated.

Construction activities associated with Segment p-06 would not be in compliance with the National Wildlife Refuge System Administration Act of 1966, as amended by the National Wildlife Refuge System Improvement Act of 1997 and could have significant direct and indirect impacts on the continued management of the Kofa NWR for the conservation and development of natural wildlife. These impacts would be major, with both short- and long-term effects, and cannot be mitigated. The USFWS states (USFWS 2017) that the construction of a new transmission line across the Kofa NWR should not be considered as a viable alternative.

Segment i-05

Each of these segments parallel or cross I-10 in the vicinity of Quartzsite. The corridor has been subject to long-term disturbance due to the highway, traffic, and presence of people. The Sonoran desertscrub community would largely be inhabited by low to moderate densities of common wildlife species. Additional disturbance associated with the Project would be largely indistinguishable from current conditions.

Segment x-05

Though Segment x-05 would be close to long-term visitor camping areas (even as close as 0.5 to 1 mile), and the presence of numerous unimproved roads, various special status species may occur in the Sonoran desertscrub habitat, mostly due to the proximity to the Plomosa Mountains. Golden eagles may be present and may be impacted by segment development.

Segment cb-01

The area that would be crossed by Segment cb-01 is used by desert bighorn sheep, including as lambing areas. The segment passes within 0.6- and 0.7-mile of wildlife waters Dome Rock and Tule Tank, respectively. Project development may impact important desert bighorn sheep use area.

Segments p-11 and cb-03

The area that would be crossed by these segments is a desert bighorn sheep use and lambing area, and a movement corridor within the Dome Rock Mountains. Both routes pass within 0.1-mile of wildlife water Dome Rock Mountain #1 and within 1 mile from Dome Rock wildlife water. The impacts of Project development would be additive to the existing habitat fragmentation through the narrow Copper Bottom Pass.

Segments cb-02 and cb-04

These segments cross through remote, almost pristine mountain habitats northwest of Cunningham Peak. Segment cb-02 parallels a portion of Johnson Canyon, with well represented desert wash vegetation, likely providing habitat for special status species such as Gila monster, Sonoran desert tortoise, and Lucy's warbler. A developed wildlife water in Johnson Canyon (Dome Rock) is used by desert bighorn sheep and mule deer. This is a desert bighorn sheep lambing area. Project-related construction within Johnson Canyon would only occur from July through September, outside of peak OHV season. However, this is a critical period for wildlife, which is subjected to very harsh conditions during the summer months when water is often in limited supply. Concentrating construction activities during these months may reduce access by desert bighorn sheep and mule deer to reliable water sources, and limit use of favored habitat areas. There is developed water (Dome Rock Mountain #1) about 1 mile away on the opposite side of the road through Copper Bottom Pass; another water source (Tule Tank) is about 2.5 miles away on the opposite side of Cunningham Peak. Project development would impact near-pristine desert in this area and may result in disturbance to desert bighorn sheep and mule deer during a critical time period.

Segments i-06 and i-07

Desert bighorn sheep may use the steep slopes on both sides of I-10 through the pass, and the pass provides for movement by wildlife through the Dome Rock Mountains, even with the presence of the interstate highway. However, Project development of segments adjacent to I-10 would have minimal impact due to the on-going influence I-10 has on wildlife in the area.

Segments p-15w, p-16, ca-01, ca-02, ca-05, ca-06, x-09, x-10, x-11, x-12, x-13

Agricultural areas and associated canals and water features close to and crossed by these segments are frequently used by waterfowl, sandhill cranes, raptors, and a wide range of other species.

Development in agricultural areas could result in avian mortality due to collision with transmission lines and structures. Though all segments would place conductor bundles in a horizontal, parallel configuration to reduce collision hazard, Segment p-15w parallels DPV1 and would match the existing structure spacing and conductor heights thereby further reducing the collision hazard.

Segments p-17, p-18, ca-07, ca-09, x-15, x-16, and x-19

West of the agricultural fields to the Colorado River Substation, route segments cross areas with very sandy soil on the Palo Verde Mesa. The amount of sand in the soil increases, and the stability of the soil surface decreases, from east to west. These segments are within the sand and dune system as mapped by the DRECP, as well as modeled habitat for Harwood's eriastrum and Mojave fringe-toed lizard. Though the entire mesa is considered part of a sand and dune system, Segments ca-07, ca-09, and a portion of x-19 cross an area of active windblown sand deposition (Figure 3-2). This is where Hardwood's eriastrum has been located and Mojave fringe-toed lizards are more common. These segments pass through about 4 miles of sand dune habitat, and about 13 structures would be constructed. Development of Segments ca-07, ca-09, and x-19 would impact 18.2 acres (Appendix 4, Table 4.4-5) of BLM dune habitat (plus another 4.7 acres on private land) and have substantively more potential to impact suitable habitat for both Harwood's eriastrum and Mojave fringe-toed lizard than other routes leading to the substation.

Segments p-17 and p-18, the southernmost route segments heading to the Colorado River Substation, cross sparse stands of creosote and white bursage, and cross three protected washes classified as the *Parkinsonia florida–Olneya tesota* (blue paloverde-ironwood) Alliance; however, impacts to 2.7 acres of wash habitat would be on private land and not subject to BLM requirements. Segment ca-07 also has one crossing of a wash possibly impacting just over 1 acre of BLM land. Soils along part or most of Segments p-17 and p-18 are quite sandy, though these segments do not cross areas classified as having active aeolian deposits (a small area of active deposition is adjacent to Segment p-17). Segments p-17 and p-18 approach the Mule Mountains, where some of the more suitable habitat for the threatened Mojave desert tortoise is found.

Direct and Indirect Species-specific Effects

Sonoran Pronghorn

Additional development of the utility corridor through the Kofa NWR could facilitate increasing use of the surrounding remote areas by off-highway vehicle enthusiasts, increasing the possibility of disrupting Sonoran pronghorn movements and use of the area over the long-term. Preventing the invasion and spread of non-native species is important to maintaining the quality of Sonoran pronghorn habitat and preventing wildfire. The experimental nonessential status of the Sonoran pronghorn population allows for regulatory flexibility under the ESA and other lawful activities continue unaffected; however, on a NWR a higher standard of protection is required where the Sonoran pronghorn is protected under the same standards as for a threatened species.

Construction activities associated with the Project could have negligible direct and indirect impacts on Sonoran pronghorn located within the experimental nonessential population area off the Kofa NWR, and major indirect effects to Sonoran pronghorn on the Kofa NWR. These potential impacts would be minimized through implementation of various APMs and BMPs (Appendix 2A).

Rare Vegetation Alliances

In California on BLM lands, specific protection measures for rare vegetation alliances include a 200-foot setback from the outer perimeter of these alliances for ground disturbing (and vegetation disturbing) activities. Appendix 4, Table 4.4-4 details the acres of disturbance to rare vegetation alliances on the Palo Verde Mesa by segment.

Five rare plant alliances on the Palo Verde Mesa are crossed by one or more route alternatives (Figure 3-3 and Appendix 4, Table 4.4-4). Initial Project planning indicates that structure placement and access road use on BLM-administered land could result in impacts to the *Parkinsonia florida–Olneya tesota* (blue palo verde-ironwood) Alliance, *Pleuraphis rigida* (big galleta) Alliance, and/or *Prosopis glandulosa* (honey mesquite) Alliance, depending on route segment selection. The *Parkinsonia florida–Olneya tesota* Alliance is included in the semi-desert wash woodland riparian vegetation type, often referred to as microphyll woodlands, and any loss of desert riparian woodland would be compensated at a 5:1 ratio. Any required mitigation in California would be addressed during micrositing for the Project. These potential impacts would be minimized through implementation of various APMs and BMPs (Appendix 2A).

Harwood's Eriastrum

Harwood's eriastrum is the only BLM designated sensitive species known to be present on the Palo Verde Mesa. As an annual plant, effectiveness of surveys is often dependent on rainfall conditions. Negative survey results do not assure that the seed bank is not present. The plant was not located during surveys conducted under drought conditions in 2016, but clusters of Harwood's eriastrum were found in sand dune habitat, primarily along Segments ca-09 and ca-07 north of the Colorado River Substation, during surveys conducted in spring of 2017 (Figure 3-4). Previous surveys conducted for other projects have located Harwood's eriastrum in this same general area and elsewhere on the Palo Verde Mesa.

Ground-disturbing activity, including structure pad preparation and construction, grading of new access roads, clearing of staging areas, and use or improvement of existing access roads have the potential to disturb or destroy individual plants and seed bank of this annual herbaceous species. As an inhabitant of wind deposited dune habitat, project facilities, structures, and construction practices (e.g., equipment stock piles, access road stabilization) could interfere with wind-driven sand transport mechanisms and alter the condition, distribution, and quality of the aeolian dune system. Dunes can be stabilized or partially stabilized where sand becomes somewhat anchored by both native and non-native plants, and fine, loose sand is blown away while not being replaced by sand transported from upwind. Project impacts to active and stabilized sand dunes include the potential introduction and spread of non-native vegetation, clearing of native vegetation, short- or long-term interruption of sand transport, and resulting compaction of soils due to development of access roads and clearing of work areas, potentially altering the structure of the dune community.

Though the DRECP LUPA, maps most of the Palo Verde Mesa as part of a sand and dune system (Figure 3-2), active sand transport is limited primarily to a corridor north of the Colorado River Substation that is about 1-mile-wide extending to the east a distance of about 5 miles (Figure 3-2), consistent with where Harwood's eriastrum has been located. In accordance with BMP-BIO-53 and BMP-BIO-54, within aeolian corridors that transport sand to dune formations, activities are to be designed and operated to facilitate the flow of sand, and roads would be at grade (e.g., no berms)

to avoid trapping or diverting sand from the corridor. Footings would be 6 feet in diameter and extend about 2 feet above ground level, and would cause intermittent, localized disruptions of the flow of sand for short distances. Structures are proposed to be self-supported lattice, which would minimize obstruction to sand transport. Tangent lattice structures would allow winds to essentially blow through the structure, minimizing the impact on sand transport. Because of the small size and configuration of the structure foundations, the long distances between structures, and the linear west to east Project alignment consistent with wind direction, the impacts to sand transport are considered negligible to minor. Structures and roads are not expected to interfere with sand transport in a manner that would impact associated ecological processes. Maintenance of sand dune habitats are more dramatically affected by the presence of Sahara mustard, which in strong bloom years may virtually shut down aeolian sand migration; climate change and altered storm patterns; and changes in hydrology due to flood control measures associated with I-10 and other roads (Kenney 2017).

The DRECP LUPA prescribes specific CMAs for Harwood's eriastrum and its dune habitat to avoid and minimize impacts on BLM lands. These measures include implementing an avoidance setback of 0.25-mile from all occurrences of the plant to protect ecological processes and establishing a limit (cap) for impacts to suitable habitat to a maximum of 1 percent throughout all BLM lands included within the DRECP. However, based on the distribution of potentially suitable habitat (Figure 3-5), Harwood's eriastrum is expected to be present along all Project alternatives crossing the Palo Verde Mesa such that a 0.25-mile setback would preclude the Project from connecting with the Colorado River Substation. Therefore, if Project design is not consistent with DRECP LUPA specifications, exceptions can be allowed through an amendment to the CDCA Plan as long as the goals established by the LUPA are met. Since it can be shown that the linear nature of the Project can avoid impacts to the ecological processes (i.e., sand movement) that support populations of this plant species, and meet the DRECP goal of promotion of the ecological processes that sustain special vegetation types and BLM sensitive species, the CDCA Plan, as amended, is further amended to allow Project construction to proceed provided a Linear Right-of-Way Rare Plant Protection Plan for Harwood's eriastrum is developed with the objectives of:

1) Avoidance of take of individual plants to the maximum extent practical; and
2) Avoidance of impacts to Harwood's eriastrum suitable habitat to the maximum extent practical.

To achieve these objectives, implementation of BMP-BIO-31 (Appendix 2A) is required in Harwood eriastrum suitable habitat.

Appendix 4, Table 4.4-5 details disturbance to suitable Harwood's eriastrum habitat by segment based upon the presumed habitat.

Initial Project planning indicates that structure placement and access road use could result in impacts within Harwood's eriastrum suitable habitat (Appendix 4, Table 4.4-5). However, it is expected that these impacts would be further reduced based on micrositing and implementation of BMP-BIO-31.

For the purposes of implementing BMP-BIO-31, occupied habitat is defined as the location of a live Harwood's eriastrum plant. Upon the death and desiccation of the annual plant, or the absence of germination due to lack of precipitation, the area would be included as suitable habitat but would

not be considered occupied habitat. Even though the DRECP mapped the range-wide distribution of Harwood's eriastrum, a more accurate representation of suitable habitat on the Palo Verde Mesa was derived using soil maps (e.g., aeolian surficial deposits), known locations of Harwood's eriastrum, and Mojave fringe-toed lizard distribution—a sympatric, dune obligate species (Figure 3-5). This mapping defines suitable habitat on the Palo Verde Mesa and is used for Project-specific impact assessment. However, a similar range-wide map for Harwood's eriastrum is not available. To evaluate the 1 percent limit on impacts to Harwood's eriastrum range-wide on BLM lands, the distribution model developed for the DRECP was applied.

The DRECP modeled 288,404 acres, including most of the Palo Verde Mesa, which is on the east end of the approximately 50-mile long, east-west trending Chuckwalla Valley, as the distribution of Harwood's eriastrum on BLM lands addressed by the DRECP LUPA. Using the DRECP model, all Project-related ground disturbance activities (e.g., structure construction, access road development) were calculated by Project Alternative. Based upon the modeled habitat, Alternative 2 would potentially disturb 48.2 acres of Harwood's eriastrum habitat (0.017 percent of the total modeled habitat range-wide), more than any other Alternatives, and this estimate for Project impact acres does not consider additional reduction in area of impact that would be achieved through micrositing. Other BLM-approved projects have occurred within the Chuckwalla Valley, including the Colorado River Substation, Desert Sunlight, and Genesis. A total of 313.6 acres of modeled Harwood's eriastrum habitat has been impacted by these past projects (Colorado River Substation 77.3 acres; Desert Sunlight 0 acres; Genesis 236.3 acres), and together with the Project would impact 361.8 acres of DRECP modeled habitat. There is a total of 103,958 acres of modeled Harwood's eriastrum habitat in the Chuckwalla Valley; all projects in Chuckwalla Valley combined result in impacts to 0.35 percent of DRECP modeled Harwood's eriastrum habitat within Chuckwalla Valley, or 0.12 percent of modeled habitat range-wide. The sum of impacted habitat from these projects on BLM land is below the 1 percent cap (i.e., 2,884 acres).

Project implementation could have direct and indirect impacts on special status plant species located within areas disturbed by construction activity; however, these potential impacts would be either eliminated and/or minimized through implementation of various APMs and BPMs (Appendix 2A).

Mojave Fringe-toed Lizard

Project-related impacts to the Mojave fringe-toed lizard are similar to those discussed for less mobile wildlife species that are susceptible to being killed during vegetation removal, crushed in burrows, and run over by construction equipment and vehicles. When frightened, Mojave fringe-toed lizards will flee and then bury themselves in the loose sand, increasing the potential that Project activities could unknowingly crush individuals, including mortality from use of access roads.

By definition, dune habitat shifts on the landscape in response to wind patterns and may create small (unmapped) patches of suitable Mojave fringe-toed lizard habitat throughout the sand field. Dunes can be stabilized or partially stabilized where sand becomes somewhat anchored by both native and non-native plants, and fine, loose sand is blown away while not being replaced by sand transported from upwind. Project impacts to active and stabilized sand dunes include the potential introduction and spread of non-native vegetation, and the clearing of native vegetation and resulting compaction of sands to establish access roads and clear work areas, potentially altering

the structure of the dune community. Because of the small size and configuration of the structure foundations, the long distances between structures, and the linear west to east Project alignment consistent with wind direction, the impacts to sand transport are considered negligible to minor. Structures and roads are not expected to interfere with sand transport in a manner that would impact associated ecological processes. Project activities would not alter the processes from which dunes form or influence the source of sand.

Construction activities associated with the Project could have direct and indirect impacts on Mojave fringe-toed lizards located within areas disturbed by construction activity; however, these potential impacts would be minimized through implementation of various APMs and BMPs (Appendix 2A).

The habitat model developed for the DRECP maps most of the Palo Verde Mesa as potentially suitable habitat for the Mojave fringe-toed lizard (Figure 3-2). However, a more accurate representation of suitable habitat on the Palo Verde Mesa was derived using soil maps (e.g., aeolian surficial deposits), known locations of the Mojave fringed-toed lizard from the California Natural Diversity Database (CNDDB), and occurrence records for Harwood's eriastrum—a sympatric, dune obligate species. These data tended to cluster and polygons of presumed suitable Mojave fringe-toed lizard habitat were mapped (Figure 3-7). This mapping defines suitable habitat on the Palo Verde Mesa and is used for Project-specific impact assessment for implementation of clearance surveys on BLM land. The anticipated Project impacts to Mojave fringe-toed lizard habitat by segment is identical to Harwood's eriastrum, as provided in Appendix 4, Table 4.4-5, using the presumed habitat.

Based upon DRECP modeled habitat, Alternative 2 would potentially disturb 48.2 acres of DRECP modeled Mojave fringe-toed lizard habitat, more than any other Action Alternative, and this estimate for Project impact acres does not consider additional reduction in areas of impact that would be achieved through micrositing. These acres account for 0.037 percent of all modeled Mojave fringe-toed lizard habitat across the Chuckwalla Valley (i.e., 132,117 acres).

Appendix 4, Table 4.4-6 details the acreage of long-term disturbance by segment in the western portion of the Project Area, which would be the generalized disturbance to wildlife and habitat along each segment.

4.4.5 Operations, Maintenance, and Decommissioning

The anticipated operations and maintenance duration is 50 years. Though most impacts to biological resources are expected to occur in association with construction, some Project-related activities and Project effects would continue. Noise and human presence that would disturb wildlife could result from many on-going Project activities. The use of vehicles and occasionally heavy equipment could result in crushing and removal of plants, collisions with animals, collapsing burrows, and loss of refugia. The long-term presence of structures and guy lines remain a collision threat to birds. The transmission line would be inspected annually or as required by using fixed-wing aircraft, helicopters, ground vehicles, all-terrain vehicles, or on foot. Maintenance of the line and facilities would be performed as needed. Maintenance vehicles would generally require access to the ROW once yearly, and where long-term access is required for maintenance and operation, a regular maintenance program may include, but would not be limited to, blading, ditching, culvert

installation, and surfacing. The SCS would require minor maintenance over a 3-to 5-day period once each year.

Repair and maintenance, including replacement of conductors, and decommissioning may require the same types of equipment used during construction, including power augers for hole boring, backhoes for excavation, and/or concrete trucks and cranes for structure erection. Other required equipment may include power tensioners, pullers, wire trailers, crawler tractors, and trucks and pickups for hauling materials, tools, and workers. Helicopters may be used in some circumstances. The frequency and duration of repair activities is unknown but would be a short-term impact.

4.4.5.1 Vegetation

As part of construction activities, vegetation within the ROW may be selectively removed or trimmed in accordance with the vegetation management plan (APM/BMP-BIO-11) to provide the required minimum conductor clearance. Maintenance crews would routinely trim vegetation and remove brush within the ROW as necessary, perhaps as often as once a year, to prevent accidental grounding contact with conductors.

The potential introduction of non-native plant species would occur primarily during construction, though this could continue during operation and maintenance phases of the Project. Disturbed soils at previous work sites and along access roads, though stabilized by restoration actions, remain vulnerable to colonization of invasive species; maintenance vehicles could transport weed seeds or plant parts in soils adhering to vehicles and other equipment. As part of Project operations, it is anticipated that the Weed Control Plan (APM-BIO-12) would require regular monitoring for invasive and noxious weeds at each site where Project activities resulted in soil disturbance, and treatment, as appropriate.

Where access is required for nonemergency maintenance and repairs, the same precautions against ground disturbance that were taken during construction would be followed and applicable APMs and BMPs would be implemented. Restoration and reclamation procedures following completion of repair work would be similar to those prescribed during construction, and any necessary temporary staging areas outside the ROW would require authorization.

Assuming that a Vegetation Management Plan (APM/BMP-BIO-11), Habitat Restoration Plan (APM/BMP-BIO-15), and Weed Control Plan (APM-BIO-12) are thorough and effectively implemented and that the same precautions against ground disturbance and other APMs and BMPs are implemented throughout the Project Area as defined for construction activities during operations, maintenance, and decommissioning:

- Project operations may result in negligible impacts to vegetation resources;
- Project maintenance may result in minor impacts to vegetation resources; and,
- Project decommissioning may result in moderate impacts to vegetation resources.

4.4.5.2 Wildlife

Project-related impacts to wildlife are associated with disturbance due to human presence; equipment operations and related noise; potential enhancement of predator populations; degradation, fragmentation, and loss of habitat from changes in vegetation structure, new or expanded access roads, and the increase in human activity; and facilitating human access into remote areas of the desert. These impacts are primarily due to construction activities but continue at varying magnitudes in association with Project operations, maintenance, and decommissioning.

Project operations require occasional presence of people and activities for annual line and facilities inspection, and maintenance of facilities conducted on an as needed basis. Site visits may occur to monitor and treat invasive plants, monitor restoration sites, and to conduct other resource management actions. Site visits, including helicopter inspection of the lines, may result in wildlife temporarily fleeing an area, but within the animal's normal behavior patterns. Some individuals of small wildlife (e.g., rodents, rabbits, snakes, lizards) may be run over by vehicles. However, these visits are infrequent, and consistent with current use of roads throughout the Project Area open for public use. The roads used for Project access and operations contribute to habitat fragmentation, and are also available for use by recreationists, perhaps leading into areas where vehicle access was previously precluded due to lack of roads. However, where the Project parallels other high-voltage utility lines, buried pipelines, or established roads, access to the area is already open to non-Project personnel.

Periodic Project maintenance and repair would include a range of activities from that which may be accomplished by a single work crew, to activities such as conductor replacement that requires major equipment and personnel, and perhaps additional site clearing resulting in impacts similar to construction actions. Decommissioning would require much of the same site activities and equipment used in construction, resulting in similar impacts as construction.

Successful habitat restoration may take many years before wildlife would use these areas at the level prior to impact and restoration. The presence of utility lines and structures may provide on-going opportunities for raptors and ravens to perch and possibly nest, increasing their presence and enhancing their ability to capture prey that includes a variety of wildlife species, most notably juvenile Mojave desert tortoises. Application of Avian Power Line Interaction Committee recommendations (APLIC 2006 and 2012), could reduce the likelihood of collisions of birds during Project operations. An Avian Power Line Protection Plan (APM-BIO-21) and Bird and Bat Conservation Strategy (BMP-BIO-29), required for the Project, would include a monitoring program to determine the effectiveness of the design to protect birds that utilize power lines and structures for perching and nesting, and to establish implementation measures for the use of flight diverters and other means to make lines more visible to reduce bird collisions. The guyed V structures, up to 190 feet tall, require four guy wires for support. Guy wires are often difficult for birds to detect and represent a continuing collision hazard for birds, and to a lesser extent, bats.

Assuming that a Vegetation Management Plan (APM/BMP-BIO-11), Habitat Restoration Plan (AMP/BMP-BIO-15), and Weed Control Plan (APM-BIO-12) are thorough and effectively implemented, and that the same APMs and BMPs are implemented as for Project construction continue throughout the Project area during operations, maintenance, and decommissioning:

- Project operations may result in minor impacts to wildlife resources;
- Project maintenance may result in minor impacts to wildlife resources; and,
- Project decommissioning may result in moderate impacts to wildlife resources.

4.4.6 Mitigation Measures

The applicant has committed to APMs, and the BLM developed required BMPs that would further reduce impacts to biological resources. Requirements for mitigation would be determined in coordination with micrositing and final design and could include habitat improvement. Any mitigation for permanent loss of habitat would be developed to meet the CDCA Plan requirements and approval.

4.4.7 Construction of Full Route Alternative and Subalternative Effects

Appendix 4, Tables 4.4-7 and 4.4-8 summarize disturbance information for each of the full route alternatives individually discussed in the following sections. Descriptions of the impacts common to all alternatives and mitigation common to all alternatives apply and are not repeated here.

The acres of Harwood's eriastrum and Mojave fringe-toed lizard habitat estimated to be impacted based on Project-specific mapping of presumed habitat on the Palo Verde Mesa would likely provide a more accurate assessment of actual acres impacted by alternative (Appendix 4, Table 4.4-5), and these acres identified where impacts may occur have not been subject to micrositing adjustments. However, no similar range-wide assessment of Harwood's eriastrum and Mojave fringe-toed lizard habitat is available. The Project habitat mapping of suitable acres impacted shown in Appendix 4, Table 4.4-8 also applies to the Mojave fringed-toed lizard as the habitats are identical.

4.4.7.1 Proposed Action

Impacts to biological resources from implementation of the Proposed Action would range from negligible to major.

Vegetation

The entire length of the Proposed Action route would parallel the existing DPV1 line and unimproved roads, as well as an adjacent buried pipeline for much of the way. The impacts from past vegetation removal during construction of DPV1 in 1982 is evident, with perhaps limited success of restoration efforts. The Proposed Action would add to this disturbance and loss of vegetation but would not really extend it into otherwise undisturbed areas, since the Project would occur immediately adjacent to existing disturbance areas. Invasive species such as Russian thistle, annual brome grasses, and non-native mustards are present along the existing linear facilities, limiting the likelihood that the Proposed Action would lead to infestations in areas where these

plants are not already present, though the Project may contribute to their increased abundance. Segment p-17 crosses protected microphyll washes and may impact 1.2 acres of wash habitat, though through micrositing, the washes would be spanned and a 200-foot setback from ground disturbing activities would be applied. Protected native plants would be avoided or salvaged, and the sand dune habitat of Harwood's eriastrum, a BLM sensitive species, would be minimized by following Segments p-17 and p-18, crossing through about 0.6-mile of habitat. The Proposed Action would have the least amount of Project mapped suitable acres and modeled acres of impacts to Harwood's eriastrum of all full route alternatives.

The Proposed Action would result in:

- Minor short-term and long-term impacts to native vegetation pending successful restoration;
- Negligible long-term impacts due to facilitating increased abundance of non-native plants; and,
- Minor short- and long-term impacts of ground disturbance on protected and special status plants and plant communities.

Wildlife

Segment p-06 would cross the Kofa NWR. Development of Segment p-06 would disrupt desert bighorn sheep movement and habitat use within and outside the NWR, and incrementally increase habitat fragmentation in an area already impacted by the presence of high-voltage utility and buried pipeline corridors, including the DPV1, the EPNG line, the existing SCS, etc.

Segment p-06 crosses about 25 miles of good quality habitat for the Sonoran desert tortoise and is within an extended use area of a reintroduced population of the endangered Sonoran pronghorn, which is afforded special management consideration on a NWR.

Segments p-10 and p-11 go through Copper Bottom Pass below Cunningham Peak. Although a road, transmission line, and buried pipeline are present through Copper Bottom Pass, APM-BIO-18 is required to ensure that construction traffic in the pass is limited to only that which is necessary in order to minimize disturbance to desert bighorn sheep. In addition, APM-BIO-27 places seasonal restrictions on construction activities in desert bighorn sheep lambing areas, such as Copper Bottom Pass, to be determined annually by AGFD and BLM.

The proposed crossing of the Colorado River (Segment p-15e) is immediately north of the existing DPV1 crossing. Matching structure spacing and conductor heights with the existing line is expected to reduce the potential for birds to collide with the transmission line in this migratory bird flyway. Transmission lines over agricultural lands present a threat to the many birds that use agricultural lands and the associated water features. In these areas, conductor bundles would be in a horizontal, parallel configuration, and would match existing structure spacing and conductor heights to reduce the potential for bird collisions. On the Palo Verde Mesa, Segment p-17 and Segment p-18 approach the Mule Mountains, where some of the more suitable habitat for the threatened Mojave desert tortoise is found. Segments p-17 and p-18 avoids the best sand dunes used by the BLM sensitive species Mojave fringe-toed lizard, but crosses through 0.6-mile of habitat. The Proposed Action route parallels other high-voltage utility lines, buried pipeline, and

established roads such that access to much of the Proposed Action corridor is already open to non-Project personnel; the exception is on Palo Verde Mesa where only limited access exists.

The Proposed Action would result in:

- Major long-term impacts to the management of the Kofa NWR, and to desert bighorn sheep and Sonoran pronghorn on the refuge;
- Minor short-term impacts to desert bighorn sheep in the Copper Bottom Pass area;
- Minor long-term impacts to wildlife and habitats by facilitating increased recreational access to remote areas;
- Minor long-term impacts to wildlife habitat (especially Sonoran desert tortoise habitat in Kofa NWR) by contributing to an increase in abundance of non-native plants;
- Negligible short-term impacts to Mojave fringe-toed lizard due to possible mortality by Project activities;
- Negligible short- and long-term impacts to sensitive wildlife species, including nests of migratory birds; and,
- Minor short- and long-term impacts to migratory birds due to potential collision hazard with structures, conductors, and guy lines.

4.4.7.2 Alternative 1: I-10 Route

Impacts to biological resources from implementation of Alternative 1 would range from negligible to minor. All proposed APMs and BMPs apply except APM-BIO-18 because Alternative 1 does not go through Copper Bottom Pass, and APM/BMP-BIO-19 because the crossing of the Colorado River is not adjacent to existing high-voltage lines so matching conductor heights to reduce impacts to migratory birds is not applicable.

Vegetation

Vegetation communities adjacent to and near the existing interstate highway corridor have largely been degraded by long-term impacts associated with easy access off of I-10; and commercial, residential, and agricultural development adjacent to I-10, including the presence of roads, canals, and various utility lines. Evidence of OHV use is present throughout, resulting in damage to and loss of vegetation. The interstate functions as a corridor for dispersal of non-native invasive plants. In California, rare plant alliances, including desert washes, are protected by setbacks of 200 feet. Segment ca-07 has one crossing of a microphyll wash and intersects with 0.3-mile of the *Pleuraphis rigida* (big galleta) Alliance. Where Alternative 1 crosses the Palo Verde Mesa, line segments ca-07, ca-09, and x-19 would pass through 4 miles of known habitat of Harwood's eriastrum. Application of special measures would protect the plant from loss of individuals and maintain the ecological processes (e.g., sand transport) that sustain its habitat. However, long-term disturbance would occur to as much as 18.2 acres of suitable habitat due to access roads and structure construction.

Alternative 1 would have the same amount of Project-mapped suitable acres of impacts to Harwood's eriastrum as Alternatives 2 through 4; the same amount of modeled acres of impacts to Harwood's eriastrum as Alternatives 3 and 4; but fewer modeled acres of impacts than Alternative 2 (Appendix 4, Table 4.4-8).

The construction of Alternative 1 adjacent to the I-10 corridor, in addition to the current uses, would not alter the current situation regarding the overall degraded condition of vegetation resource. Segments ca-07, ca-09, and x-19, which cross about 4 miles of native dune field habitat on the Palo Verde Mesa before reaching the Colorado River Substation, are more likely to encounter Harwood's eriastrum than the Proposed Action. Surveys would be conducted in all disturbance areas and plants would be avoided during construction, but there would likely be some loss of suitable habitat.

Alternative 1 would result in:

- Minor short- and long-term impacts to native vegetation pending successful restoration;
- Minor long-term impacts due to facilitating increased abundance of non-native plants, especially in dune habitats; and,
- Moderate short- and long-term impacts of ground disturbance on protected and special status plants and plant communities.

Wildlife

High traffic volume on interstate highways impacts wildlife in many ways, including fragmenting habitat and impeding wildlife movement across the landscape; facilitating human access to adjacent areas resulting in disturbance to wildlife and damage to habitats, especially by off road vehicles; and causing repeated loss of individual animals to road mortality over the long-term, resulting in reduced population numbers. Alternative 1 goes through passes in the Plomosa Mountains and Dome Rock Mountains that are important wildlife movement corridors, especially for desert bighorn sheep. However, both of these passes are already impacted by I-10, utility lines, and pipelines. On the Palo Verde Mesa, Segments ca-07 and ca-09 cross about 4 miles of sand dunes, habitat for the Mojave fringe-toed lizard. Preconstruction exclusion surveys would be conducted to minimize possible mortality; impacts to habitat would recover due to lack of disruption of the sand transport corridor. Given the current status of wildlife populations and habitat along the majority of the Alternative 1 corridor, the additional impacts to wildlife from the development of Alternative 1 would largely be negligible.

In comparison to the Proposed Action, Alternative 1 would have no impact on the Kofa NWR because it would avoid the refuge; would impact only a minor amount of mostly degraded Sonoran desert tortoise habitat; and would not impact the Sonoran pronghorn. Potential impacts to desert bighorn sheep due to habitat fragmentation, impeding animal movement, and interference with lambing grounds would be reduced to negligible levels. The crossing of the Colorado River is not adjacent to the existing DPV1 line, creating an additional collision hazard for birds. Impacts to general wildlife and habitats would be negligible due to existing degraded habitat conditions.

Alternative 1 would result in:

- Negligible impacts to desert bighorn sheep;
- Negligible long-term impacts to wildlife and habitats by facilitating increased recreational access to remote areas;
- Minor short- and long-term impact to Mojave fringe-toed lizard due to possible mortality by Project activities and habitat impacts;
- Negligible short- and long-term impacts to sensitive wildlife species (excluding Mojave fringe-toed lizard), including nests of migratory birds;
- Negligible long-term impacts associated with contributing to an increase in abundance of non-native plants degrading wildlife habitat; and,
- Minor short- and long-term impacts to migratory birds due to potential collision hazard with structures, conductors, and guy lines, and additional hazard at the Colorado River crossing.

Subalternatives to Alternative 1 (1A through 1E)

There would be minimal differences in biological resources impacts between the Alternative 1 subalternatives (1A through 1E) and Alternative 1.

4.4.7.3 Alternative 2: BLM Utility Corridor Route

Impacts to biological resources from implementation of Alternative 2 would range from negligible to minor.

Vegetation

As with Alternative 1, vegetation communities adjacent and near existing highway corridors have largely been degraded by long-term impacts associated with easy access off the highways for recreation; commercial, residential, and agricultural development adjacent to I-10, including the presence of roads, canals, and various utility lines; and the long-term visitor area along US 95. Evidence of OHV use is present throughout, resulting in damage to and loss of vegetation. Highway corridors function as dispersal routes for non-native invasive plants. Alternative 2, where it is parallel to I-10 and US 95, would have similar impacts to vegetation as described for Alternative 1 following the I-10 corridors. Alternative 2 impacts to vegetation through Copper Bottom Pass would be as described for the Proposed Action.

Alternative 2 on the Palo Verde Mesa is almost twice as long as either the Proposed Action or Alternative 1, adding Segments x-15 and x-16 to the other segments included in Alternative 1. Segments x-15 and x-16 pass through sandy soil habitat, though not active dunes. Together these segments are 3.75 miles in length and intersect more than 1 mile of the *Pleuraphis rigida* (big galleta) Alliance, which would be protected by a 200-foot setback. Impacts of Alternative 2 on the Palo Verde Mesa is similar to that described for Alternave 1, plus the added impacts associated with Segments x-15 and x-16, which increases the likeihood that shifting pockets of suitable Harwood's eriastrum habitat or rare plant alliances may be impacted.

Alternative 2 would have the same amount of Project mapped suitable acres of impacts to Harwood's eriastrum as Alternatives 1, 3, and 4; more modeled acres of impacts to Harwood's eriastrum as Alternatives 1, 3, and 4 (Appendix 4, Table 4.4-8).

However, surveys for vegetation would be conducted in all disturbance areas and sensitive plants and rare alliances would be avoided. The increase in Project activities on Palo Verde Mesa may also further facilitate the spread of non-native plant species.

Alternative 2 would result in:

- Minor short- and long-term impacts to native vegetation pending successful restoration; Minor long-term impacts due to facilitating increased abundance of non-native plants, especially in dune habitats; and,
- Moderate short- and long-term impacts of ground disturbance on protected and special status plants and plant communities.

Wildlife

As discussed for Alternative 1, wildlife resources associated with Project segments along highways have been impacted in many ways, resulting in reduced populations of most wildlife species. Alternative 2, similar as with Alternative 1, parallels I-10 through the pass in the Plomosa Mountains—an important desert bighorn sheep movement corridor. Alternative 2, similar to the Proposed Action, would go through Copper Bottom Pass below Cunningham Peak, a rugged and remote area used by desert bighorn sheep, including as a lambing area. APM-BIO-18 and APM-BIO-27 are intended to minimize disturbance to desert bighorn sheep in the Copper Bottom Pass area.

In comparison to the Proposed Action, Alternative 2 would have no direct impact on the Kofa NWR because the route avoids the refuge and is adjacent to I-10; would have reduced impacts to the Sonoran pronghorn; would impact a minor amount of Sonoran desert tortoise habitat in the Plomosa and Dome Rock mountains; and avoid habitat for the Mojave desert tortoise near the Mule Mountains. Due to the increased length of Alternative 2 over that of Alternative 1, the possibility that shifting patches of Mojave fringe-toed lizard habitat may be impacted is increased.

Alternative 2 would result in:

- Minor short-term impacts to desert bighorn sheep in the Copper Bottom Pass area;
- Minor short- and long-term impacts to Mojave fringe-toed lizard due to possible mortality by Project activities and habitat impacts;
- Negligible short- and long-term impacts to sensitive wildlife species (excluding Mojave fringe-toed lizard), including nests of migratory birds;
- Minor long-term impact to wildlife habitat by contributing to an increase in abundance of non-native plants, especially in dune habitat; and,
- Minor short- and long-term impacts to migratory birds due to potential collision hazard with structures, conductors, and guy lines.

Subalternatives to Alternative 2 (2A through 2E)

There would be minimal differences in biological resources impacts between the Alternative 2 subalternatives (2A through 2E) and Alternative 2.

4.4.7.4 Alternative 3: Avoidance Route

Impacts to biological resources from implementation of Alternative 3 would range from negligible to major. All APMs and BMPs apply except APM/BMP-BIO-19 because the crossing of the Colorado River is not adjacent to existing high-voltage lines so matching conductor heights to reduce impacts to migratory birds is not applicable.

Vegetation

Impacts to vegetation from Alternative 3 would be as described for the Proposed Action from the Delaney Substation to where Alternative 3 would diverge from following the existing DPV1 line and proceed north to the I-10 corridor. Along I-10, Alternative 3 would have the same impacts as described for Alternative 1. When Alternative 3 turns south along the Plomosa Mountains it does not follow an existing utility corridor. Though there are unpaved roads crossing this segment, new, albeit temporary, access roads and work areas would impact existing Sonoran desertscrub communities where similar impacts have not occurred. Disturbance to soils could increase the possibility of spreading non-native plants to the area. Alternative 3 impacts to vegetation are similar to the Proposed Action from US 95 to Copper Bottom Pass.

Alternative 3 turns from Copper Bottom Pass near Cunningham Peak, passing high on the mountain slope into a rugged and remote portion of the Dome Rock Mountains. The area is in largely pristine condition, with few unimproved roads leading to the toe slope of the mountains. Construction of Alternative 3 would remove native vegetation and could facilitate spread of non-native plants into an area that has had little impact from human activities. From the Colorado River crossing to the substation, the impacts of Alternative 3 to vegetation resources are similar to that described for Alternative 1.

Alternative 3 would have the same amount of Project mapped suitable acres of impacts to Harwood's eriastrum as Alternatives 1, 2, and 4; but less modeled acres of impacts than Alternative 2 (Appendix 4, Table 4.4-8).

Alternative 3 would result in:

- Moderate short-term impacts to native vegetation due to ground disturbance during construction pending restoration, and moderate long-term impacts to vegetation in areas where no linear facilities and few roads exist;
- Moderate long-term impacts due to facilitating spread and increased abundance of non-native plants into new areas, especially into the Dome Rock Mountains and dune habitats;
- Moderate short- and long-term impacts of ground disturbance on protected and special status plants and plant communities; and,

- Moderate short- and long-term impacts in areas where there are no existing linear facilities and few roads resulting in impacts to near-pristine examples of desert wash communities.

Wildlife

Impacts to wildlife from implementation of Alternative 3 would be similar to effects described for the Proposed Action and Alternative 1, with the exception of Segment x-05 along the west side of the Plomosa Mountains, and Segments cb-01, cb-04, and cb-05 that pass near Cunningham Peak to cross the Dome Rock Mountains.

Segment x-05 passes mostly north-south along the foothills and alluvial fan on the west side of the Plomosa Mountains. Though close to the LTVA, and the presence of numerous unimproved roads, various special status species may occur in the Sonoran desertscrub habitat within the corridor, mostly due to proximity of the Plomosa Mountains. Golden eagle, Gila monster, elf owl, gilded flicker, and Lucy's warbler may be present.

Segment cb-01 passes high on the remote, steep mountain slopes of Cunningham Peak. Segment cb-04 crosses the Dome Rock Mountains through largely undisturbed desert wash vegetation that likely provides habitat for special status species such as Gila monster, Sonoran desert tortoise, and Lucy's warbler. Segment cb-05 passes between the west side of the Dome Rock Mountains and the Colorado River in an area with very harsh desert conditions and large areas of desert pavement. There are few roads into this area of the Dome Rock Mountains, which is in largely pristine condition. The area is prime desert bighorn sheep habitat, which is often used for lambing grounds. Development of Alternative 3 could facilitate public access that would increase disturbance to wildlife in these remote habitats and may permanently alter the character and function of the area for wildlife, especially desert bighorn sheep.

Implementation of Alternative 3 would result in:

- Major long-term impacts to desert bighorn sheep in the Dome Rock Mountains by degrading nearly pristine habitat and facilitating increased recreational access to remote areas;
- Minor short- and long-term impacts to Mojave fringe-toed lizard due to possible mortality by Project activities and habitat impacts;
- Negligible short- and long-term impacts to sensitive wildlife species (excluding Mojave fringe-toed lizard), including nests of migratory birds;
- Moderate long-term impact to wildlife habitat by contributing to an increase in abundance of non-native plants into remote areas and dune habitat; and,
- Minor short- and long-term impacts to migratory birds due to potential collision hazard with structures, conductors, and guy lines, and additional hazard at the Colorado River.

Subalternatives to Alternative 3 (3A through 3M)

There would be minimal differences in biological resources impacts between the Alternative 3 subalternatives (3A through 3M) and Alternative 3.

4.4.7.5 Alternative 4: Public Lands Emphasis Route

Impacts to biological resources from implementation of Alternative 4 would range from negligible to major.

Vegetation

There is good representation of Sonoran desertscrub communities west of the Delaney Substation, past the agricultural fields and across the alluvial fan of the Eagletail Mountains. The area has been impacted by a buried natural gas pipeline and roads and has scattered invasive species such as red brome and non-native mustards. Alternative 4 continues through another 20 miles of good quality desert habitats to where it turns to parallel I-10. After entering Copper Bottom Pass, the route turns near the head of Johnson Canyon north of Cunningham Peak into a rugged and remote portion of the Dome Rock Mountains. The area is in largely pristine condition, with well represented desert wash vegetation and few unimproved roads leading to the toe slope of the mountains. Development of Alternative 4 may facilitate spread of invasive plant species to this very remote area, which could be exacerbated by increased access to the area by recreationists.

Alternative 4 would have the same amount of Project mapped suitable acres of impacts to Harwood's eriastrum as Alternatives 1, 2, and 3; the same amount of modeled acres of impacts to Harwood's eriastrum as Alternatives 1 and 3; but fewer modeled acres of impacts than Alternative 2 (Appendix 4, Table 4.4-8).

Alternative 4 would result in:

- Moderate short- and long-term impacts to native vegetation pending restoration, and increased degradation of existing good quality habitats;
- Moderate long-term impacts due to facilitating spread and increased abundance of non-native plants into new areas, especially into the Dome Rock Mountains and dune habitats; and,
- Moderate short- and long-term impacts of ground disturbance on protected and special status plants and plant communities.

Wildlife

Alternative 4 extends across more than 40 miles of desert from north of the Eagletail Mountains to I-10 near the Bear Hills south of the town of Brenda, where there is good representation of quality Sonoran desertscrub vegetation, providing habitat for diverse Sonoran desert biotic communities. In Copper Bottom Pass, in the vicinity of Cunningham Peak at the head of Johnson Canyon, the area is in largely pristine condition, with few unimproved roads, providing prime desert bighorn sheep habitat, that is often used for lambing grounds. Because Alternative 4 would bring human presence and noise closer to a developed wildlife water in Johnson Canyon used by desert bighorn sheep and mule deer, some animals may experience more stress as they seek water elsewhere. Development of Alternative 4 could lead to degraded habitat conditions by facilitating the spread of non-native vegetation, increase public access into remote habitats resulting in disturbance to wildlife, and may permanently alter the character and function of the area for wildlife, especially desert bighorn sheep.

Because Alternative 4 leaves the existing DPV1 corridor and crosses into near-pristine desert bighorn sheep habitat, the impacts to wildlife associated with Alternative 4 are substantially greater than the Proposed Action.

Implementation of Alternative 4 would result in:

- Major long-term impacts to desert bighorn sheep in the Dome Rock Mountains by degrading nearly pristine habitat and facilitating increased recreational access to remote areas;
- Minor short- and long-term impacts to Mojave fringe-toed lizard due to possible mortality by Project activities and habitat impacts;
- Negligible short- and long-term impacts to sensitive wildlife species (excluding Mojave fringe-toed lizard), including nests of migratory birds;
- Moderate long-term impact to wildlife habitat by contributing to an increase in abundance of non-native plants into remote areas and dune habitat; and,
- Minor short- and long-term impacts to migratory birds due to potential collision hazard with structures, conductors, and guy lines.

Subalternatives to Alternative 4 (4A through 4P)

There would be minimal differences in impacts between the Alternative 4 subalternatives (4A through 4P) and Alternative 4. However, subalternative 4D passes along the foothills and alluvial fan on the west side of the Plomosa Mountains. Various special status species may occur in the Sonoran desertscrub habitat within the corridor, mostly due to its proximity to the Plomosa Mountains. This subalternative would replace Segment x-06 that follows the east perimeter of the BLM LTVA, an area disturbed by persistent human presence and subject to high levels of recreation use, including OHV use. Implementing Subalternative 4D would result in additional impacts to vegetation and wildlife resources than would occur under Alternative 4.

4.4.7.6 BLM Preferred Alternative

Vegetation

As with Alternative 1, vegetation communities adjacent and near existing highway corridors have largely been degraded by long-term impacts associated with easy access off the highways for recreation; commercial, residential, and agricultural development adjacent to I-10, including the presence of roads, canals, and various utility lines. Evidence of OHV use is present throughout, resulting in damage to and loss of vegetation. Highway corridors function as dispersal routes for non-native invasive plants. The Preferred Alternative, where it is parallel to I-10, would have similar impacts to vegetation as described for Alternative 1 following the I-10 corridors. The impacts to vegetation under the Preferred Alternative through Copper Bottom Pass would be as described for the Proposed Action.

The Preferred Alternative is almost twice as long as either the Proposed Action or Alternative 1 on the Palo Verde Mesa. Segments x-15 and x-16 pass through sandy soil habitat of the big galleta Alliance, though not active dunes. Together these segments intersect more than 1 mile of the big

galleta Alliance, which would be protected by a 200-foot setback. The impacts of the Preferred Alternative on the Palo Verde Mesa would be similar to that described for Alternative 1, plus the added impacts associated with Segments x-15 and x-16; this increases the likeihood that shifting pockets of suitable Harwood's eriastrum habitat or rare plant alliances may be impacted.

The Preferred Alternative would have the same amount of Project mapped suitable acres of impacts to Harwood's eriastrum as Alternatives 1, 3, and 4; more modeled acres of impacts to Harwood's eriastrum as Alternatives 1, 3, and 4 (Appendix 4, Table 4.4-8).

However, surveys for vegetation would be conducted in all disturbance areas and sensitive plants and rare alliances would be avoided. The increase in Project activities on Palo Verde Mesa may also further facilitate the spread of non-native plant species.

The Preferred Alternative would result in:

- Minor short- and long-term impacts to native vegetation pending successful restoration; Minor long-term impacts due to facilitating increased abundance of non-native plants, especially in dune habitats; and,
- Moderate short- and long-term impacts of ground disturbance on protected and special status plants and plant communities.

Wildlife

As with Alternative 1, wildlife resources associated with Project segments along highways have been impacted in many ways, resulting in reduced populations of most wildlife species. Similar to Alternative 1, the Preferred Alternative parallels I-10 through the pass in the Plomosa Mountains—an important desert bighorn sheep movement corridor. A portion of the Preferred Alternative also passes along the foothills and alluvial fan on the west side of the Plomosa Mountains. Various special status species may occur in the Sonoran desertscrub habitat within the corridor, mostly due to its proximity to the Plomosa Mountains.

The Preferred Alternative, similar to the Proposed Action, would go through Copper Bottom Pass below Cunningham Peak, a rugged and remote area used by desert bighorn sheep, including as a lambing area. APM-BIO-18 and APM-BIO-27 are intended to minimize disturbance to desert bighorn sheep in the Copper Bottom Pass area.

In comparison to the Proposed Action, the Preferred Alternative would have no direct impact on the Kofa NWR because the route avoids the refuge and is adjacent to I-10; would have reduced impacts to the Sonoran pronghorn; would impact a minor amount of Sonoran desert tortoise habitat in the Plomosa and Dome Rock mountains; and avoid habitat for the Mojave desert tortoise near the Mule Mountains. Due to the increased length of the Preferred Alternative over that of Alternative 1, the possibility that shifting patches of Mojave fringe-toed lizard habitat may be impacted is increased.

The Preferred Alternative would result in:

- Minor short-term impacts to desert bighorn sheep in the Copper Bottom Pass area;

- Minor short- and long-term impacts to Mojave fringe-toed lizard due to possible mortality by Project activities and habitat impacts;
- Negligible short- and long-term impacts to sensitive wildlife species (excluding Mojave fringe-toed lizard), including nests of migratory birds;
- Minor long-term impact to wildlife habitat by contributing to an increase in abundance of non-native plants, especially in dune habitat; and,
- Minor short- and long-term impacts to migratory birds due to potential collision hazard with structures, conductors, and guy lines.

4.4.8 Residual Impacts

APMs and BPMs would not alleviate all environmental impacts to vegetation and wildlife. Residual impacts of this Project would include a permanent loss of vegetation due to the development of access roads, structure pads, and other permanent facilities resulting in a loss of wildlife breeding and foraging habitat. The likelihood of increased vehicle use on access roads and increased access into remote habitats could result in disturbance to wildlife. Additional residual impacts would result from the loss of primary plant production due to clearing of temporary work areas pending restoration efforts. In harsh desert conditions, the success of restoration often depends on rainfall, and slow growing vegetation may take many years (or decades) to achieve stature and function prior to ground clearing. The residual impacts to biological resources are not expected to be major, dependent to some degree on the selected route.

4.4.9 CDCA Compliance

Compliance with the CDCA is achieved through consistency with CMAs. Numerous LUPA CMAs have been determined to be applicable to the Project relative to the conservation of biological resources (Appendix 2C). Compliance with the CMAs is achieved through implementation of Project-specific APMs/BMPs addressing biological and vegetation resources (Appendix 2A).

Specific CMAs address Harwood's eriastrum and its dune habitat. These measures include implementing an avoidance setback of 0.25-mile from all occurrences of the plant to protect ecological processes and establishing a limit (cap) for impacts to suitable habitat to a maximum of 1 percent throughout all BLM lands included within the CDCA. However, based on the distribution of potentially suitable habitat on the Palo Verde Mesa, Harwood's eriastrum is expected to be present along all Project alternatives crossing the Palo Verde Mesa. Therefore, if Project design is not consistent with CMA specifications, exceptions can be allowed through an amendment to the CDCA Plan, as long as the goals established by the LUPA are met. Since it can be shown that the linear nature of the Project can avoid impacts to the ecological processes (i.e., sand movement) that support plant populations, and meet the goal of promotion of the ecological processes, the CDCA Plan is further amended to allow Project construction to proceed. Specific measures for the conservation on Harwood's eriastrum are required under the conditions of this amendment that are implemented through BMP-BIO-31.

Compliance with biological CMAs is demonstrated in Appendix 2C, with details of applicable APMs/BMPs provided in Appendix 2A.

4.4.10 Unavoidable Adverse Effects

Some environmental impacts resulting from the Project would be unavoidable. These impacts include increased mortality to avian species due to collisions with the transmission line and structure guy wires, and facilitating predation of small mammals, reptiles, and invertebrates by corvids and raptors that use transmission lines and structures as hunting perches. Mortality of fossorial wildlife is expected and mostly unavoidable during site clearing, and individual animals would be lost due to vehicle strikes during construction and maintenance activities. These unavoidable adverse effects to biological resources are not expected to be major.

4.4.11 Cumulative Effects

Development of the Project, in conjunction with other current and foreseeable future projects (Appendix 3, Table 3.12-2), would contribute incrementally to the ongoing fragmentation and loss of natural habitats, increased mortality for some wildlife species, increased spread and abundance of non-native plants, increased noise/vibration during construction activities, and increased human presence in remote areas. Cumulative effects to vegetation and wildlife would be additive and proportional to the amount of ground disturbance, and loss and degradation of habitat for each individual project. All Project alternatives would have similar cumulative impacts, though the degree of impact could vary depending on the selected segments (e.g., a new corridor in an otherwise near pristine area). Cumulative impacts on biological resources would be minimized through surveys, design, and engineering, as well as APMs and BMPs. Similar measures would likely be required for most future projects.

Where linear utilities are collocated, the cumulative impacts are generally less than when utility corridors follow separate routes. However, on the Palo Verde Mesa, new structure structures in addition to existing power lines, the Colorado River Substation, and solar energy development can cumulatively impact dune systems due to subtle changes in wind patterns and structures interrupting sand transport across the mesa. When new utility corridors are added across the landscape, especially when these corridors would be the first to enter a remote or otherwise pristine area that does not have existing linear facilities or similar human impacts, the cumulative effect would be assessed on a broad landscape level where fewer and fewer areas would remain free of the presence of, and impacts associated with utility corridors.

However, collocation of utilities may not always reduce cumulative impacts. Expansion of the disturbed area by multiple utilities and increased activity within the corridor could exceed species-specific and location-specific thresholds that would result in barriers to wildlife movement and decreased habitat value for wildlife. The width of the disturbance corridor and magnitude of disturbance determines the consequence to individual species. In the case of the Kofa NWR, the proposed development of Segment p-06 would more than double the width of the existing utilities corridor resulting in greater fragmentation of habitat for desert bighorn sheep, Sonoran pronghorn, Sonoran desert tortoise, and other wildlife (USFWS 2017). Human activity associated with construction and maintenance, habitat disturbance and destruction, and visual separation caused by the transmission line can discourage wildlife from crossing the disturbed area and lead to greater fragmentation and isolation of the north part of the refuge from the remainder. The cumulative and incremental impacts of the Project in addition to the existing utilities may pose the greatest impact to the refuge (USFWS 2017).

The BLM sensitive plant species Harwood's eriastrum is restricted to active windblown sand dune habitat. The DRECP LUPA CMAs for sensitive plant species apply to Harwood's eriastrum, and include a cumulative limit (i.e., cap) for impacts to suitable habitat to a maximum of 1 percent from all projects throughout all BLM lands included within the DRECP. According to the DRECP distribution model for Harwood's eriastrum, there is 288,404 acres of Harwood's eriastrum habitat on BLM lands. Using the same model, Project-related ground disturbance on the Palo Verde Mesa with the implementation of Alternative 2 (the alternative with the greatest potential to impact Harwood's eriastrum) were calculated to potentially disturb 48.2 acres of Harwood's eriastrum habitat. Maximum Project-related impacts based on the DRECP model would constitute 0.017 percent of Harwood's eriastrum distribution range-wide, and this estimate for Project impact acres does not consider additional reduction in area of impact that would be achieved through micrositing. Other projects have occurred in Harwood's eriastrum modeled habitat on the Palo Verde Mesa and Chuckwalla Valley, and new structures in addition to existing power lines (e.g., DPV1), the Colorado River Substation, and solar energy development (e.g., Desert Quartzite Solar and gen-tie line) can cumulatively impact dune systems due to subtle changes in wind patterns and structures interrupting or altering sand transport across the mesa. Additional projects approved by BLM within Chuckwalla Valley together with the proposed Project may impact up to 361.8 acres of DRECP modeled habitat within Chuckwalla Valley; a total of 0.35 percent of modeled habitat in Chuckwalla Valley or 0.12 percent range-wide. The cumulative impact cap of 1 percent to DRECP modeled Harwood's eriastrum habitat is applied to the species' entire distribution on BLM lands. The sum of impacted habitat from these various projects on BLM land would not collectively approach the 1 percent cap (i.e., 2,884 acres) (impacts on private land to not contribute to calculation of the impact cap).

The Mojave fringe-toed lizard, also restricted to wind-blown sand habitats, would lose up to 48.2 acres of habitat due to Project implementation. Other BLM-approved projects within the Chuckwalla Valley resulted in loss of DRECP modeled habitat for the Mojave fringe-toed lizard, such as the Colorado River Substation (77.3 acres), Desert Sunlight (1,293.4 acres), and Genesis (1,035.2 acres), and together with the proposed Project (48.2 acres) would impact a total of 2,453.7 acres of DRECP modeled habitat, or 1.9 percent of all modeled Mojave fringe-toed lizard habitat in Chuckwalla Valley (i.e., 132,117.6 acres).

Overall the past, present, and reasonably foreseeable future actions in the CEA are expected to result in:

- Long-term minor cumulative impacts where the proposed segments would be collocated or near past/present disturbances and/or existing linear facilities with some exceptions.
- Major, long-term cumulative impacts where Segment cb-01, Segment cb-02, and Segment cb-04 would enter remote and near-pristine areas where existing linear facilities are not present.
- Major, long-term cumulative impacts would occur were Segment p-06 would be collocated with existing utility corridors across the Kofa NWR. The cumulative effect of expanding the width of the utility corridor would conflict with the purposes for which the NWR was established by interfering with wildlife movement and habitat use.

Overall, the contribution by the Project to cumulative impacts to biological resources is dependent on the selected route segments. Routes through the Kofa NWR (Segment p-06), and through the

remote, near pristine areas of the Dome Rock Mountains (Segments cb-01, cb-02, cb-04) would result in a greater contribution to cumulative impacts because these segments would result in greater disruption to wildlife than previously disturbed routes where wildlife has been exposed to persistent disturbances, habitat has been degraded, and animal populations are often reduced. Such contributions would result in significant degradation of biological resources that could not be fully mitigated, and this would be a more notable loss of habitat because past and present projects have already limited the availability of pristine landscapes with uncompromised biological conditions. Cumulatively, the indirect effects of this Project that facilitate human access into remote landscapes has a greater consequence than the direct impact to habitat. Other route alternatives would make a small contribution to the total past, present, and reasonably foreseeable future disturbance in the CEA.

While many cumulative impacts to wildlife are foreseeable, the addition of the Project itself (excluding the Kofa NWR and pristine areas of the Dome Rock Mountains) when combined with other past, present, and reasonably foreseeable future actions, would not be the cause of a significant degradation of wildlife resources or affect the potential for wildlife resources, including special status species, to sustain current population levels. The Project's relatively short construction period (e.g., duration of disturbance), limited acres of permanent habitat loss, and implementation of all APMs/BMPs would be expected to result in generally minor effects limited to individual plants and animals within a localized area (i.e., no measurable population level impacts). The degree of change on a cumulative basis would be negligible once mitigation measures have been implemented and disturbed areas start to heal.

4.4.12 Irreversible and Irretrievable Commitment of Resources

4.4.12.1 Vegetation Communities

Environmental impacts that have irreversible negative effects on vegetation are situations where vegetation and topsoil are impacted and not restored. In most cases, reclamation efforts would be made, and irreversible impacts to vegetation would be minor, including unavoidable adverse impacts and residual impacts.

In areas of structure foundations, access roads, and SCS construction, vegetation communities and their habitat (topsoil) would be destroyed, but these areas would be minimal in extent, and vegetation community loss minimal relative to the acreage of each community in the region and would focus on low-sensitivity or low-value communities. Vegetation would take many decades to recover in such locations and may never recover under current climate regimes without soil nutrient enhancements and multiple seedings.

4.4.12.2 Special Status Species

Although environments of special status species throughout the analysis area have been recognized and would be avoided to the greatest extent, avoidance of every individual of all special status species is unlikely. Where individuals would be impacted, reclamation should mitigate such impacts, but relocation to suboptimal habitats or inadequate habitat reclamation could result in permanent declines for the species in those locations.

4.4.12.3 Noxious Weeds

Despite reclamation and control efforts, introduction and colonization of noxious weeds and other exotic invasive plant species could occur and persist in some areas.

4.4.12.4 Wildlife

Irreversible and irretrievable commitment of resources would occur in cases of wildlife mortality due to collisions with construction equipment, transmission lines, or structures. No other irreversible and/or irretrievable commitments of wildlife would occur.

4.4.13 Relationship of Short-term Uses and Long-term Productivity

4.4.13.1 Vegetation Communities

The productivity or function of vegetation would be affected by both short- and long-term impacts.

Short-term impacts to vegetation communities would be present until reclamation is conducted, resulting in short-term production loss. Following reclamation, short-term impact effects would be alleviated to vegetation communities and long-term productivity would be reestablished. However, even when vegetation is established during reclamation efforts, the composition of plant species in the recovery area is often different than the original vegetation community. Typically, grasses establish early on, whereas shrubs take much longer to reestablish. Because of the desert environment, reclamation and revegetation to pre-disturbance conditions is extremely difficult, if not impossible. Reclamation of herbaceous vegetation (e.g., perennial native grasses) should take less than 5 years, depending on weather during that time. Long-term establishment of native woody species (e.g., shrubs and riparian trees) would take longer periods of time, from 5 to 20 years to restore long-term woody vegetation productivity. Relative to short-term impacts that would include both short-term and long-term reclamation of native vegetation production, permanent loss of vegetation communities would be minimal in spatial scale. Vegetation of semi-arid regions generally takes years (herbaceous) to decades (woody) to recover from disturbances that impact the aboveground plants themselves, but not the topsoil. Such recovery is very dependent on rainfall and temperature conditions during the recovery period.

4.4.13.2 Special Status Species

A Reclamation, Vegetation, and Monitoring Plan (Appendix 2B) would be prepared to address the reconstruction of disturbed ecosystems by returning the land to a stable and productive condition. If reclamation and relocation methods are employed for any special status plant species, the short-term impacts would be during the reclamation activities. Productivity of such plants would be

reduced in the short-term but would be unaffected in the long-term once such plants have become reestablished. Permanent impacts to those plant species (individuals) would be based on survival of transplanted individuals, and persistence of restored habitat. Long-term loss of productivity would result if such plants do not survive, or suffer reduced growth following relocation. Given the importance of special status species, all efforts would be made to ensure the survival and continued productivity levels of such plants.

4.4.13.3 Noxious Weeds

The introduction and colonization of noxious weeds and other exotic invasive plant species would be temporary if monitoring and control are performed. Colonization of noxious weeds and other exotic invasive plant species would be permanent if such monitoring and control measures are not implemented.

4.4.13.4 Wildlife

Construction of the Project would result in some short- and long-term impacts to wildlife resources and habitat. During construction, breeding and foraging within the area may decrease due to temporary habitat loss, construction noise, and human presence. In addition, there may be increased mortality due to collisions with construction equipment. The decrease in productivity during construction would be expected to be short-term; breeding and foraging within the Project ROW would commence following construction activities. Long-term productivity of some species may be impacted by collisions with power lines, as well as by long-term habitat loss, and increased mortality due to predation. Some predator species, especially raptors and corvids, would benefit from the increase perches provided by the transmission line.

4.5 CULTURAL RESOURCES

4.5.1 Introduction

This analysis of cultural resources provides an overview of potential direct and indirect impacts by the construction, operation, and maintenance of the Project. As stated in the PA, given the length of time of the Project's operational life before being decommissioned, decommissioning is considered as a separate undertaking to be addressed by future Section 106 and NEPA analyses. Cultural resources that demonstrate integrity and significance under Criteria A, B, C, and/or D of the NRHP, are further classified as *historic properties*. Those cultural resources that have not been previously evaluated for eligibility for the NRHP are treated as eligible for the purposes of this analysis.

The information presented herein is summarized from Class I baseline data and ethnographic information collected for the Project and reported in Brodbeck et al. (2017) and Leard and Brodbeck (2017), respectively. For the Proposed Action and Action Alternatives, this information is augmented by a cultural resources sensitivity analysis included in the Project record. The sensitivity analysis is specific to Segments p-16, p-17, p-18, x-16, ca-02, x-15, ca-07, ca-09, and x-19; the results of the analysis are presented with those segments.

Many of the Project alternatives have been intensively surveyed for cultural resources by other projects in the past, so the Class I overview provides substantial information about the types and distribution of known cultural resources in the Project Area. The BLM is using the substantial available Class I data, sensitivity model, and ethnographic information, including feedback from the tribes, as baseline data to inform the analysis of alternatives. This information, has been summarized in tabular format in Table 4-4, as well as in Appendix 4 Tables 4.5-1 through 4.5-4 and provides the foundation for the impact analysis.

4.5.2 Methods for Analysis

4.5.2.1 Analysis Area

The APE for the Project consists of areas where direct effects to cultural resources may occur. For the purposes of this discussion, the term "APE" is consistent with the term "analysis area;" defined as a 200-foot-wide corridor where direct effects are projected to occur. For Section 106 purposes, the APE for effects is defined differently (Appendix 2D).

In addition to direct impacts, indirect impacts to cultural resources as a result of the Project may occur, which could include visual, atmospheric, and auditory effects. Indirect atmospheric and auditory effects may occur in an area measuring 0.5-mile from each Action Alternative. From a visual standpoint, potential indirect effects to cultural resources were delineated to include 5 miles on either side of the Proposed Action and Action Alternatives. In certain situations, the 5-mile visual analysis area was adjusted based on the presence of topography that restricts the viewshed. The analysis identifies historic properties within the indirect visual effects analysis area whose character-defining properties could be adversely impacted.

4.5.2.2 Assumptions

The cultural resources data for this analysis are based on the results of Class I baseline data and ethnographic information; additional Class III survey data was gathered for Segments p-17 and p-18, and a portion of Segment p-16 in California (Gardiner et al. 2018). Based on the scope of the Project, the BLM has determined that the development of a Project-specific PA in consultation with interested Indian tribes, land-managing and permitting agencies, and other consulting parties is required (Appendix 2D).

The PA would refine the direct and indirect APE based on design plans for the selected alternative. The Project's direct effects APE, defined as a corridor along the selected alternative where the construction of Project elements such as structures, access and spur roads, and other ancillary elements would occur, would be intensively investigated at the Class III survey level and all cultural resources evaluated per NRHP criteria.

Potential adverse effects to historic properties would be resolved in accordance with the provisions of the PA and specific Historic Property Treatment Plans (HPTPs). Avoidance of cultural resources by final design and construction would be the preferred adverse effect resolution measure.

Several approaches to the analysis of direct and indirect impacts to cultural resources are presented in this section. These consist of:

- Amount of short- and long-term disturbance within the 200-foot-wide analysis area corridor (direct effect);
- Number of structures within the 200-foot-wide analysis area corridor (indirect visual effect);
- Number of known historic properties within the 200-foot-wide analysis area (direct effect);
- Number of historic properties projected to occur within the 200-foot-wide analysis area corridor (direct effect);
- In the subalternative analysis, the acreage of previous Class III inventory survey is presented to provide comparable discussion of site density and survey coverage; and,
- Number and type of known locations of concern to Indian tribes within indirect effect analysis areas.

4.5.2.3 Environmental Effect Indicators, Magnitude, and Duration

The following impact indicators (and impact magnitude duration and definitions in Table 4-3) considered to constitute major impacts to cultural resources if they result from the construction, operation, or maintenance of the Project:

- Damage to or loss of a historic property that is listed, or eligible for listing, on the NRHP, Arizona Register of Historic Places (ARHP), or California Register of Historic Resources (CRHR);
- An activity would directly or indirectly alter the characteristics of the historic property that qualify it for inclusion in the NRHP, ARHP, or CRHR (location, design, setting, materials, workmanship, feeling, or association);
- Loss or degradation would also include cases in which access to the historic property is restricted for future use (i.e. a sacred site);
- Adverse impacts to NRHP-, ARHP-, or CRHR-eligible historic property that cannot be satisfactorily resolved as determined through consultation with the SHPO and other consulting parties;
- Increased access to historic properties that increases potential for vandalism or unauthorized collecting;
- A substantial increase in the potential for erosion or other natural processes that could affect historic properties;
- Increased deterioration of a historic property, except where such deterioration is a recognized quality of a property of religious and cultural significance to an Indian tribe;
- and,
- Disturbance of any human remains, including those interred outside of formal cemeteries.

Impact magnitude and duration definitions specific to cultural resources are defined in Table 4-3.

Table 4-3 Cultural Resources Impact Magnitude and Duration Definitions

ATTRIBUTE OF IMPACT		DESCRIPTION SPECIFIC TO CULTURAL RESOURCES
Magnitude	No impact	None
	Negligible	No measurable change to the current condition of cultural resources would result from Project construction, operation, or maintenance. There would be no effect to the existing NRHP/ARHP/CRHR qualities of individual historic properties.
	Minor	There would be a small, but measurable change to the current condition of historic properties as a result of Project construction, operation, or maintenance. While a change to a historic property would occur, it would not affect any of the NRHP/ARHP/CRHR qualities of individual historic properties, and the eligibility of the property to the NRHP/ARHP/CRHR would not be altered.
	Moderate	An easily discernable and measurable change to the existing NRHP/ARHP/CRHR qualities of historic properties would occur as a result of Project construction, operation, or maintenance. While the existing qualities of an NRHP/ARHP/CRHR property may be diminished, it would not be to a degree that the properties' NRHP/ARHP/CRHR eligibility would be altered.
	Major	A large, easily measurable change in the current conditions would result in significant impacts to historic properties as a result of Project construction, operation and maintenance and would substantially alter the NRHP/ARHP/CRHR qualities and eligibility status of individual historic properties.
Duration	Temporary	Limited to active construction or maintenance..
	Short term	During construction (1.5 to 2 years), up to 10 years.
	Long term	More than 10 years.

4.5.3 No Action Alternative

Under the No Action Alternative, no ROW would be granted for the Project and the transmission line, SCS, and ancillary facilities would not be constructed. Historic properties would not be affected by the Project from any forms of ground disturbance. Because no access improvements would be made, the risk of damage to historic properties associated with vehicular access to areas currently without roads would not change. Project-related support structures and other facilities would not be constructed, so resources sensitive to visual change would not be affected. Current conditions in the analysis area would continue under the No Action Alternative and there would be no changes that would alter historic properties beyond current conditions. The Project Area would remain undisturbed unless unrelated actions occur.

4.5.4 Direct and Indirect Effects Common to All Action Alternatives

Ground disturbance during construction is expected with all Action Alternatives and may result in the damage or loss of historic properties; however, the number and types of resources affected would vary depending on the individual alternative. The primary contributor of permanent ground disturbance would be related to structure and SCS construction, as well as the construction of/improvements to access and spur roads. Temporary disturbance may also have direct effects to historic properties, and would be related to temporary use areas utilized during Project construction, such as staging areas that would be reclaimed following construction.

Specific impacts to historic properties are unknown until Class III identification studies and indirect effect analyses of the selected route are completed, and additional information regarding engineering design is available. As a result, evidence is currently insufficient to state specific direct or indirect impacts to particular historic properties or to discuss specific measures to resolve potential effects to those properties.

General measures to resolve potential adverse direct and indirect effects to historic properties as a result of Project construction would be contained in the PA, and specific measures would be outlined in HPTPs. The draft PA (Appendix 2D) would be executed prior to the signing of the ROD. The HPTPs would be developed following Class III survey identification efforts following the signing of the ROD. Avoidance of historic properties by final design and construction would be the preferred measure for the resolution of potential direct impacts.

With the exceptions of p-17, p-18, qs-01, x-10, and ca-09, which are discussed in Section 4.5.5, direct impacts due to construction could range between negligible (if eligible sites could be avoided by Project design) and major (if eligible sites could not be avoided by Project design). With the exception of the five noted segments, the range of direct impacts due to construction and the resolution of potential adverse effects are common to all segments; therefore, the impacts and resolution are not repeated for the segment-specific effects.

Indirect effects to historic properties could occur in areas where the construction of new roads into the Project Area would provide improved access into previously inaccessible areas. Improved access could lead to site damage by off-road vehicles and recreational use of these areas. Such damage could consist of vehicular damage to surface archaeological sites, and vandalism to sensitive areas where rock art is present. Measures to resolve potential adverse effects to historic properties as a result of improved access would be included in the PA and the ROD.

Indirect visual impacts could occur from the presence of structures in sight of NRHP-listed historic properties or properties eligible for inclusion in the NRHP under Criterion A, B, or C by altering the setting of the properties. The historic properties affected would vary by alternative. Resolution measures to minimize the potential adverse effects of visual intrusions would be contained in the PA and HPTPs and implemented by Project design. For example, during Project design, support structures may be positioned so that they are not visible from the historic properties sensitive to visual intrusion.

Site types that are known to occur in the Project Area and known to be potentially sensitive to visual impacts include prehistoric trails, petroglyph sites, and intaglios. If sites of this type exhibit a high degree of integrity of setting, feeling, and association, and also qualify as NRHP-eligible historic properties, an assessment of indirect visual effects of the Project features (such as transmission line structures and access roads) on their NRHP qualities would be required and specified in HPTPs.

Additionally, other historic properties sensitive to indirect effects may be identified by future Class III survey field work of the direct APE and/or future studies of indirect effects to historic properties in the indirect effects APE. When identified, these properties would be subject to additional analysis to be specified in HPTPs.

The range of indirect impacts outlined above, and the resolution of potential adverse indirect effects is common to all segments; therefore, these are not repeated for the segment-specific effects.

4.5.5 Direct and Indirect Segment-specific Effects

Table 4-4 presents known cultural resources data from a 200-foot analysis corridor defined as the "direct APE" for the purposes of this document. The extent of previous cultural resources survey, counts of known historic properties, counts of cultural resources for which NRHP eligibility is unknown, and projections of total numbers of historic properties and sites of undetermined eligibility is presented by segment.

For analysis purposes, minimum survey coverage of 25 percent or more is considered to be adequate to estimate the projected number of cultural resources by eligibility category for each Project segment. In cases where survey coverage of at least 25 percent can be demonstrated with negative findings, the projected sensitivity for cultural resources is considered to be low. However, this does not take into account potential environmental variations that may affect the distribution of cultural resources on the landscape per segment.

Table 4-4 Known Survey and Anticipated Cultural Resources in Segments

SEGMENT NO.	ACRES (200-FT CORRIDOR)	PERCENTAGE OF SEGMENT SURVEYED (%)	DENSITY OF KNOWN SITES (PER 100 ACRES)[1]	COUNT OF KNOWN DETERMINED OR RECOMMENDED ELIGIBLE SITES	COUNT OF KNOWN UNEVALUATED / UNKNOWN ELIGIBILITY SITES	DENSITY (PER 100 ACRES)/ PROJECTED COUNT OF NRHP-ELIGIBLE SITES[2]	DENSITY (PER 100 ACRES)/ PROJECTED COUNT OF SITES TO BE EVALUATED[2]
PROPOSED ACTION SEGMENTS							
p-01	636.2	54.9	2.6	4	0	1.1/7	0.0/0
p-02	26.1	13.5	85.7	1	1	28.6/7	28.6/7
p-03	50.8	14.7	0.0	0	0	0.0/0	0.0/0
p-04	115.7	26.0	23.3	2	1	6.7/8	3.3/4
p-05	68.0	17.9	24.8	1	0	16.5/11	0.0/0
p-06	865.9	23.8	8.3	4	2	7.3/63	1.0/8
p-07	50.2	15.4	32.5	1	1	6.3/3	6.5/3
p-08	16.6	5.6	17.9	0	0	0.0/0	0.0/0
p-09	167.9	59.4	5.0	0	0	0.0/0	0.0/0
p-10	28.2	41.9	8.5	0	0	0.0/0	0.0/0
p-11	96.6	66.2	3.1	1	0	1.6/2	0.0/0
p-12	64.2	9.8	0.0	0	0	0.0/0	0.0/0
p-13	84.0	97.5	7.3	2	0	2.4/2	0.0/0
p-14	23.1	75.2	23.1	0	0	0.0/0	0.0/0
p-15e	66.4	42.9	17.5	0	4	0.0/0	14.0/9
p-15w	161.5	32.4	15.3	0	8	0.0/0	15.3/25
p-16	116.1	14.6	47.3	0	5	0.0/0	29.6/34
p-17	71.2	100	35.1	2	7	2.8/2	9.8/7
p-18	62.9	100	22.3	1	7	1.6/1	11.1/7
ACTION ALTERNATIVE SEGMENTS							
d-01	612.8	5.7	5.7	0	2	0.0/0	5.7/35
i-01	202.8	10.2	9.7	1	1	4.8/10	4.8/10

SEGMENT NO.	ACRES (200-FT CORRIDOR)	PERCENTAGE OF SEGMENT SURVEYED (%)	DENSITY OF KNOWN SITES (PER 100 ACRES)[1]	COUNT OF KNOWN DETERMINED OR RECOMMENDED ELIGIBLE SITES	COUNT OF KNOWN UNEVALUATED / UNKNOWN ELIGIBILITY SITES	DENSITY (PER 100 ACRES)/ PROJECTED COUNT OF NRHP-ELIGIBLE SITES[2]	DENSITY (PER 100 ACRES)/ PROJECTED COUNT OF SITES TO BE EVALUATED[2]
i-02	77.5	0.0	0.0	0	0	0.0/0	0.0/0
i-03	488.1	4.2	19.4	1	3	4.9/24	14.6/71
i-04	253.0	2.1	18.5	0	0	0.0/0	0.0/0
in-01	337.5	2.0	30.3	2	0	30.3/102	0.0/0
x-01	195.1	2.0	100.0	0	0	0.0/0	0.0/0
x-02a	80.4	0.0	0.0	0	0	0.0/0	0.0/0
x-02b	84.2	4.4	0.0	0	0	0.0/0	0.0/0
x-03	137.3	1.7	0.0	0	0	0.0/0	0.0/0
x-04	549.7	4.4	14.1	0	1	0.0/0	4.1/23
i-05	69.6	36.3	4.0	0	1	0.0/0	4.0/3
qn-01	15.1	89.6	22.2	1	1	7.4/1	7.4/1
qn-02	263.3	56.6	4.7	3	1	2.0/5	0.7/2
qs-01	75.1	94.1	0.0	0	0	0.0/0	0.0/0
qs-02	118.0	38.4	11.0	1	0	2.2/3	0.0/0
x-05	251.4	1.1	87.0	1	1	37.0/93	37.0/93
x-06	225.1	23.7	11.2	3	2	5.6/13	3.7/8
x-07	188.2	3.1	0.8	0	6	0.0/0	105.3/198
cb-01	77.9	4.8	0.0	0	0	0.0/0	0.0/0
cb-02	81.6	38.5	3.2	0	0	0.0/0	0.0/0
cb-03	106	15.6	12.0	1	0	6.0/6	0.0/0
cb-04	45.7	45.2	14.6	0	3	0.0/0	14.6/7
cb-05	107.9	8.7	0.0	0	0	0.0/0	0.0/0
cb-06	46.9	0.3	0.0	0	0	0.0/0	0.0/0
i-06	176.2	37.7	1.5	0	0	0.0/0	0.0/0
i-07	154.7	33.3	7.8	0	3	0.0/0	5.8/9

SEGMENT NO.	ACRES (200-FT CORRIDOR)	PERCENTAGE OF SEGMENT SURVEYED (%)	DENSITY OF KNOWN SITES (PER 100 ACRES)[1]	COUNT OF KNOWN DETERMINED OR RECOMMENDED ELIGIBLE SITES	COUNT OF KNOWN UNEVALUATED / UNKNOWN ELIGIBILITY SITES	DENSITY (PER 100 ACRES)/ PROJECTED COUNT OF NRHP-ELIGIBLE SITES[2]	DENSITY (PER 100 ACRES)/ PROJECTED COUNT OF SITES TO BE EVALUATED[2]
i-08s	32.5	28.9	0.0	0	0	0.0/0	0.0/0
x-08	32.4	23.5	13.2	1	0	13.2/4	0.0/0
ca-01	162.2	2.0	272.7	0	9	0.0/0	272.7/442
ca-02	82.8	10.1	35.7	0	3	0.0/0	35.7/30
ca-04	9.4	21.3	0.0	0	0	0.0/0	0.0/0
ca-05	161.9	3.4	109.1	0	6	0.0/0	109.1/177
ca-06	64.1	33.1	4.7	0	1	0.0/0	4.7/3
ca-07	76.4	66.2	7.9	0	0	0.0/0	0.0/0
ca-09	63.1	100	3.2	0	0	0.0/0	0.0/0
cb-10	46.8	14.1	0.0	0	0	0.0/0	0.0/0
x-09	19.8	30.3	0.0	0	0	0.0/0	0.0/0
x-10	31.1	60.8	0.0	0	0	0.0/0	0.0/0
x-11	51.7	1.5	125.0	0	1	0.0/0	125.0/65
x-12	30.7	4.9	133.3	0	2	0.0/0	133.3/41
x-13	48.7	3.3	62.5	0	1	0.0/0	62.5/30
x-15	35.6	62.9	0.0	0	0	0.0/0	0.0/0
x-16	56.7	12.3	71.4	0	1	0.0/0	14.3/8
x-19	24.2	100.0	16.5	0	3	0.0/0	12.4/3

Note: Please see Appendix 4 Section 4.5 for a discussion of how the density of projected sites was calculated.

[1]Density of known sites/100 acres includes sites that are previously recommended/determined ineligible for listing in the NRHP.

[2] (/) is used in this column to indicate a separation of data values.

4.5.6 Operations and Maintenance

Though most impacts to historic properties are expected to occur in association with construction, some continuing project-related activities would affect historic properties.

The maintenance and operating activities would have the potential to affect historic properties if they take place in sensitive areas identified by Class III survey. Areas requiring cultural resources monitoring during these activities would be identified and discussed in the PA. No Project activities requiring new ground disturbance would proceed without a cultural resources Class III survey to identify and evaluate any potential historic properties that may be present.

In addition, new roads established to support construction may result in increased access into areas that were previously inaccessible and/or used only intermittently. This increased access should be regularly assessed to ensure that no unanticipated adverse effects or vandalism of historic properties is occurring based on new access and increased use of an area. Measures to resolve potential adverse effects to historic properties as a result of improved access would be included in the PA and the ROD.

4.5.7 Measures for the Resolution of Adverse Effects

Resolution measures for adverse effects to historic properties will be outlined in the PA and HPTPs (APM-CULT-01, APM-CULT-03). The PA would be developed and executed prior to the issuance of the ROD. HPTPs would be developed in accordance to the stipulations contained in the PA following the Class III survey identification efforts and indirect studies. Measures contained in the PA and HPTPs would be implemented prior to and during construction and post-construction during maintenance activities and operations (APM-CULT-01, BMP-CULT-02, BMP-CULT-04). Resolution measures for adverse effects to historic properties located within the CDCA Plan area are further outlined by specific compliance requirements discussed in Section 4.5.10.

APMs and BMPs for cultural resources are contained in Appendix 2A.

4.5.8 Construction of Full Route Alternative and Subalternative Effects

In the following section, discussion of the percentage of previous Class III survey coverage is presented in a combined total of acreage examined to provide a cumulative percentage. In this way, the percentage of Class III survey coverage is comparable for comparison between alternative and subalternative segments.

4.5.8.1 Proposed Action

A total of 55 NRHP-eligible and unevaluated sites have been previously recorded within the 200-foot analysis corridor of the Proposed Action. Based on an extrapolation of the number of known cultural resource sites in the acreage surveyed, a total of 133 NRHP-eligible or unevaluated sites are projected to occur within the 200-foot analysis corridor of the Proposed Action (Appendix 4, Tables 4.5-1, 4.5-2, 4.5-3, and 4.5-4). Direct impacts due to construction could range between negligible (if eligible sites could be avoided by Project design) and major (if eligible sites could

not be avoided by Project design). The Proposed Action would impact more sites than the other Action Alternatives.

Segments p-17 and p-18 of the Proposed Action cross the eastern base of the Palo Verde Mesa, a culturally and biologically sensitive area (AECOM 2012). Direct impacts due to construction could range between moderate (if eligible sites could be avoided by Project design) and major (if eligible sites could not be avoided by Project design). However, any impact to human remains would be major and subject to protocol and processes as presented in Native American Graves Protection and Repatriation Act (NAGPRA).

Indirect visual effects from the construction of the Proposed Action could occur for the following if they qualify as NRHP-eligible historic properties and exhibit a high degree of integrity of setting, feeling, and association:

- The Indian Well Site, located within the 1-mile-wide corridor of the Proposed Action.
- An undocumented rock ring site, located within the 1-mile-wide corridor of the Proposed Action.
- The Limekiln Wash Intaglio, located in the 200-foot analysis corridor of the Proposed Action.
- The NRHP-listed Ripley Intaglio Site, located within the 5-mile indirect effects analysis area of the Proposed Action.
- The NRHP-listed Mule Mountains Petroglyph and Intaglio District, a prehistoric district, located approximately within the 5-mile indirect effects analysis area of the Proposed Action.
- Other sensitive sites known or projected to occur in the 200-foot Proposed Action analysis corridor such as trails, intaglios, and prehistoric habitation sites with human remains.

The Proposed Action parallels the existing DPV1 transmission line. The construction of additional transmission structures may create additional visual intrusions on individual properties' NRHP qualities of integrity. Prehistoric trail segments have been recorded within 0.5-mile of Segments p-04, p-06, p-07, p-09, p-10, p-11, p-12, p-13, p-14, and p-15e. If these trails qualify as NRHP-eligible properties and exhibit a high degree of setting, feeling, and association, the construction of additional structures may create additional visual intrusions that affect their NRHP character-defining qualities. These potential effects would be assessed as part of the indirect effects analysis. The indirect effects analysis would occur after the execution of the PA and signing of the ROD.

Other indirect effects to historic properties could occur if Project roads enhance accessibility, potentially making previously inaccessible properties more vulnerable to increased visitation and vandalism.

Resolution Measures

Potential adverse effects to historic properties would be resolved in accordance with the provisions of the PA and the development of specific HPTPs. Avoidance of cultural resources by final design

and construction would be the preferred adverse effect resolution measure. APM-CULT-01 and BMP-CULT-03 would be applicable to the resolution of potential adverse effect. For portions of the Project within the CDCA, adverse effect resolution measures as outlined in LUPA-CUL-4 would also be applicable.

4.5.8.2 Alternative 1: I-10 Route

A total of 25 NRHP-eligible and unevaluated sites have been previously recorded within the 200-foot analysis corridor of Alternative 1. Based on an extrapolation of the number of known cultural resources sites in acreage surveyed, a total of 81 NRHP-eligible or unevaluated sites are projected to occur within the 200-foot analysis corridor of Alternative 1 (Appendix 4, Tables 4.5-1, 4.5-2, 4.5-3, and 4.5-4). However, this projected count may be influenced by skewed metrics resulting from lower Class III survey coverage (less than 5 percent) of Segments i-03 (4.2 percent) and ca-05 (3.4 percent). Direct impacts due to construction could range between negligible (if NRHP-eligible sites could be avoided by Project design) and major (if NRHP-eligible sites could not be avoided by Project design). Under Alternative 1, there would be the least amount of impacts to cultural resources compared to the Proposed Action and other Action Alternatives.

Sensitive sites projected to occur in the 200-foot Alternative 1 analysis corridor include prehistoric trails and intaglios. These site types have been recorded within 0.5-mile of Segments i-03, qs-01, qs-02, i-06, i-07, i-08s, and ca-09. The NRHP eligibility of these sites is not known at this time. If these trails and intaglios qualify as NRHP-eligible properties and exhibit a high degree of setting, feeling, and association, the construction of structures may create visual intrusions that affect the NRHP character-defining qualities of these sites.

Other indirect effects to historic properties could occur if Project roads enhance accessibility, potentially making previously inaccessible properties more vulnerable to increased visitation and vandalism.

Resolution Measures

Resolution measures for Alternative 1 and all of the subalternative routes (1A through 1E) would be the same as those described for the Proposed Action.

Subalternative 1A

Subalternative 1A would result in a reduced visual impact (fewer planned transmission structures) and less potential to affect historic properties by ground disturbance (smaller footprint of short- and long-term disturbance).

A total of 7.6 percent of the segments of Subalternative 1A have been investigated by Class III survey, while 10.2 percent of Segment i-01 (Alternative 1) has been previously investigated. A total of 26 NRHP-eligible sites or sites requiring NRHP evaluation are projected to occur within Subalternative 1A, and 20 NRHP-eligible cultural resource sites or sites requiring NRHP evaluation are projected to occur along Alternative 1.

While the data suggest that Subalternative 1A has a higher potential to affect historic properties based on the disturbance footprint, projected site counts for both Subalternative 1A and Alternative 1 may be the result of low representative Class III survey samples.

Subalternative 1B

Compared to Alternative 1, Subalternative 1B results in a greater visual impact (higher count of transmission structures) and a greater potential to affect historic properties by ground disturbance (larger footprint of short- and long-term disturbance).

A total of 2.5 percent of the segments of Subalternative 1B have been investigated by Class III survey, while 10.2 percent of Segment i-01 (Alternative 1) has been previously investigated. Eighty-two NRHP-eligible sites or sites requiring NRHP evaluation are projected to occur within Subalternative 1B, and 20 NRHP-eligible cultural resource sites or sites requiring NRHP evaluation are projected to occur along Alternative 1.

While the data suggest that Subalternative 1B has a higher potential to affect historic properties based on projected site counts and the disturbance footprint, projected site counts for Subalternative 1B and Alternative 1 may be the result of low representative Class III survey samples.

Subalternative 1C

Compared to Alternative 1, Subalternative 1C results in a greater visual impact (higher count of transmission structures) and a greater potential to affect historic properties by ground disturbance (larger footprint of short- and long-term disturbance).

A total of 2.0 percent of the segments of Subalternative 1B have been investigated by Class III survey, while 9.5 percent of Segments i-04 and i-05 (Alternative 1) has been previously investigated. A total of 102 NRHP-eligible sites are projected to occur within Subalternative 1C, and a total of 3 sites requiring NRHP evaluation are projected to occur along Alternative 1.

While the data suggest that Subalternative 1C has a higher potential to affect historic properties based on the disturbance footprint, projected site counts for Subalternative 1C and Alternative 1 may be the result of low representative Class III survey sample.

Subalternative 1D

Compared to Alternative 1, Subalternative 1D would result in a reduced visual impact (fewer count of transmission structures) and less potential to affect historic properties by ground disturbance (smaller footprint of short- and long-term disturbance).

A total of 89.6 percent of Subalternative 1D has been investigated by Class III survey, while only 2.1 percent of Segment i-04 (Alternative 1) has been previously investigated. Two NRHP-eligible sites or sites requiring NRHP evaluation are projected to occur within Subalternative 1D, and no NRHP-eligible cultural resource sites or sites requiring NRHP evaluation are projected to occur along Alternative 1.

The data suggest that Subalternative 1D and Alternative 1 would have a comparable potential to affect historic properties based on projected site counts and the disturbance footprint.

Subalternative 1E

Compared to Alternative 1, Subalternative 1E would result in a greater visual impact (higher count of transmission structures) and a greater potential to affect historic properties by ground disturbance (greater footprint of short- and long-term disturbance).

A total of 10.6 percent of Subalternative 1E has been investigated by Class III survey, while only 3.4 percent of Segment ca-05 (Alternative 1) has been previously investigated. A total of 104 cultural resource sites requiring NRHP evaluation are projected to occur within Subalternative 1E, and 177 cultural resource sites NRHP-eligible cultural resource sites or sites requiring NRHP evaluation are projected to occur along Alternative 1.

While the data suggests that Subalternative 1E has a lower potential to affect historic properties based on the disturbance footprint, projected site counts for Subalternative 1E and for Alternative 1 may be the result of low representative Class III survey samples.

4.5.8.3 Alternative 2: BLM Utility Corridor Route

A total of 41 NRHP-eligible and NRHP-unevaluated cultural resources sites have been previously recorded within the 200-foot analysis corridor of Alternative 2. A total of 120 NRHP-eligible or NRHP-unevaluated cultural resources sites are projected to occur within the 200-foot analysis corridor of Alternative 2 (Appendix 4, Tables 4.5-1, 4.5-2, 4.5-3, and 4.5-4). However, this high projected count may be influenced by skewed metrics resulting from lower Class III survey coverage of Alternative 2 Segment x-07 (3.0 percent) and Segment i-03 (4.2 percent). Direct impacts due to construction could range between negligible (if NRHP-eligible sites could be avoided by Project design) and major (if NRHP-eligible sites could not be avoided by Project design). Alternative 2 would impact more cultural resource sites than Alternative 1, the same as Alternative 4, and less than the Proposed Action or Alternative 3.

Sensitive sites projected to occur in the Alternative 2 corridor include prehistoric trails and intaglios. These site types have been recorded within 0.5-mile of Segments i-03, qs-01, p-09, p-10, p-11, p-12, p-13, p-14, p-15e, p-16, x-07, x-15, x-16, and ca-09. The NRHP eligibility of all of these sites is not known at this time. If these trails and intaglios qualify as NRHP-eligible properties and exhibit a high degree of setting, feeling, and association, the construction of structures may create visual intrusions that affect the NRHP character-defining qualities of these sites. These potential effects would be assessed as part of the indirect effects analysis.

Other indirect effects to historic properties could occur if Project roads enhance accessibility, potentially making previously inaccessible properties more vulnerable to increased visitation and vandalism.

Indirect visual effects from the construction of Alternative 2 could occur to the following historic properties:

- The Limekiln Wash Intaglio, located within the 200-foot analysis corridor of Alternative 2 Segment p-13.
- The NRHP-listed Ripley Intaglio Site, within the 5-mile indirect effects analysis area of Alternative 2 Segment p-15e.

Both Segments p-13 and p-15e parallel the existing DPV1 transmission line. The construction of additional transmission structures may create additional visual intrusions on individual properties' NRHP qualities of integrity.

Resolution Measures

Resolution measures for Alternative 2 and all of the subalternative routes (2A through 2E) would be the same as those described under the Proposed Action.

Subalternative 2A

Compared to Alternative 2, Subalternative 2A would result in a greater visual impact (higher count of transmission structures) but a comparable amount of ground disturbance (comparable footprint of short- and long-term disturbance).

A total of 5.4 percent of the segments of Subalternative 2A has been investigated by Class III survey, while 44.1 percent of Segments p-01 and i-01 (Alternative 2) have been previously investigated. A total of 37 NRHP-eligible cultural resource sites are projected to occur within Subalternative 2A, and 14 NRHP-eligible sites or sites requiring NRHP evaluation are projected to occur along Alternative 2.

While the data suggest that Subalternative 2A has a slightly higher potential to affect historic properties based on the disturbance footprint, projected site counts for Subalternative 2A may be the result of low representative Class III survey sample.

Subalternative 2B

Compared to Alternative 2, Subalternative 2B would result in a greater visual impact (higher count of transmission structures) and a greater potential to affect historic properties by ground disturbance (greater footprint of short- and long-term disturbance).

A total of 12.7 percent of the segments of Subalternative 2B have been investigated by Class III survey, while 10.2 percent of Segment i-01 (Alternative 2) has been previously investigated. A total of 40 NRHP-eligible cultural resource sites or sites requiring NRHP evaluation are projected to occur within Subalternative 2B, and 20 NRHP-eligible cultural resource sites or sites requiring NRHP evaluation are projected to occur along Alternative 2.

While the data suggest that Subalternative 2B has a higher potential to affect historic properties based on the disturbance footprint, projected site counts for both Subalternative 2B and Alternative 2 may be the result of low representative Class III survey samples.

Subalternative 2C

Compared to Alternative 2, Subalternative 2C would result in a comparable visual impact (comparable count of transmission structures) and a lower potential to affect historic properties by ground disturbance (smaller footprint of short- and long-term disturbance).

A total of 29.9 percent of the segments of Subalternative 2C have been investigated by Class III survey, while 43.7 percent of Segments p-11 and p-12 (Alternative 2) have been previously

investigated. Ten sites requiring NRHP evaluation are projected to occur within Subalternative 2C, and two NRHP-eligible cultural resource sites are projected to occur along Alternative 2.

The data suggest that Subalternative 2C has a higher potential to affect historic properties based on projected site counts and the disturbance footprint.

Subalternative 2D

Compared to Alternative 2, Subalternative 2D would result in a greater visual impact (higher count of transmission structures) but a reduced potential to affect historic properties by ground disturbance (smaller footprint of short- and long-term disturbance).

A total of 15.6 percent of the segments of Subalternative 2D have been investigated by Class III survey, while 66.3 percent of Segment p-11 (Alternative 2) has been previously investigated. Six NRHP-eligible sites are projected to occur within Subalternative 2D, and two NRHP-eligible cultural resource sites are projected to occur along Alternative 2.

The data suggests that Subalternative 2D has a higher potential to affect historic properties than Alternative 2 based on projected site counts and the disturbance footprint.

Subalternative 2E

Compared to Alternative 2, Subalternative 2E would result in a reduced visual impact (lower count of transmission structures) and reduced potential to affect historic properties by ground disturbance (smaller footprint of short- and long-term disturbance).

A total of 7.6 percent of the segments of Subalternative 2E have been investigated by Class III survey, while 13.8 percent of Segments p-16 and x-16 (Alternative 2) has been previously investigated. For Subalternative 2E, 53 sites requiring NRHP evaluation are projected to be present, while 43 are projected to occur along Alternative 2.

While the data suggest that Subalternative 2E has a slightly higher potential to affect historic properties based on the disturbance footprint, projected site counts for both Subalternative 2E and Alternative 2 may be the result of low representative Class III survey samples.

4.5.8.4 Alternative 3: Avoidance Route

A total of 41 NRHP-eligible or NRHP-unevaluated cultural resources sites have been previously recorded within the 200-foot analysis corridor of Alternative 3. A total of 140 NRHP-eligible or NRHP-unevaluated cultural resources sites are projected to occur within the 200-foot analysis corridor of Alternative 3 (Appendix 4, Tables 4.5-1, 4.5-2, 4.5-3, and 4.5-4). This high count of projected sites is likely inflated due to low representative Class III sample size, especially in Segments x-03, x-05, x-11, and ca-01, which have a combined sample size of less than 4.3 percent. Direct impacts due to construction could range between negligible (if NRHP-eligible sites could be avoided by Project design) and major (if eligible sites could not be avoided by Project design). Alternative 3 would impact more cultural resource sites than Alternatives 1, 2, or 4 but less than the Proposed Action.

Sensitive sites projected to occur in the 200-foot Alternative 3 analysis corridor include prehistoric trails. These site types have been recorded within 0.5-mile of Segments i-03, p-07, p-09, p-14, x-05, cb-01, cb-05, ca-09, and cb-10. The NRHP eligibility of all of these sites is not known at this time. If these trails and intaglios qualify as NRHP-eligible properties and exhibit a high degree of setting, feeling, and association, the construction of structures may create visual intrusions that affect the NRHP character-defining qualities of these sites.

Other indirect effects to historic properties could occur if Project roads enhance accessibility, potentially making previously inaccessible properties more vulnerable to increased visitation and vandalism.

Resolution Measures

Resolution measures for Alternative 3 and all of the subalternative routes (3A through 3M) would be the same as those described under the Proposed Action.

Subalternative 3A

Compared to Alternative 3, Subalternative 3A would result in a greater visual impact (higher count of transmission structures) and a greater potential to affect historic properties (greater footprint of short- and long-term disturbance).

Only 5.0 percent of the segments of Subalternative 3A have been investigated by Class III survey, while 44.1 percent of Segments p-01 and i-01 (Alternative 3) has been previously investigated. Forty-one sites requiring NRHP evaluation are projected to occur within Subalternative 3A, while 14 NRHP-eligible site or sites requiring NRHP evaluation are projected to occur along Alternative 3.

While the data suggests that Subalternative 3A has a higher potential to affect historic properties based on the disturbance footprint, projected site counts for Subalternative 3A may be the result of low representative Class III survey sample.

Subalternative 3B

Compared to Alternative 3, Subalternative 3B would result in a reduced visual impact (lower count of transmission structures) and less ground disturbance (smaller footprint of short- and long-term disturbance).

Only 7.4 percent of the segments of Subalternative 3B have been investigated by Class III survey, while 12.7 percent of Segments p-02, p-03, p-04, x-03 (Alternative 3) has been previously investigated. A total of 28 NRHP-eligible or NRHP unevaluated cultural resources sites are projected to occur within Subalternative 3B, while 39 sites are projected to occur along Alternative 3.

While the data suggest that Alternative 3 has a lower potential to affect historic properties based on the disturbance footprint, projected site counts for Subalternative 3B and Alternative 3 may be the result of low representative Class III survey sample.

Subalternative 3C

Compared to Alternative 3, Subalternative 3C would result in a comparable visual impact (comparable count of transmission structures) and a lower potential to affect historic properties by ground disturbance (smaller footprint of short- and long-term disturbance).

A total of 5.9 percent of the segments of Subalternative 3C have been investigated by Class III survey, while only 3.6 percent of Segments i-03 and x-03 (Alternative 3) been previously investigated. Thirty-four NRHP-eligible sites or sites requiring NRHP evaluation are projected to occur within Subalternative 3C, while a total of 111 cultural resources sites requiring NRHP evaluation are projected to occur along Alternative 3.

While the data suggest that Subalternative 3C has a lower potential to affect historic properties based on the disturbance footprint, projected site counts for both Subalternative 3C and Alternative 3 may be the result of low representative Class III survey samples.

Subalternative 3D

Compared to Alternative 3, Subalternative 3D would result in a greater visual impact (higher count of transmission structures) and a greater potential to affect historic properties by ground disturbance (greater footprint of short- and long-term disturbance).

Only 2.0 percent of Subalternative 3D has been investigated by Class III survey, while only 2.1 percent of Segment i-04 (Alternative 3) has been previously investigated. A total of 102 NRHP-eligible sites are projected to occur within Subalternative 3D, and no cultural resources sites are projected to occur along Alternative 3.

While the data suggest that Subalternative 3D has a higher potential to affect historic properties based on the disturbance footprint, projected site counts for both Subalternative 3C and Alternative 3 may be the result of low representative Class III survey samples.

Subalternative 3E

Compared to Alternative 3, Subalternative 3E would result in a comparable visual impact (comparable counts of transmission structures) but a greater potential to affect historic properties by ground disturbance (larger footprint of short- and long-term disturbance).

A total of 29.0 percent of Subalternative 3E has been investigated by Class III survey, while only 1.1 percent of Segment x-05 (Alternative 3) has been previously investigated. A total of 21 cultural resources sites requiring NRHP evaluation are projected to occur within Subalternative 3E, while a total of 186 cultural resources sites are projected to occur along Alternative 3.

While the data suggest that Subalternative 3E has a lower potential to affect historic properties based on the disturbance footprint, projected site counts for Subalternative 3E may be the result of low representative Class III survey sample. These effects must be also further evaluated in conjunction with the pairing of Subalternative 3E with Subalternatives 3D and 3G, or 3J.

Subalternative 3F

Compared to Alternative 3, Subalternative 3F would result in a comparable visual impact (comparable count of transmission structures) but less potential to affect historic properties by ground disturbance (smaller footprint of short- and long-term disturbance).

A total of 23.7 percent of Subalternative 3F has been investigated by Class III survey, while only 23.7 percent of Segment x-06 (Alternative 3) has been previously investigated. A total of 21 NRHP-eligible or NRHP-unevaluated sites are projected to occur within Subalternative 3F, and 21 NRHP-eligible or NRHP-unevaluated sites are projected to occur along Alternative 3.

The data suggest that Subalternative 3F and Alternative 3 would have a comparable potential to affect historic properties based on projected site counts and the disturbance footprint. These effects must also be further evaluated in conjunction with the pairing of Subalternative 3F with Subalternatives 3D and 3G, or 3J.

Subalternative 3G

Subalternative 3G consists of Segment qn-01. It does not replace a specific segment; for that reason, it is presented in terms of its standalone attributes. A total of 89.6 percent of Subalternative 3G has been investigated by Class III survey. Two NRHP-eligible sites or sites requiring NRHP evaluation are projected to occur within Subalternative 3G, which demonstrates a low sensitivity for cultural resources in the 200-foot analysis corridor.

The potential effect to historic properties by Subalternative 3G must be further evaluated in conjunction with the pairing of Subalternative 3G with Subalternatives 3D, 3E, 3F, 3H, and/or 3J.

Subalternative 3H

Subalternative 3H consists of Segment qn-02. It does not replace a specific segment; for that reason, it is presented in terms of its standalone attributes. A total of 56.6 percent of Subalternative 3H has been investigated by Class III survey. A total of seven NRHP-eligible cultural resources sites or sites requiring NRHP evaluation are projected to occur within Subalternative 3H.

The potential effect to historic properties by Subalternative 3H must be further evaluated in conjunction with the pairing of Subalternative 3H with Subalternatives 3D and 3L.

Subalternative 3J

Subalternative 3J consists of Segment i-05. It does not replace a specific segment; for that reason, it is presented in terms of its standalone attributes. A total of 36.3 percent of Subalternative 3J has been investigated by Class III survey. A total of three cultural resources sites requiring NRHP evaluation are projected to occur within Subalternative 3J.

The potential effect to historic properties by Subalternative 3J must be further evaluated in conjunction with the pairing of Subalternative 3J with Subalternatives 3E, 3F, or 3G and 3H.

Subalternative 3K

Compared to Alternative 3, Subalternative 3K would result in a greater visual impact (higher count of transmission structures) but less potential to affect historic properties by ground disturbance (smaller footprint of short- and long-term disturbance).

A total of 39.3 percent of Subalternative 3K has been investigated by Class III survey, while 4.9 percent of Segment cb-01 (Alternative 3) has been previously investigated. No cultural resources sites are projected to occur within Subalternative 3K or along Alternative 3.

The data suggest that Subalternative 3K and Alternative 3 would have a comparable potential to affect historic properties based on projected site counts and the disturbance footprint.

Subalternative 3L

Compared to Alternative 3, Subalternative 3L would result in a greater visual impact (higher count of transmission structures) and a greater potential to affect historic properties by ground disturbance (larger footprint of short- and long-term disturbance).

A total of 45.5 percent of Subalternative 3L has been investigated by Class III survey, while 60.0 percent of Segments p-09, p-10, p-11 (Alternative 3) has been previously investigated. A total of seven NRHP-eligible cultural resource sites are projected to occur within Subalternative 3L, and a total of 2 NRHP-eligible cultural resources sites are projected to occur along Alternative 3.

The data suggests that Subalternative 3L has a higher potential to affect historic properties based on the projected site counts and disturbance footprint. However, effects must be further evaluated in conjunction with the pairing of Subalternative 3L with Subalternatives 3D and 3H or 3J, 3G, and 3H.

Subalternative 3M

Compared to Alternative 3, Subalternative 3M would result in a comparable visual impact (comparable count of transmission structures) but a greater potential to affect historic properties by ground disturbance (larger footprint of short- and long-term disturbance).

A total of 29.8 percent of Subalternative 3M has been investigated by Class III survey, while 4.1 percent of Segments cb-10, x-11, ca-01 (Alternative 3) has been previously investigated. A total of 44 sites requiring NRHP evaluation are projected to occur within Subalternative 3M, and a total of 244 sites requiring NRHP evaluation are projected to occur along Alternative 3. This inflated site count for Alternative 3 is the result of a low representative Class III survey sample in Segment ca-01.

While the data suggest that Alternative 3 has a higher potential to affect historic properties than Subalternative 3M based on projected site counts and the disturbance footprint, projected site counts for Alternative 3 may be the result of low representative Class III survey sample.

4.5.8.5 Alternative 4: Public Lands Emphasis Route

A total of 45 NRHP-eligible or NRHP-unevaluated cultural resources sites have been previously recorded within the 200-foot analysis corridor of Alternative 4. A total of 116 NRHP-eligible or NRHP-unevaluated cultural resources sites are projected to occur within the 200-foot analysis corridor of Alternative 4 (Appendix 4, Tables 4.5-1, 4.5-2, 4.5-3, and 4.5-4). The projected count of sites may be influenced by skewed metrics resulting from lower Class III survey coverage (2 percent) of Alternative 4 Segment in-01. Direct impacts due to construction could range between negligible (if NRHP-eligible sites could be avoided by Project design) and major (if eligible sites could not be avoided by Project design). Alternative 4 would impact more cultural resource sites than Alternative 1, the same as Alternative 2, and less than the Proposed Action or Alternative 3.

Sensitive sites projected to occur in the 200-foot Alternative 4 analysis corridor include prehistoric trails. These site types have been recorded within 0.5-mile of Segments d-01, x-04, x-06, x-09, p-10, p-13, p-14, cb-02, cb-06, and ca-09. If these trails qualify as NRHP-eligible properties and exhibit a high degree of setting, feeling, and association, the construction of additional structures may create additional visual intrusions that affect their NRHP character-defining qualities.

Indirect visual effects from the construction of Alternative 4 could occur for the following properties:

- The Limekiln Wash Intaglio, located within the 200-foot analysis corridor of Alternative 4 Segment p-13.
- The NRHP-listed Eagletail Petroglyph Site, located within the 5-mile indirect effects analysis area of Alternative 4 Segment d-01.
- The NRHP-listed Ripley Intaglio Site, located within the 5-mile indirect effects analysis area of Alternative 4 Segment p-15e.

Alternative 4 Segments p-13 and p-15e parallel the existing DPV1 transmission line. The construction of additional transmission structures may create additional visual intrusions on the Limekiln Wash and Ripley Intaglio Site NRHP qualities of integrity.

The landscape of Alternative 4 Segment d-01 is largely native desert and the construction of structures would visually impact this area. Depending on the viewshed, the construction of structures may create visual intrusions that affect the NRHP character-defining qualities of the Eagletail Petroglyph Site.

Other indirect effects to historic properties could occur if Project roads enhance accessibility, potentially making previously inaccessible properties more vulnerable to increased visitation and vandalism.

Resolution Measures

Resolution measures for Alternative 4 and all of the subalternative routes (4A through 4P) would be the same as those described under the Proposed Action.

Subalternative 4A

Compared to Alternative 4, Subalternative 4A would result in a greater visual impact (higher count of transmission structures) and a greater potential to impact historic properties by ground disturbance (larger footprint of short- and long-term disturbance).

A total of 50.5 percent of Subalternative 4A has been investigated by Class III survey, while only 5.7 percent of Segment d-01 (Alternative 4) has been previously investigated. A total of 12 NRHP-eligible sites or sites requiring NRHP evaluation are projected to occur within Subalternative 4A, while 35 cultural resources sites requiring NRHP evaluation are projected to occur along Alternative 4. In addition, one NRHP-listed property, the Eagletail Petroglyph Site, is located within the 5-mile indirect effects analysis area of Segment d-01.

While the data suggest that Subalternative 4A has a lower potential to affect historic properties based on the disturbance footprint, projected site counts for Alternative 4 may be the result of low representative Class III survey sample.

Subalternative 4B

Compared to Alternative 4, Subalternative 4B would result in a greater visual impact (higher count of transmission structures) and a greater potential to affect historic properties by ground disturbance (larger footprint of short- and long-term disturbance).

Only 3.6 percent of Subalternative 4B has been investigated by Class III survey, and only 4.4 percent of Segment x-04 (Alternative 4) has been previously investigated. A total of 111 NRHP-eligible sites or sites requiring NRHP evaluation are projected to occur within Subalternative 4B, whereas 23 cultural resources sites requiring NRHP evaluation are projected to occur along Alternative 4.

While the data suggest that Subalternative 4B has a higher potential to affect historic properties based on the disturbance footprint, projected site counts for Subalternative 4B and Alternative 4 may be the result of low representative Class III survey samples.

Subalternative 4C

Subalternative 4C consists of Segment i-04. It does not replace a specific segment; for that reason, it is presented in terms of its standalone attributes. A total of 2.1 percent of Subalternative 4C has been investigated by Class III survey. No cultural resources sites are projected to occur within Subalternative 4C. However, this projected site count must be viewed with caution in consideration of the small representative Class III sample size. The potential effect to affect historic properties by Subalternative 4C must be further evaluated in conjunction with the pairing of Subalternative 4C with Subalternatives 4D or 4J.

Subalternative 4D

Subalternative 4D would result in a comparable visual impact (comparable count of transmission structures) and a lower potential to affect historic properties by ground disturbance (greater footprint of short- and long-term disturbance).

A total of 6.0 percent of Subalternative 4D has been investigated by Class III survey, and 26.7 percent of Segments i-05 and x-06 (Alternative 4) have been previously investigated. A total of 66 NRHP-eligible or NRHP-unevaluated sites are projected to occur within Subalternative 4D, whereas 22 NRHP-eligible or NRHP-unevaluated sites are projected to occur in Alternative 4.

While the data suggests that Subalternative 4D has a higher potential to affect historic properties based on ground disturbance, the high projected site counts for Subalternative 4D are likely due to a low percentage of Class III survey. Any effects must be further evaluated in conjunction with the pairing of Alternative 4 with Subalternative 4C.

Subalternative 4E

Compared to Alternative 4, Subalternative 4E would result in the same visual impact (same count of transmission structures) and comparable potential to impact historic properties by ground disturbance (comparable footprint of short- and long-term disturbance).

A total of 4.8 percent of Subalternative 4E has been investigated by Class III survey, while 39.3 percent of Segments p-10 and cb-02 (Alternative 4) has been previously investigated. No NRHP-eligible sites or sites requiring NRHP evaluation are projected to occur within Subalternative 4E or along Alternative 4.

The data suggest that Subalternative 4E and Alternative 4 would have a comparable potential to affect historic properties based on projected site counts and the disturbance footprint.

Subalternative 4F

Compared to Alternative 4, Subalternative 4F would result in the same visual impact (same count of transmission structures) but a lower potential to impact historic properties by ground disturbance (smaller footprint of short- and long-term disturbance).

A total of 8.7 percent of Subalternative 4F has been investigated by Class III survey, while 62.6 percent of Segments cb-06 and p-13 (Alternative 4) has been previously investigated. No NRHP-eligible sites or sites requiring NRHP evaluation are projected to occur within Subalternative 4F, whereas three cultural resources NRHP-eligible sites are projected to occur along Alternative 4.

The data suggest that Subalternative 4F would have a lower potential to affect historic properties based on the disturbance footprint than Alternative 4. However, the null value of projected site counts for Subalternative 4F may be the result of low representative Class III survey sample.

Subalternative 4G

Compared to Alternative 4, Subalternative 4G would result in a comparable visual impact (comparable count of transmission structures) but a lower potential to affect historic properties by ground disturbance (smaller footprint of short- and long-term disturbance).

A total of 43.7 percent of Subalternative 4F has been investigated by Class III survey, while 29.9 percent of Segments cb-02, cb-04, and cb-06 (Alternative 4) has been previously investigated. A total of two NRHP-eligible sites are projected to occur within Subalternative 4G, whereas a total of ten NRHP-eligible sites are projected to occur along Alternative 4.

The data suggest that Subalternative 4G would have a lower potential to affect historic properties based on projected site counts and disturbance footprint than Alternative 4.

Subalternative 4H

Subalternative 4H consists of Segments x-08 and i-07. It does not replace a specific segment; for that reason, it is presented in terms of its standalone attributes. A total of 31.6 percent of Subalternative 4H has been investigated by Class III survey. A total of 12 NRHP-eligible cultural resources sites or sites requiring NRHP evaluation are projected to occur within Subalternative 4H. The potential effect to historic properties by Subalternative 4H must be further evaluated in conjunction with the pairing of Subalternative 4H with Subalternatives 4G and 4K.

Subalternative 4J

Subalternative 4J consists of Segment i-05. It does not replace a specific segment; for that reason, it is presented in terms of its standalone attributes. A total of 36.3 percent of Subalternative 4J has been investigated by Class III survey. A total of three cultural resources sites requiring NRHP evaluation are projected to occur within Subalternative 4J. The potential effect to historic properties by Subalternative 4J must be further evaluated in conjunction with the pairing of Subalternative 4J with Subalternative 4C.

Subalternative 4K

Subalternative 4K consists of Segments i-08s, ca-04, and x-09. It does not replace a specific segment; for that reason, it is presented in terms of its standalone attributes. A total of 28.2 percent of Subalternative 4K has been investigated by Class III survey. No cultural resources sites are projected to occur within Subalternative 4K. The potential effect to historic properties by Subalternative 4K must be further evaluated in conjunction with the pairing of Subalternative 4K with Subalternative 4H and 4N.

Subalternative 4L

Subalternative 4L consists of Segments cb-10 and x-11. It does not replace a specific segment; for that reason, it is presented in terms of its standalone attributes. A total of 7.5 percent of Subalternative 4L has been investigated by Class III survey. A total of 13 sites requiring NRHP evaluation are projected to occur within Subalternative 4L. However, this high projected site count is the result of low representative Class III survey sample in Segment x-11 of Subalternative 4L (1.5 percent). The potential effect to historic properties by Subalternative 4L must be further evaluated in conjunction with the pairing of Subalternative 4L with Subalternative 4M.

Subalternative 4M

Compared to Alternative 4, Subalternative 4M would result in a comparable visual impact (comparable count of transmission structures) and a comparable potential to disturb historic properties based on ground disturbance (comparable footprint of short- and long-term disturbance).

A total of 2.0 percent of Subalternative 4M has been investigated by Class III survey, and 32.4 percent of Segment p-15w (Alternative 4) has been previously investigated. A total of 442 NRHP-

unevaluated sites are projected to occur within Subalternative 4M, while 25 NRHP-eligible sites are projected to occur along Segment p-15w.

The data suggest that Subalternative 4M has a higher potential to effect historic properties based on ground disturbance; however, the high projected site counts for Subalternative 4M may be the result of low representative Class III survey sample. These effects must be also further evaluated in conjunction with the pairing of Subalternative 4M with Subalternative 4L.

Subalternative 4N

Subalternative 4N consists of Segment x-10. It does not replace a specific segment; for that reason, it is presented in terms of its standalone attributes. A total of 60.8 percent of Subalternative 4N has been investigated by Class III survey with negative results. No cultural resources sites are projected to occur within Subalternative 4N. The potential effect to historic properties by Subalternative 4N must be further evaluated in conjunction with the pairing of Subalternative 4N with Subalternatives 4H, 4K, and 4M.

Subalternative 4P

Compared to Alternative 4, Subalternative 4P would result in a higher visual impact (greater count of transmission structures), but a lower potential to affect historic properties by ground disturbance (smaller footprint of short- and long-term disturbance).

A total of 60.4 percent of Subalternative 4P has been investigated by Class III survey, while 52.8 percent of Segments x-13, x-12, ca-06, ca-07, ca-09, and x-19 (Alternative 4) have been previously investigated. A total of 36 NRHP-eligible sites or sites requiring NRHP evaluation are projected to occur within Subalternative 4P, whereas 13 NRHP-eligible sites or sites requiring NRHP evaluation are projected to occur along Alternative 4. Additionally, one NRHP-listed property, the Mule Mountains Petroglyph and Intaglio District, is within the 1-mile analysis area of Segment p-17 and would need to be evaluated to determine how the visual impacts affect the integrity of the setting and its NRHP status.

The data suggest that Subalternative 4P demonstrates a higher potential to affect historic properties than Alternative 4 segments it would replace.

4.5.8.6 BLM Preferred Alternative

A total of 38 NRHP-eligible or NRHP-unevaluated cultural resources sites have been previously recorded within the 200-foot analysis corridor of the BLM Preferred Alternative. A total of 120 NRHP-eligible or NRHP-unevaluated cultural resources sites are projected to occur within the 200-foot analysis corridor of the Preferred Alternative (Appendix 4, Tables 4.5-1, 4.5-2, 4.5-3, and 4.5-4). However, this high projected count may be influenced by skewed metrics resulting from lower Class III survey coverage of Segment i-03 (4.2 percent). Direct impacts due to construction could range between negligible and major, if NRHP-eligible sites could not be avoided by Project design. The BLM Preferred Alternative would impact more cultural resource sites than Alternative 1, about the same as Alternatives 2 and 4, and less than the Proposed Action or Alternative 3.

Sensitive sites projected to occur in the Preferred Alternative's 200-foot analysis corridor include prehistoric trails and intaglios. These site types have been recorded within 0.5-mile of Segments

i-03, p-09, p-10, p-11, p-12, p-13, p-14, p-15e, p-16, x-15, x-16, and ca-09. The NRHP eligibility of all of these sites is not known at this time. If these trails and intaglios qualify as NRHP-eligible properties and exhibit a high degree of setting, feeling, and association, the construction of structures may create visual intrusions that affect the NRHP character-defining qualities of these sites. Other indirect effects to historic properties could occur if Project roads enhance accessibility, potentially making previously inaccessible properties more vulnerable to increased visitation and vandalism.

Indirect visual effects from the construction of the Project under the Preferred Alternative could occur to the following historic properties:

- The Limekiln Wash Intaglio, located within the 200-foot analysis corridor of Segment p-13.
- The NRHP-listed Ripley Intaglio Site, within the 5-mile indirect effects analysis area of Segment p-15e.

Both Segments p-13 and p-15e parallel the existing DPV1 transmission line. The construction of additional transmission structures may create additional visual intrusions on individual properties' NRHP qualities of integrity.

Resolution Measures

Resolution measures for BLM's Preferred Alternative would be the same as those described under the Proposed Action.

4.5.9 Residual Impacts

For historic properties that are determined eligible for the NRHP or listed on the NRHP under Criterion D, provided that the provisions of a HPTP for data recovery are followed, no residual impacts would occur. For those historic properties determined eligible for or listed on the NRHP under Criteria A, B, or C, impacts to their NRHP qualities of setting, feeling, and/or association may be considered to be residual. However, it is anticipated that these properties would at least partially retain the NRHP qualities that make them eligible under Criteria A, B, or C. As a result, the residual impact to these properties would be moderate.

4.5.10 CDCA Plan Compliance

CMAs LUPA-CUL-4, LUPA-TRANS-CUL-1 through LUPA-TRANS-CUL-6, and DFA-VPL-CUL-1 through DFA-VPL-CUL-7 would apply to the Project (Appendix 2C). DFA-VPL-CULT-7 would also apply to the Project (Appendix 2C) and would be satisfied by identifying the need for specific compliance with the NHPA in Chapters 3, Sections 5.3 and 5.5, and Appendix 5, Table 5.3-1, as well as Appendix 2D.

LUPA-CUL-4 is specific to the Project design to minimize impacts on cultural resources, including those places of elevated cultural or spiritual significance to Federally recognized tribes. Compliance with LUPA-CUL-4 would be satisfied with BMP-CULT-03, which states that the Proponent would follow avoidance and stipulations outlined in the PA (Appendix 2D) and

appropriate HPTPs, and APM-CULT-01 and APM-CULT-02, in which the Proponent commits to following those stipulations.

LUPA-TRANS-CUL-1 and DFA-VPL-CUL-1 are specific to the responsibility of the Proponent to pay for costs associated with the Project's cultural resources compliance. Compliance with LUPA-TRANS-CUL-1 and DFA-VPL-CUL-1 would be satisfied by APM-CULT-01 and APM-CULT-02, in which the Proponent commits to conducting a cultural resources inventory of the direct and indirect APE, preparing HPTPs, and conducting cultural resource monitoring during Project construction, operations, and maintenance (as appropriate) to meet stipulations outlined in the PA (Appendix 2D).

LUPA-TRANS-CUL-2 and DFA-VPL-CUL-2 are specific to the Proponent's payment of compensatory mitigation fees for cumulative and indirect effects to historic properties as a result of Project construction, operations, and maintenance. Compliance with LUPA-TRANS-CULT-2 and DFA-VPL-CUL-2 would be satisfied by BMP-CULT-05, which outlines the fee structure of the compensatory mitigation fee. The compensatory mitigation fee structure is also outlined in the stipulations contained within the PA (Appendix 2D).

LUPA-TRANS-CUL-3 and DFA-VPL-CUL-3 are specific to the Proponent's payment of management fees as part of the compensatory mitigation fee contained in LUPA-TRANS-CUL-2 and DFA-VPL-CUL-2, respectively. Compliance with LUPA-TRANS-CUL-3 and DFA-VPL-CUL-3 would be satisfied by BMP-CULT- 05, which outlines the fee structure of the management fee as part of the compensatory mitigation fee. The management fee and compensatory mitigation fee structure is also outlined in the stipulations contained within the PA (Appendix 2D).

LUPA-TRANS-CUL-4 and DFA-VPL-CUL-4 are specific to the development of a cultural resources sensitivity model based on existing cultural resources data in the CDCA Plan area for consideration in Project planning and alternative selection. Compliance with LUPA-TRANS-CUL-4 and DFA-VPL-CUL-4 would be satisfied with BMP-CUL-06. This compliance measure has been met.

LUPA-TRANS-CUL-5 and DFA-VPL-CUL-5 are specific to the provision of a statistically significant cultural resources sample survey to be used in Project planning. Compliance with LUPA-TRANS-CUL-5 and DFA-VPL-CUL-5 would be satisfied by BMP-CULT-07, which requires cultural resources Class III survey of Segments p-17 and p-18 to be conducted during the NEPA and CEQA analyses to meet the conditions of LUPA-TRANS-CUL-5 and DFA-VPL-CUL-5. This compliance measure has been met.

LUPA-TRANS-CUL-6 and DFA-VPL-CUL-6 are specific to the Proponent's justification to include culturally-sensitive areas through NEPA and CEQA analyses. Compliance with LUPA-TRANS-CUL-6 and DFA-VPL-CUL-6 would be satisfied by BMP-CULT-08, which requires such justification from the Project proponent. This compliance measure has been met.

DFA-VPL-CUL-7 addresses completion of the Section 106 process. Compliance with DFA-VPL-CUL-7 is satisfied by identifying the need for specific compliance with the NHPA in Chapters 3 and 5. Chapter 5 summarizes the process of drafting the PA and the consultation process and efforts of tribal consultation with Indian tribes, respectively. Appendix 2D is the draft PA for the Project.

4.5.11 Unavoidable Adverse Effects

If historic properties cannot be avoided by Project design and construction, the disturbance, damage, or loss to that property as a result of ground disturbance is considered to be an unavoidable adverse effect.

4.5.12 Cumulative Effects

The Project Area is crossed by numerous utility and transportation corridors, including I-10, US 95, SR 95, the CAP canal, the DPV1 transmission line, the EPNG line, as well as local roads. The landscape has been further altered by the development of the Town of Quartzsite and the City of Blythe, and the expansion of historic and modern agriculture. The scope of this development has resulted in the loss of historic properties by construction, as well as visual impacts to historic properties on the landscape. Large linear projects, such as DPV1, I-10, and the CAP canal have had the effect of altering the viewshed of the native landscape and disrupting the prehistoric trails and elements of traditional native infrastructure across the desert, all of which contribute to cumulative effects.

Reasonably foreseeable future actions include the development of large solar facilities in the western portion of the Project Area (Table 4-5), all of which have the potential to cumulatively impact cultural resources. These cumulative effects are manifest in terms of the loss of historic properties due to ground disturbance associated with construction or operations and maintenance, and the changes to the viewshed of historic properties. Those historic properties considered to be especially sensitive to indirect effects are typically those for which integrity of setting, feeling, and association are contributors to the property's NRHP eligibility and its ability to convey a sense of its own significance. Increased visual degradation to properties that are eligible under NRHP Criteria A, B, and C, and that retain integrity of setting, feeling, and association, would result in permanent cumulative impacts. If effects to NRHP qualities are measurable this would constitute a permanent cumulative effect.

Table 4-5 Potential Disturbance in 5-Mile CEA from Reasonably Foreseeable Projects

ZONE	PROJECT	TYPE	ACRES
EP&K	Harquahala Solar Project	Solar Facility	3,514
EP&K	La Paz County land purchase	Solar Facility	8,000
QTZ	Plomosa 9 Placer Claim	Mine	20
QTZ	Quartzsite WWTP Renovations	Infrastructure	16.7*
CB	West Port Gold	Mine	40
CR&CA	Blythe Energy Power Plant/Sonoran Energy Project	Power Plant	76
CR&CA	Blythe Mesa Solar Project	Solar Facility	7,025
CR&CA	Desert Quartzite Solar	Solar Facility	4,800
CR&CA	Crimson Quartzsite Solar	Solar Facility	2,700
Total			26,175

* expansion would be within the existing footprint and is therefore not included in total.

However, most of the land in the Project Area is under Federal jurisdiction and therefore subject to protection afforded by cultural resource laws and evaluation of effects in accordance with

NEPA. While the loss of cultural sites eliminates the potential to preserve the sites in place or to study the sites at a later time period when new evaluation techniques might exist, the impact to historic properties would be resolved through data recovery and other methods and would have the benefit of increasing scientific knowledge regarding the past lifeways of prehistoric, protohistoric, and historic populations in the region.

In the western Project Area, within the boundary of the CDCA, the BLM has addressed the reasonable foreseeable cumulative effect of construction and development on public lands through the development of the DRECP PA. This PA contains measures to address cumulative effects not addressed by data recovery or other traditional adverse effect resolution measures.

4.5.13 Irreversible and Irretrievable Commitment of Resources

Because cultural resources are non-renewable resources, any disturbance, damage, or loss to a resource that is or may be eligible for the NRHP would constitute an irreversible and irretrievable impact to that resource. However, archaeological data recovery of sites along the transmission line would increase knowledge and understanding about the history of southwestern Arizona and southeastern California, which would be a benefit (positive impact) to science. Data recovery along the Project would contribute to our understanding of prehistoric cultures, as well as to our understanding of historic era transportation, settlement, and mining. Investigations in these areas could help contribute our understanding and knowledge of the use and formation of the landscape in southwestern Arizona and southeastern California.

4.5.14 Relationship of Short-term Uses versus Long-term Productivity

The short-term use of the ROW during construction of the Project would result in ground disturbance. If that ground disturbance results in the disturbance, damage, or loss of cultural resources that are or may be eligible for the NRHP, the long-term potential of that resource is reduced or eliminated. This is primarily true of resources eligible under Criterion D; however, if a resource eligible under Criterion A, B, or C is damaged or lost due to construction that would also affect its long-term potential.

4.6 CONCERNS OF INDIAN TRIBES

4.6.1 Introduction

The Project is within ancestral lands of Indian tribes, and tribal communities have maintained a spiritual stewardship and cultural connection to the landscape. The natural and cultural resources within and near the Project Area contain cultural and spiritual energy for Indian tribes, and continue to play fundamental roles in cultural traditions, group identities, and ongoing religious and ceremonial traditions. Indian tribes with ancestral ties to the Project Area include:

- Agua Caliente Band of Cahuilla Indians
- Ak-Chin Indian Community
- Augustine Band of Cahuilla Indians

- Cabazon Band of Mission Indians
- Chemehuevi Tribe of the Chemehuevi Indian Reservation
- Cocopah Tribe of Arizona
- Colorado River Indian Tribes (CRIT)
- Fort McDowell Yavapai Nation
- Fort Mojave Indian Reservation
- Quechan Tribe of the Fort Yuma Indian Reservation
- Gila River Indian Community
- Hopi Tribe of Arizona
- Morongo Band of Mission Indians
- Salt River Pima-Maricopa Indian Community
- San Manuel Band of Mission Indians
- Soboba Band of Luiseño Indians
- Torres-Martinez Desert Cahuilla Indians
- Twenty-Nine Palms Band of Mission Indians
- Yavapai-Apache Nation of the Camp Verde Indian Reservation
- Yavapai-Prescott Indian Tribe
- Tohono O'odham Nation

Discussion of the concerns of Indian tribes relevant to the Project including regulatory requirements, tribal land use and cultural affiliation, and areas of potential significance and sensitivity to Indian tribes are presented in Chapter 3. The status of consultation in accordance with Section 106 of the NHPA of 1966, as amended, is presented in Appendix 5, Table 5.3-1.

4.6.2 Methods for Analysis

4.6.2.1 Analysis Area

The APE for the Project consists of areas where direct effects to places of Indian tribal concern may occur. For the purposes of this discussion, the term "APE" is consistent with the term "analysis area" and is defined as a 200-foot-wide corridor where direct effects are expected to occur. Baseline data for the analysis area are presented in Appendix 3, Section 3.6 and are considered to provide an appropriate measure for the analysis of potential direct effects of the

Project. For Section 106 purposes, the APE for direct effects is defined differently (Appendix 2D, draft PA).

In addition to direct impacts, indirect impacts to resources as a result of the Project may occur. Indirect impacts to resources include visual, atmospheric, and auditory effects. As presented in Section 4.5, indirect atmospheric and auditory effects may occur in an area measuring 0.5-mile from each Action Alternative or subalternative. Potential indirect visual effects were delineated to include resources within 5 miles on either side of the alternatives and subalternatives. In certain situations, the 5-mile visual analysis area was adjusted based on the presence of topography that restricts the viewshed.

4.6.2.2 Assumptions

The Project is an undertaking subject to the provisions of Section 106 of the NHPA of 1966, as amended. As the lead Federal agency responsible for ensuring compliance with the provisions of Section 106 of the NHPA, as well as other regulatory requirements specific to cultural resources and tribal concerns, the BLM has initiated consultation with affiliated Indian tribes. The BLM's consultation protocols include formal Section 106 consultation through letters and outreach, face-to-face meetings, and conference calls. In addition, the BLM has requested tribal input through the NEPA scoping process and workshops. Section 106 consultation and NEPA scoping are discussed in Sections 5.3, 5.4.1, and 5.5.1.2. The purpose is to identify places of traditional and religious concern of Indian tribes that could be affected.

The BLM has determined a PA developed in consultation with interested Indian tribes, land-managing and permitting agencies, and other consulting parties is required for the Project.

In addition, the PA and ROD would outline protocols for minimizing impacts to areas of concern to Indian tribes, such as options for regulating access, provisions for the inclusions of tribal members in cultural resources investigations and fieldwork, and the preparation of ethnographic studies, among other provisions, as required.

The following assumptions underlie the Section 106 consultation process:

- Indian tribes may choose not to divulge particularly sensitive information outside of the tribal community.
- Community members may have their own beliefs, which may not necessarily be shared by members of the tribal council.
- BLM can only address areas of concern to Indian tribes that are made known.
- Indian tribes may share new concerns during the Section 106 and NEPA process, and the BLM will attempt to address these in the PA.
- Some tribes may defer to other tribes in the decision-making process.

4.6.2.3 Environmental Effects Indicators, Magnitude, and Duration

To date, the BLM has invited affiliated Indian tribes to participate in the Section 106 consultation, established formal lines of communication for scheduled meetings and conference calls, held Section 106 and PA development meetings, and sponsored a tribal tour of Project alternatives. As a result of those communications, impact indicators have been developed specific to issues of tribal concern. These are not all inclusive, and other areas of concern to Indian tribes may be identified during continued Section 106 consultation.

Based on the result of Section 106 consultation and Project outreach, the following issues have been identified specific to issues of concern to Indian tribes:

- Existing Access: Tribal representatives from the CRIT, Quechan Tribe of the Fort Yuma Indian Reservation, and the Twenty-Nine Palms Band of Mission Indians expressed concerns regarding construction of the Project limiting existing access into areas of tribal spiritual use, especially in the Mule Mountains. For example, DCRT may need to restrict non-Project personnel from entering the work area. While this may temporarily limit access, other access routes outside of the construction zone could continue to be used to accommodate entry to areas of spiritual use. If tribes communicate special occasions when access for religious ceremonies are planned, BLM can include provisions in the PA or the ROD that would limit construction activities in a particular area for short periods of time to accommodate the access (if an alternate route is not available).

- New Access: Tribal representatives from the CRIT, Quechan Tribe of the Fort Yuma Indian Reservation, and the Twenty-Nine Palms Band of Mission Indians all expressed concerns regarding construction of the Project providing new access into sensitive areas that were previously inaccessible because of difficult entry. Tribal concerns were specific to increased OHV use that could lead to the vandalism and damage of cultural resources as a consequence of the Project. Effect resolution measures can be included in the PA and HPTPs.

- Native Infrastructure and Interconnection of the Cultural and Natural Environment: The CRIT, Quechan Tribe of the Fort Yuma Indian Reservation, and Twenty-Nine Palms Band of Mission Indians expressed concerns regarding the interconnectedness of cultural resource sites, natural features of the landscape, and prehistoric trail networks. Concern was expressed regarding the cumulative effects of projects erasing the ancestral footprint of the tribes from the landscape. The direct and indirect effects of the Project on prehistoric properties and features of Native infrastructure (such as trails) are presented in Section 4.5. Effect resolution measures can be included in the PA and HPTPs.

- Places of Elevated Spiritual Importance to Tribes: The CRIT, Quechan Tribe of the Fort Yuma Indian Reservation, and Twenty-Nine Palms Band of Mission Indians all expressed concerns regarding specific culturally-sensitive areas, especially in the Mule Mountains and the Palo Verde Mesa. Concern was expressed regarding visual impacts of Project infrastructure to areas of elevated spiritual importance, such as the Ripley Intaglio Site. The direct and indirect effects of the Project on known places of elevated spiritual importance to tribes are discussed in Section 4.5.

- The Colorado River: The CRIT, Quechan Tribe of the Fort Yuma Indian Reservation, and Twenty-Nine Palms Band of Mission Indians all expressed concern about the influence of the Colorado River on their spiritual belief and cultural history. As such, the Colorado River crossing and the indirect and direct effects of its siting on the landscape and potential impact to historic properties are of great concern to the Indian tribes. Effect resolution measures can be included in the PA and HPTPs.

- Treatment of Human Remains: The CRIT expressed concern regarding the treatment of human remains and mortuary items. It is their belief that if human remains are encountered, they should not be removed but avoided entirely and left in place.

- Intrusion on Pristine Landscapes: The CRIT, Quechan Tribe of the Fort Yuma Indian Reservation, and Twenty-Nine Palms Band of Mission Indians all expressed desire to restrict Project disturbance to areas already disturbed in order to limit impacts to pristine landscapes. Pristine and undisturbed landscapes are important to tribal spiritual life and are high-energy places that should be preserved.

The following are impact indicators identified specific to these issues of concern to Indian tribes:

- Project-related changes that would restrict Indian tribal access into traditional use areas and areas of elevated spiritual significance.

- Project-related changes that result in new access into areas where access had previously been limited. This would be the result of new access roads that would open up areas to OHV traffic and could result in vandalism of historic properties.

- Project ground disturbance that results in the loss or destruction of prehistoric properties and erases the connection between individual sites and natural features of the landscape.

- Project-related changes that modify visual aspects of areas of elevated spiritual importance.

- Project-related changes that would modify visual aspects of the Colorado River.

- Project-related changes resulting in new disturbance in pristine environments that would affect the spiritual energy of a natural landscape.

Impact magnitude and duration definitions specific to concerns to Indian tribes are defined in Table 4-6.

Table 4-6 Impacts of Concern to Indian Tribes: Magnitude and Duration Definitions

ATTRIBUTE OF IMPACT		DESCRIPTION SPECIFIC TO CULTURAL RESOURCES
Magnitude	No impact	There would be no change to the current condition of areas of concern to Indian tribes as a result of Project construction, operation, or maintenance. There would be no effect to the existing access of specific areas; the NRHP-qualities of individual historic properties, areas of elevated spiritual importance,or the Colorado River; human remains; or pristine qualities of existing undeveloped landscapes.
	Negligible	There would be no measurable change to the current condition of areas of concern to Indian tribes as a result of Project construction, operation and maintenance. While a change to the existing access of specific areas may occur, it would not affectthat access. The NRHP character-defining qualities of individual historic properties, areas of elevated spiritual concern, and the Colorado River would not be affected to a measurable degree. There would be no measurable change to the pristine qualities of existing undeveloped landscapes.
	Minor	There would be a small, but measurable, change to the current condition of areas of concern to Indian tribes as a result of Project construction, operation and maintenance. While a small change to the existing access of specific areas may occur, it would not negatively affect that access. While the NRHP character-defining qualities of individual historic properties, areas of elevated spiritual concern, the Colorado River, and pristine qualities of existing undeveloped landscapes would be affected, it would not negatively affect those areas of concern.
	Moderate	An easily discernable and measurable change to the current condition of areas of concern to Indian tribes as a result of Project construction, operation, and maintenance would occur. Changes to existing access would occur that would require a general effect resolution measure to minimize impacts. The NRHP character-defining qualities of individual historic properties would be affected to a measurable degree; however, they would still maintain their NRHP/ARHP/CRHR eligibility. Areas of elevated spiritual importance, the Colorado River, and the pristine qualities of existing undeveloped landscapes would be affected to a measurable degree.
Magnitude	Major	A large, easily measurable change in condition to areas of concern to Indian tribes would occur as a result of Project construction, operation and maintenance. Changes to existing access would occur that would require specific resolution measures to minimize impacts. The NRHP character-defining qualities of individual historic properties would be affected as to render them no longer NRHP-eligible. Areas of elevated spiritual importance, the Colorado River, and the pristine qualities of existing desert landscapes would be substantially altered. Human remains would be encountered by the Project.
Duration	Temporary	Limited to active construction or maintenance.
	Short term	During construction (1.5–2 years), up to 10 years.
	Long term	More than 10 years.

4.6.3 No Action Alternative

Under the No Action Alternative, no ROW would be granted for the Project and the transmission line, SCS, and ancillary facilities would not be constructed. The Project Area would not be affected by Project-related ground disturbance, and no effect to traditional native infrastructure and the interconnected natural landscape would occur. There would be no change to existing access, and new access would not be implemented. The Colorado River, pristine areas, and areas of elevated spiritual importance to tribes would not be affected. Changes in the environment would be limited to ongoing current actions or from disturbance associated with new actions unrelated to the Project.

4.6.4 Direct and Indirect Effects Common to All Action Alternatives

4.6.4.1 Direct Effects

Ground disturbance during construction is expected with the Proposed Action and all Action Alternatives and may affect areas of tribal concern. The magnitude and duration of any potential effect would vary depending on the type of disturbance and the area of tribal concern affected. The primary contributor of permanent ground disturbance would be related to structure and SCS construction as well as the construction of/improvements to access and spur roads. Temporary disturbance during Project construction may also have direct effects to areas of tribal concern. The effects of construction on areas of specific tribal concern are:

- Limitations to tribal access;
- Effects on traditional native infrastructure and the interconnected cultural and natural environment;
- New development in areas that are predominantly pristine;
- The location of the crossing of the Colorado River;
- Effects on areas of elevated spiritual importance; and
- Discovery and treatment of human remains.

Measures to resolve potential adverse effects to areas of tribal concern as a result of Project construction would be contained in the PA (Appendix 2D). Avoidance of impacts by final design and construction would be the preferred adverse effect resolution measure.

4.6.4.2 Indirect Effects

Indirect effects to historic properties could occur in areas where the construction of new roads into the Project Area would provide improved access into previously inaccessible areas. Improved access could lead to site damage by OHV and recreational use of these areas. Such damage could consist of vehicular damage to surface archaeological sites, and vandalism to sensitive areas. However, the number and types of historic properties affected would vary by segment and alternative and would be assessed in detail when an alternative is selected. Effect resolution measures to minimize or resolve potential adverse effects to historic properties as a result of improved access would be included in the PA, ROD, and Project APMs and BMPs.

Indirect impacts would occur from the presence of structures in sight of areas of tribal concern by altering their setting, feeling, and association. However, the number and types of historic properties affected would vary by segment and alternative and would be assessed in detail when an alternative is selected. Effect resolution measures to minimize the potential adverse effects of visual intrusions would be contained in the project-specific PA, ROD, Project APMs and BMPs, and implemented by Project design.

NRHP-listed sites, sites containing petroglyphs or intaglios, and prehistoric trail segments could potentially be subject to visual intrusions from Project features. Petroglyphs and intaglios are often areas of elevated spiritual importance to Indian tribes and are considered to be sensitive to indirect visual effects. Trails are of significance to Indian tribes as part of traditional native infrastructure associated with the interconnectedness of the cultural and natural environment, and also considered to be sensitive to indirect visual effects. To the extent that a site or prehistoric feature exhibits a high degree of integrity of setting, feeling, and association, the Project could affect its NRHP character-defining qualities. These potential effects would be assessed as part of the more detailed indirect effects analysis after BLM selects either a specific Action Alternative or discontinues further study by selecting the No Action Alternative. With selection of an Action Alternative, if effects to NRHP character-defining qualities are measurable beyond a small change, this would constitute a moderate to major long-term effect. While the features identified as concerns of Indian tribes are described in the segment and full-route alternative analysis, the nature of the effects are common to all (unless specified in the detailed effects analysis) and are not repeated in the segment analysis or full-route alternative analysis.

4.6.5 Direct and Indirect Segment-specific Effects

Potential effects to cultural resource sites by segment are discussed in Section 4.5 and Appendix 4, Tables 4.5-1 through 4.5-4. Direct and indirect segment-specific effects to areas of concern to Indian tribes are summarized in Table 4-7.

Table 4-7 Direct and Indirect Segment-Specific Effects to Areas of Concern to Indian Tribes

Segment No.	Existing Access[1]	New Access[1]	Native Infrastructure and the Interconnectedness of the Cultural and Natural Environment	Places of Elevated Spiritual Importance	Colorado River	Treatment of Human Remains	Intrusion on Pristine Landscapes
PROPOSED ACTION SEGMENTS							
p-01							
p-02							
p-03							
p-04			x				
p-05							
p-06			x	x			
p-07			x				
p-08							
p-09			x				
p-10			x				
p-11			x				
p-12			x				
p-13			x	x			
p-14			x				
p-15e			x	x	x		
p-15w							
p-16							
p-17				x		x	
p-18				x			
ALTERNATIVE ACTION SEGMENTS							
d-01			x	x			
i-01							
i-02							
i-03			x				

Segment No.	Existing Access[1]	New Access[1]	Native Infrastructure and the Interconnectedness of the Cultural and Natural Environment	Places of Elevated Spiritual Importance	Colorado River	Treatment of Human Remains	Intrusion on Pristine Landscapes
i-04							
in-01							
x-01							
x-02a			x				
x-02b			x				
x-03							
x-04			x				x
i-05							
qs-01			x				
qs-02				x			
qn-01							
qn-02			x	x			
x-05			x				x
x-06			x				
x-07			x				
i-06				x			
i-07			x	x			
cb-01			x				x
cb-02			x				x
cb-03			x				
cb-04							x
cb-05			x				
cb-06			x				
x-08			x				
i-08s			x	x			
ca-01							
ca-02			x				

Segment No.	Existing Access[1]	New Access[1]	Native Infrastructure and the Interconnectedness of the Cultural and Natural Environment	Places of Elevated Spiritual Importance	Colorado River	Treatment of Human Remains	Intrusion on Pristine Landscapes
ca-04					x		
ca-05							
ca-06							
ca-07							
ca-09							
cb-10			x		x		
x-09							
x-19							
x-10							
x-11							
x-12							
x-13							
x-15			x				
x-16			x				
x-19							

[1]Potential impacts to areas of tribal concern due to new access or access restrictions would be studied in an access analysis as a required stipulation of the PA.

Additional trails are known to be present in the Project Area and were utilized by the Mohave people and others. Major trails include the Coco-Maricopa Trail and the Salt Song Trail.

While the Salt Song Trail is metaphysical, and is not physically present on the landscape, consultation received from the Twenty-Nine Palms Band notes that locations named in the Salt Songs may be tied to physical locations of importance in or around the Project (Madrigal [Twenty-Nine Palms Band of Mission Indians] to MacDonald [BLM], 5/12/2017).

Segments cb-10, ca-04, and p-15e cross the Colorado River. The CRIT, Quechan Tribe of the Fort Yuma Indian Reservation, and Twenty-Nine Palms Band of Mission Indians all expressed concern about the Colorado River, and its influence on their spiritual belief and cultural history. As such, the Colorado River crossing and the indirect and direct effects of its siting on the landscape and potential impact to historic properties are of great concern to the Indian tribes and should be addressed by an indirect effects analysis and continued government-to-government Section 106 consultation.

4.6.6 Operations and Maintenance

Though most impacts are expected to occur in association with construction, continuing Project-related activities and Project effects to areas of tribal concern would continue after construction, including periodic access and occasional ground disturbance as described in Chapter 2.

These maintenance and operating activities would have the potential to affect tribal concern if they take place in culturally sensitive areas by restricting access, or when scheduled at times of years that are spiritually significant to Indian tribes. Such activities should be scheduled in communication with the Indian tribes as to not interfere with tribal ceremonial functions or restrict access to places of tribal importance. These measures should be addressed in the PA or the ROD.

Ground disturbance associated with operation and maintenance activities may have the potential to affect areas of tribal concern if they take place in sensitive areas. These activities would be addressed in the PA.

In addition, Project operation and maintenance may result in the maintenance of access roads established during construction that provide the opportunity for continued access into areas that were previously inaccessible and/or used only intermittently. The maintenance of an expanded road network that could accommodate increased access should be regularly assessed to ensure that no unanticipated adverse effects or vandalism of sensitive cultural resources occur.

Given the length of time of the Project's use life and decommissioning, decommissioning would require further analysis in the future. It is anticipated that decommissioning activities would be addressed by future Section 106 analyses.

4.6.7 Resolution Measures for the Resolution of Adverse Effects

Resolution measures for adverse effects to historic properties and areas of concern to Indian tribes would be outlined in the PA and HPTPs developed for the treatment of adverse effects to specific historic properties (APM-CULT-01, APM-CULT-03) and ongoing government-to-government Section 106 consultation. The PA will be finalized prior to the issuance of the Project ROD, and

measures contained in the PA and HPTPs would be implemented prior to and during construction and post-construction during maintenance and operation activities (APM-CULT-01, BMP-CULT-02, BMP-CULT-04) (Appendix 2A).

Resolution measures for adverse effects to historic properties located within the CDCA Plan area are further outlined by specific compliance requirements discussed in Section 4.5.10. APMs and BMPs for minimizing effects to areas of tribal concern are contained in Appendix 2A.

4.6.8 Construction of Full Route Alternative and Subalternative Effects

4.6.8.1 Proposed Action

The Proposed Action follows the existing DPV1 transmission line; as a result, concerns to Indian tribes regarding new disturbance, access considerations, and intrusion on pristine environments would be negated or minimized with the following exceptions:

Segment p-17 includes a site with exposed human remains and may indicate an increased potential for encountering additional human remains with ground disturbing activities; Indian tribes have indicated that human remains should not be disturbed and should remain in place. Impacts to concerns to Indian tribes would be major and long term and could be resolved only through avoidance.

Segments p-17 and p-18 pass through a culturally significant area that Indian tribes do not want physically disturbed by construction, made more accessible to the public through new access roads, nor changed by visual intrusions of Project structures or facilities. Impacts to areas of concern to Indian tribes would be major and long-term.

Other segments associated with the Proposed Action are near intaglio sites and petroglyphs, both of which are site types of elevated spiritual importance to Indian tribes. If these features are measurably affected by visual changes, the sites would be permanently affected from a perspective of Indian tribes. Depending on the viewshed and structure placement, indirect visual impacts to intaglio sites and petroglyphs could range between negligible and major. If there are measurable effects, they would be long-term.

Previously recorded cultural resources sites that contain prehistoric trail segments are located on Segments p-04, p-06, p-07, p-09, p-10, p-11, p-12, p-13, p-14, and p-15e. Additional trails are known to be present in the western portion of the Project Area, and were utilized by the Mohave people and others. Major trails include the Coco-Maricopa Trail and the Salt Song Trail (a metaphysical trail). Trails are of significance to Indian tribes as part of traditional native infrastructure associated with travel across the landscape. Trails may also be potentially sensitive to indirect visual effects. Depending on the viewshed and structure placement, indirect visual impacts to trail segments could range between negligible and major. If there are measurable effects, they would be long-term.

Segment p-15e crosses the Colorado River, which is of spiritual importance to Indian tribes. Visual considerations of the river crossing should be considered in an indirect effects analysis. Given that Segment p-15e parallels the existing DPV1 transmission line, visual effects may be minor to moderate, but would be long-term.

One NRHP-listed archaeological district containing petroglyphs and intaglios (the Mule Mountains Petroglyph and Intaglio District) is located within the 1-mile analysis corridor of Segments p-17 and p-18. One NRHP-listed site, the Ripley Intaglio Site, is located within the 5-mile indirect effects analysis area of Segment p-15e. Potential visual effects to this site have been expressed by the Quechan Tribe.

Resolution Measures

Resolution measures for concerns to Indian tribes would be outlined in the PA, HPTPs, or the ROD, and identified during ongoing Section 106 government-to-government consultation. The PA would be finalized prior to the issuance of the Project ROD, and measures contained in the PA and HPTPs would be implemented prior to and during construction and post-construction during maintenance activities and operations.

In addition, APMs and BMPs as well as stipulations that would be a part of the ROD outline specific protocols for areas of tribal concern. These APMs, BMPs, and stipulations address, but are not limited to, protocols specific to coordination and communication with Indian tribes, roads and access, compliance with applicable laws, and confidentiality, among other procedures that may resolve potential adverse effects.

4.6.8.2 Alternative 1: I-10 Route

Previously recorded cultural resources sites that contain prehistoric trail segments are located on Alternative 1 Segments i-03, qs-01, i-06, i-07, i-08s, and ca-09. The importance of trails to Indian tribes and the type and magnitude of effects would be the same as those described for the Proposed Action.

Two sites located along Segment i-07 (a component of Alternative 1) contain intaglios. In addition, a site with an intaglio and prehistoric and historic petroglyphs is located within the 1-mile analysis corridor of Segment qs-02 and petroglyph sites are located within the 1-mile analysis corridor of Segment i-06. The importance of intaglios and petroglyphs to Indian tribes and the type and magnitude of effects would be the same as those described for the Proposed Action.

Segment ca-04 crosses the Colorado River. The Colorado River is of spiritual importance to Indian tribes. Visual considerations of the river crossing should be considered in an indirect effects analysis. Given that Segment ca-04 parallels the existing I-10 freeway corridor, visual effects may be minor to moderate, but would be long-term.

Resolution Measures

Resolution measures for concerns to Indian tribes would be the same as those described for the Proposed Action.

Subalternatives to Alternative 1

Subalternative 1A

Previously recorded cultural resources sites that contain prehistoric trail segments are located within 0.5-mile of Segments x-02a and x-02b. Segment i-01 (Alternative 1) has no known concerns

to Indian tribes. As a result, Subalternative 1A has a greater potential to impact areas of known concern to Indian tribes.

Subalternative 1B

Previously recorded cultural resources sites that contain prehistoric trail segments are located within the 1-mile corridor of Segments x-02a and x-02b. Segment i-01 has no known concerns to Indian tribes. As a result, Subalternative 1B has a greater potential to impact areas of known concern to Indian tribes.

Subalternatives 1C, 1D, and 1E.

No concerns to Indian tribes have been identified for Subalternatives 1C, 1D, and 1E.

4.6.8.3 Alternative 2: BLM Utility Corridor Route

Previously recorded cultural resources sites that contain prehistoric trail segments are located on Segments i-03, qs-01, p-09, p-10, p-11, p-12, p-13, p-14, p-15e, p-16, x-07, x-15, x-16, and ca-09. The importance of trails to Indian tribes and the type and magnitude of effects would be the same as those described for the Proposed Action.

Alternative 2 includes segments near intaglios. One NRHP-listed site, the Ripley Intaglio Site, is located within the 5-mile indirect effects analysis area of Segment p-15e. Another site containing an intaglio is within the 200-foot analysis corridor of Segment p-13. The importance of intaglios to Indian tribes and the type and magnitude of effects would be the same as those described in the Proposed Action.

Segment p-15e crosses the Colorado River. The Colorado River is of spiritual importance to Indian tribes. Visual considerations of the river crossing should be considered in an indirect effects analysis. Given that Segment p-15e parallels the existing DPV1 transmission line, visual effects may be minor to moderate, but would be long-term.

Resolution Measures

Resolution measures for concerns to Indian tribes would be the same as those described for the Proposed Action.

Subalternatives to Alternative 2

Subalternative 2A

Trails may potentially exist in Segments d-01, x-02a, and x-02b. Additionally, a NRHP-listed site, the Eagletail Petroglyph Site, is within the 5-mile indirect effects analysis area of Segment d-01. Segments p-01 and i-01 (Alternative 2) have no known concerns to Indian tribes. As a result, Subalternative 2A has a greater potential to impact areas of known concern to Indian tribes.

Subalternative 2B

Trails may potentially exist in Segment p-04. Segment i-01 (Alternative 2) has no known concerns to Indian tribes. As a result, Subalternative 2B has a greater potential to impact areas of known concern to Indian tribes.

Subalternative 2C

Trails may potentially exist in Segments cb-02, cb-06, p-11, and p-12. As a result, potential impacts to areas of concern to Indian tribes are comparable between Subalternative 2C and Alternative 2.

Subalternative 2D

Trails may potentially exist in Segments cb-03 and p-11. As a result, potential impacts to areas of concern to Indian tribes are comparable between Subalternative 2D and the segment it replaces.

Subalternative 2E

Trails may potentially exist in Segment ca-02. As a result, potential impacts to areas of Indian tribal concern are comparable between Subalternative 2E and the segments it replaces.

4.6.8.4 Alternative 3: Avoidance Route

Segments cb-01, x-05, and cb-04 cross through areas of largely undisturbed desert where new access and new visual intrusions would be introduced. As a result, potential impacts to concerns to Indian tribes regarding new access and intrusion on pristine landscapes would be moderate to major and long-term.

Previously recorded historic properties that contain prehistoric trail segments are potentially located on Segments i-03, p-07, p-09, p-14, x-05, cb-01, cb-05, ca-09, and cb-10. The importance of trails to Indian tribes and the type and magnitude of effects would be the same as those described in the Proposed Action.

Segment cb-10 crosses the Colorado River, which is of spiritual importance to Indian tribes. Visual considerations of the river crossing should be considered. Given that Segment cb-10 is located in an agricultural landscape, visual effects may be moderate to major, but would be long-term.

Resolution Measures

Resolution measures for concerns to Indian tribes would be the same as those described for the Proposed Action.

Subalternatives to Alternative 3

Subalternative 3A

Trails may potentially exist in Segments d-01, x-02a, and x-02b. Additionally, a NRHP-listed site, the Eagletail Petroglyph Site, is within the 5-mile indirect effects analysis area of Segment d-01. Segments p-01 and i-01 (Alternative 3) have no known concerns to Indian tribes. As a result, Subalternative 3A has a greater potential to impact areas of known concern to Indian tribes.

Subalternative 3B

There are no known issues of concern to Indian tribes in Segments i-01 or i-02. Trails may potentially exist in Segment p-04 (Alternative 3). As a result, Subalternative 3B has a lower potential to impact areas of known concern to Indian tribes.

Subalternative 3C

Trails may potentially exist in Segment x-04 and i-03. As a result, potential impacts to areas of concern to Indian tribes are comparable between Subalternative 3C and Alternative 3.

Subalternative 3D

No issues of concern to Indian tribes have been identified for Subalternative 3D or Alternative 3, and effects to areas of concern to Indian tribes would be comparable.

Subalternative 3E

Subalternative 3E consists of Segments qs-01 and x-07. It would replace Segment x-05, and must be combined with Subalternatives 3D and 3G, or 3J. Subalternative 3E and Segment x-05 may all contain trails; however, Segment x-05 crosses through an undeveloped landscape that would potentially impact concerns to Indian tribes regarding new access and intrusion on pristine landscapes. As a result, Subalternative 3E appears to have a lesser impact to areas of concern to Indian tribes. While Subalternative 3E needs to be assessed in conjunction with its pairing with Subalternatives 3D and 3G, or 3J, none of these subalternatives have known issues of concern to Indian tribes.

Subalternative 3F

Subalternative 3F consists of Segment x-06. It would replace Segment x-05 (Alternative 3) and would need to be combined with Subalternatives 3D and 3G, or 3J. Subalternative 3F and Segment x-05 contain trails, however, Segment x-05 crosses through an undeveloped landscape and that would potentially impact concerns to Indian tribes regarding new access and intrusion on pristine landscapes. As a result, Subalternative 3F appears to have a lesser impact to areas of concern to Indian tribes. While Subalternative 3F needs to be assessed in conjunction with its pairing with Subalternatives 3D and 3G, or 3J, none of these subalternatives have known issues of concern to Indian tribes.

Subalternative 3G

Subalternative 3G consists of Segment qn-01. No known issues of concern to Indian tribes are present on Segment qn-01. However, Subalternative 3G should be further assessed in conjunction with its pairing with Subalternatives 3D, 3E, 3F, 3H, and/or 3J.

Subalternative 3H

Subalternative 3H consists of Segment qn-02. No known issues of concern to Indian tribes are present on Segment qn-02, although one site located within the 1-mile analysis corridor of Segment qn-02 contains an intaglio. However, Subalternative 3H should be further assessed in conjunction with its pairing with Subalternatives 3D and 3L.

Subalternative 3J

Subalternative 3J consists of Segment i-05. No known issues of concern to Indian tribes are present on Segment i-05. However, Subalternative 3J should be further assessed in conjunction with its pairing with Subalternatives 3E, 3F, or 3G, and 3H.

Subalternative 3K

Trails may potentially exist on Subalternative 3K. There are no known issues of concern to Indian tribes on Segment cb-04 (Alternative 3). As a result, Subalternative 3K has a greater potential to impact areas of known concern to Indian tribes.

Subalternative 3L

Trails may potentially exist in Subalternative 3L and the segments of Alternative 3 it replaces. As a result, potential impacts to areas of concern to Indian tribes are comparable between Subalternative 3L and the segments it replaces. Potential impacts must be assessed in conjunction with its pairing with Subalternative 3H, although Subalternative 3H has no known areas of concern to Indian tribes.

Subalternative 3M

The crossing at the Colorado River in Segment p-15e parallels the existing DPV1 transmission line so the visual impact of the crossing would be less intrusive than that of Alternative 3. Subalternative 3M appears to have a similar potential to impact areas of known concern to Indian tribes.

4.6.8.5 Alternative 4: Public Lands Emphasis Route

Previously recorded cultural resources sites that contain prehistoric trail segments are potentially located on Segments d-01, x-04, x-06, x-09, p-10, p-13, p-14, cb-02, cb-06, and ca-09. The importance of trails to Indian tribes and the type and magnitude of effects would be the same as those described in the Proposed Action.

One NRHP-listed historic property potentially sensitive to indirect visual impacts, the Eagletail Petroglyph Site, is located within the 5-mile indirect effects analysis area of Segment d-01 in the Eagletail Mountains. Depending on the viewshed and structure placement, indirect visual impacts to this property could range between negligible and moderate. If there is a measurable effect, it would be long-term.

With the exception of Segment x-04, the eastern portion of Alternative 4 crosses through areas largely disturbed by prior actions, including existing utilities such as transmission lines, the I-10 corridor, agricultural areas, and the CAP canal. Existing access could be utilized through much of this area, thus minimizing new access. The proximity of new transmission line structures near existing utilities and transportation corridors would not eliminate the visual effect but may create additional intrusions.

Segment x-04 crosses through an area of largely undisturbed desert where new access and new visual intrusions would be introduced. As a result, potential impacts of tribal concerns could occur and would require a more detailed assessment by an indirect effects analysis in consideration of

Project design details. If these effects are measurable beyond a small change, they would constitute a moderate to major long-term effect.

Alternative 4 includes segments near intaglios. One NRHP-listed site, the Ripley Intaglio Site, is located within the 5-mile indirect effects analysis area of Segment p-15e. Another site containing an intaglio is within the 200-foot analysis corridor of Segment p-13. The importance of intaglios to Indian tribes and the type and magnitude of effects would be the same as those described in the Proposed Action.

Segments cb-02 and cb-04 cross through areas of largely undisturbed desert where new access and new visual intrusions would be would be introduced. As a result, potential impacts to concerns to Indian tribes regarding new access and intrusion on pristine landscapes would be moderate to major and long-term.

Segment p-15e crosses the Colorado River, which is of spiritual significance to Indian tribes. Visual considerations of the river crossing should be considered in an indirect effects analysis. Given that Segment p-15e parallels the existing DPV1 transmission line, visual effects may be minor to moderate, but would be long-term.

Resolution Measures

Resolution measures for concerns to Indian tribes would be the same as those described for the Proposed Action.

Subalternatives to Alternative 4

Subalternative 4A

There are no known issues of concern to Indian tribes on Subalternative 4A and is less likely to impact areas of known concern to Indian tribes.

Subalternative 4B

Subalternative 4B would have impacts to areas of concern to Indian tribes that are comparable between Subalternative 4B and the segment of Alternative 4 it replaces.

Subalternative 4C

Subalternative 4C has no known issues of concern to Indian tribes on Subalternative 4C. However, potential impacts must be further assessed in conjunction with pairing Subalternative 4C with Subalternatives 4D or 4J.

Subalternative 4D

Both segments of Subalternative 4D are projected to contain trails; in addition, Segment x-05 crosses through an undeveloped landscape that would potentially impact concerns to Indian tribes regarding new access and intrusion on pristine landscapes. Subalternative 4D would be paired with Subalternatives 4C or 4J, which have no known concerns to Indian tribes. Because it crosses through an undeveloped landscape, Subalternative 4D would have a greater potential to impact areas of known concern to Indian tribes than the segments of Alternative 4 it would replace.

Subalternative 4E

Subalternative 4E is projected to contain trails and both Segments cb-01 and cb-02 (Alternative 4) cross through undeveloped landscapes that would potentially impact concerns to Indian tribes regarding new access and intrusion on pristine landscapes. As a result, potential impacts to areas of concern to Indian tribes are comparable between Subalternative 4E and the segments of Alternative 4 it replaces.

Subalternative 4F

Subalternative 4F is projected to contain trails. As a result, potential impacts to areas of concerns to Indian tribes are comparable between Subalternative 4F and the segments of Alternative 4 it replaces.

Subalternative 4G

Both segments of Subalternative 4G are projected to contain trails, as does Segment cb-02 of Alternative 4. However, Segment cb-02 and cb-04 of Alternative 4 cross through undeveloped landscapes that would potentially impact concerns to Indian tribes regarding new access and intrusion on pristine landscapes. As a result, Subalternative 4G would have a lesser potential to impact areas of known concern to Indian tribes than the segments of Alternative 4 it replaces.

Subalternative 4H

Subalternative 4H, which includes Segment i-07, is projected to contain trails, and the Limekiln Wash Intaglio is within the segment's 200-foot analysis corridor. As a result, Subalternative 4H has high potential to have a major to moderate effect on areas of concern to Indian tribes. These potential impacts must be further assessed in conjunction with the pairing of Subalternative 4H with Subalternatives 4G and 4K, which also are identified as including features of concern to Indian tribes.

Subalternative 4J

There are no known issues of concern to Indian tribes on Subalternative 4J. Any potential impacts must be further assessed in conjunction with the pairing of Subalternative 4J with Subalternative 4H, which has a high potential to have a moderate to major effect on areas of concern to Indian tribes.

Subalternative 4K

Subalternative 4K is projected to contain trails; as a result, Subalternative 4K demonstrates the potential to impact areas of known concern to Indian tribes. The potential effect to areas of concern to Indian tribes by Subalternative 4K must be further evaluated in conjunction with its potential pairing with Subalternative 4H, which also has areas of concern to Indian tribes, and Subalternative 4N.

Subalternative 4L

Subalternative 4L contains trails and crosses the Colorado River in an agricultural landscape. Because the Colorado River is of spiritual significance to Indian tribes, the visual impacts of this

crossing would need to be assessed. As a result, Subalternative 4L would have potential to impact areas of known concern to Indian tribes. The potential effect to areas of concern to Indian tribes by Subalternative 4L must be further evaluated in conjunction with its pairing with Subalternative 4M, although no areas of concern have been identified for Subalternative 4M.

Subalternative 4M

There are no known issues of concern to Indian tribes on Subalternative 4M or the segment of Alternative 4 it replaces. The potential effect to areas of concern to Indian tribes by Subalternative 4M must be further evaluated in conjunction with its pairing with Subalternative 4L.

Subalternative 4N

There are no known issues of concern to Indian tribes on Subalternative 4N. The potential effect to areas of concern to Indian tribes by Subalternative 4N must be further evaluated in conjunction with the concerns to Indian tribes identified for Subalternatives 4H, 4K, and 4M.

Subalternative 4P

Segments p-17 and p-18 of Subalternative 4P contain numerous issues of concern to Indian tribes. Human remains are known to exist along Segment p-17, and the area surrounding both segments is still utilized by modern Indian tribes. Additionally, one NRHP-listed historic property, the Mule Mountains Petroglyph and Intaglio District, is located within the 1-mile analysis corridor of Segment p-17 and would need to be evaluated for visual impacts. While trails are projected to occur along Alternative 4, the potential impact to areas of concern to Indian tribes is substantially greater on Subalternative 4P.

4.6.8.6 BLM Preferred Alternative

Within the Preferred Alternative, previously recorded cultural resources sites that contain prehistoric trail segments are located on Segments i-03, p-09, p-10, p-11, p-12, p-13, p-14, p-15e, p-16, x-15, x-16, and ca-09. The importance of trails to Indian tribes and the type and magnitude of effects would be the same as those described in Section 4.6.8.1. In addition, Segment x-05 crosses through an undeveloped landscape that would potentially impact concerns to Indian tribes regarding new access and intrusion on pristine landscapes.

The Preferred Alternative includes segments near intaglios. One NRHP-listed site, the Ripley Intaglio Site, is located within the 5-mile indirect effects analysis area of Segment p-15e. Another site containing an intaglio (Limekiln Wash) is within the 200-foot analysis corridor of Segment p-13. The importance of intaglios to Indian tribes and the type and magnitude of effects would be the same as those described in the Proposed Action.

Segment p-15e crosses the Colorado River. The Colorado River is of spiritual importance to Indian tribes. Visual considerations of the river crossing should be considered in an indirect effects analysis. Given that Segment p-15e parallels the existing DPV1 transmission line, visual effects may be minor to moderate, but would be long-term.

Resolution Measures

Resolution measures for concerns to Indian tribes would be the same as those described for the Proposed Action.

4.6.9 Residual Impacts

The construction of a new transmission line on the landscape would have some residual effect on issues of concern to Indian tribes because of the permanence of the infrastructure for the life of the Project. In particular, the visual effects of the transmission line infrastructure would have a residual impact on the environment and continue to contribute to the erasing the ancestral footprint of the Indian tribes from the landscape. The residual effect would be more pronounced in locations where the transmission line does not parallel existing infrastructure. Visual aspects can also be addressed through Project design and resolution of adverse effects, but the changes to environmental conditions cannot be avoided.

Secondly, the access requirements for operations and maintenance leave the residual possibility of increasing recreational access into areas that may currently be visited infrequently. This increases the risk of inadvertent damage or vandalism to features significant to Indian tribes. Access concerns may be addressed in the PA or the ROD by including specific protocols to restrict access into sensitive areas by barrier placement or providing regular patrols to prevent damage or vandalism.

4.6.10 CDCA Plan Compliance

The same CMAs, BMPs, and APMs discussed under Section 4.5.10 above are applicable to areas of concern of Indian tribes. CMAs LUPA-CUL-4, LUPA-TRANS-CUL-1 through LUPA-TRANS-CUL-6, and DFA-VPL-CUL-1 through DFA-VPL-CUL-7 would apply to the Project (Appendix 2C). DFA-VPL-CULT-7 would also apply to the Project (Appendix 2C) and would be satisfied by information provided in Chapter 3 and Chapter 5, Sections 5.2.2, 5.3, and 5.6.4.2, as well as Appendix 2D.

LUPA-CUL-4 is specific to the Project design to minimize impacts on cultural resources, including those places of elevated cultural or spiritual significance to Federally recognized tribes. Compliance with LUPA-CUL-4 would be satisfied with BMP-CULT-03, which states that the Proponent would follow avoidance and stipulations outlined in the PA and appropriate HPTPs, and APM-CULT-01 and APM-CULT-02, in which the Proponent commits to following those stipulations.

LUPA-TRANS-CUL-1 and DFA-VPL-CUL-1 are specific to the responsibility of the Proponent to pay for costs associated with the Project's cultural resources compliance. Compliance with LUPA-TRANS-CUL-1 and DFA-VPL-CUL-1 would be satisfied by APM-CULT-01 and APM-CULT-02, in which the Proponent commits to conducting a cultural resources inventory of the direct and indirect APE, preparing HPTPs, and conducting cultural resource monitoring during Project construction, operations, and maintenance (as appropriate) to meet stipulations outlined in the PA (Appendix 2D).

LUPA-TRANS-CUL-2 and DFA-VPL-CUL-2 are specific to the Proponent's payment of compensatory mitigation fees for cumulative and indirect effects to historic properties as a result of Project construction, operations, and maintenance. Compliance with LUPA-TRANS-CULT-2 and DFA-VPL-CUL-2 would be satisfied by BMP-CULT-05, which outlines the fee structure of the compensatory mitigation fee. The compensatory mitigation fee structure is also outlined in the stipulations contained within the PA (Appendix 2D).

LUPA-TRANS-CUL-3 and DFA-VPL-CUL-3 are specific to the Proponent's payment of management fees as part of the compensatory mitigation fee contained in LUPA-TRANS-CUL-2 and DFA-VPL-CUL-2, respectively. Compliance with LUPA-TRANS-CUL-3 and DFA-VPL-CUL-3 would be satisfied by BMP-CULT-05, which outlines the fee structure of the management fee as part of the compensatory mitigation fee. The management fee and compensatory mitigation fee structure is also outlined in the stipulations contained within the PA (Appendix 2D).

LUPA-TRANS-CUL-4 and DFA-VPL-CUL-4 are specific to the development of a cultural resources sensitivity analysis based on existing cultural resources data in the CDCA Plan area for consideration in Project planning and alternative selection. Compliance with LUPA-TRANS-CUL-4 and DFA-VPL-CUL-4 would be satisfied with BMP-CUL-06. The BLM has prepared a sensitivity analysis (Kline 2017).

LUPA-TRANS-CUL-5 and DFA-VPL-CUL-5 are specific to the provision of a statistically significant cultural resources sample survey to be used in Project planning. Compliance with LUPA-TRANS-CUL-5 and DFA-VPL-CUL-5 would be satisfied by BMP-CULT-07, which requires cultural resources Class III survey of Segments p-17 and p-18 to be conducted during the NEPA and CEQA analyses to meet the conditions of LUPA-TRANS-CUL-5 and DFA-VPL-CUL-5. The Class III survey of Segments p-17 and p-18 has been conducted.

LUPA-TRANS-CUL-6 and DFA-VPL-CUL-6 is specific to the Proponent's justification to consider areas sensitive to cultural resources in NEPA and CEQA analyses. Compliance with LUPA-TRANS-CUL-6 and DFA-VPL-CUL-6 would be satisfied by BMP-CULT-08, which requires such justification from the Project proponent.

DFA-VPL-CUL-7 speaks to completion of the Section 106 process. Compliance with DFA-VPL-CUL-7 is satisfied in Appendix 3, Section 3.6.1.1 and Appendix 5, Sections 5.2.2 and 5.3. Appendix 3, Section 3.6.1.1 presents the regulatory requirement of the NHPA that includes Section 106. Appendix 5, Section 5.2.2 summarizes the process of drafting the PA. Appendix 5, Section 5.3 presents the efforts of consultation with Indian tribes. Appendix 2D is the draft PA for the Project.

4.6.11 Unavoidable Adverse Effects

Changes to the landscape and access changes would be an unavoidable adverse effect if concerns to Indian tribes cannot be avoided by Project design, APMs, BMPs, and resolution measures.

Prior to construction, continuing Section 106 consultation would be required to identify areas of elevated spiritual importance to Indian tribes to identify these areas for avoidance. Class III cultural resource surveys would be conducted to identify sites that need to be avoided or addressed by adverse effect resolution measures. Monitoring during construction would minimize the potential

for inadvertent damage to intact subsurface deposits that could not be identified during Class III surveys. However, if excavation damages cultural features or disturbs human remains, the damage done would be unavoidable.

Areas of concern to Indian tribes that are sensitive to visual change would need to be assessed so that impacts could be minimized through analysis of the viewshed and structure placement. An unavoidable impact would occur to the extent that transmission line infrastructure can be seen from intaglios, petroglyphs, or other resources of elevated concern to Indian tribes. Project elements that introduce intrusion to pristine landscapes and the crossing of the Colorado River would also constitute an unavoidable adverse effect to Indian tribes.

Unavoidable adverse effects may also occur if the Project changes existing access to culturally important areas to tribes, or if new access results in damage to resources that have previously been largely inaccessible.

4.6.12 Cumulative Effects

The Project Area is crossed by numerous utility and transportation corridors, including the I-10 corridor, US 95, SR 95, the DPV1 transmission line, and the EPNG line, as well as local roads. The landscape has been further altered by the development of the Town of Quartzsite and the City of Blythe, and the expansion of historic and modern agriculture. Future plans for the area include the development of large solar facilities in the western portion of the Project Area.

Various tribes have been consulted and informed of the Project. Tribes have expressed interest and concern about potential effects to the native landscape, the viewshed, trails and elements of Native infrastructure across the desert, cultural resource sites, and areas of elevated spiritual importance that are within their traditional territories and may have been inhabited or used by their ancestors. Noted concerns include the transmission lines within the viewshed. Past actions affecting concerns of Indian tribes include vandalism and looting of prehistoric sites, unauthorized excavation of prehistoric sites, recreational use that impacts cultural resources, roadway and infrastructure construction, and urban and rural developments. Past, present, and reasonably foreseeable future development (Appendix 3, Tables 3.12-1 and 3.12-2; and Figure 3.12-1, Appendix 7) would contribute to cumulative impacts to concerns of Indian tribes in the region.

All of this development has had the effect of substantially altering the native landscape of affiliated Indian tribes. Large linear projects, such as DPV1 and the construction of I-10 and the CAP canal have had the effect of altering the viewshed of the native landscape and disrupting the trails and elements of traditional native infrastructure across the desert. In particular, the DPV1 transmission corridor crosses the viewshed of the NRHP-listed Mule Mountains Petroglyph and Intaglio District. If setting, feeling, and association are important to the NRHP qualities of individual sites within the district, an indirect effects analysis would be required to assess the cumulative effect of including additional vertical elements into the environment. Additional structures along Segments p-17 and p-18 in the line of site of this resource would continue to cumulatively affect the viewshed. The increase in visual degradation, combined with all previous disturbances and developments, may result in a moderate to major cumulative impact on the Mule Mountains Petroglyph and Intaglio District.

Future projects in the western portion of the Project Area include large solar facilities, all of which cumulatively affect issues of concerns to Indian tribes. These cumulative effects are manifest in terms of the loss of pristine environment, erasure of the tribal footprint on the landscape, vandalism of archaeological sites due to increased OHV traffic and visitation, potential restriction to areas of elevated spiritual importance for Indian tribal ceremonies, and the disruption of Native infrastructure. The development of the Project further contributes to these cumulative effects.

4.6.13 Irreversible and Irretrievable Commitment of Resources

Given the strong ancestral ties of Indian communities to the landscape of the Project, construction related to the Project that would measurably affect existing tribal access into spiritual areas; enhance public access into previously remote areas and increase the risk of resource damage; result in the loss or diminishment of the Indian cultural landscapes, TCPs, and pristine areas; or result in the disturbance of human remains would constitute an irreversible and irretrievable impact to Indian values. However, provisions of the PA (Appendix 2D) requiring detailed ethnographic and ethnobotanical studies, and cultural landscape overviews, would be a benefit (positive impact) to the tribes by compiling their traditional use of the landscape into a reference for future generations.

4.6.14 Relationship of Short-term Uses versus Long-term Productivity

The short-term use of the ROW during construction of the Project could result in measurable effects to areas of tribal concern by altering existing tribal access into spiritual areas; enhancing public access into previously remote areas; the loss or diminishment of the tribal cultural landscapes, TCPs, and pristine areas; or the disturbance of human remains. If the short-term use of the ROW results in the measurable alteration of these areas of concern to Indian tribes, the long-term potential of their qualities would be reduced or eliminated.

4.7 LAND USE

4.7.1 Introduction

Potential impacts to land use in this section are discussed in terms of land ownership, compliance with management of lands, and land use authorizations and ROWs (including lands and realty actions).

4.7.2 Methods for Analysis

4.7.2.1 Analysis Area

The analysis area for land use includes a 4,000-foot corridor encompassing the Project. Because there is some flexibility in final siting of the temporary use areas (construction), Project structures, and SCS, this analysis area includes all potential disturbance areas along with areas where indirect effects could occur.

4.7.2.2 Assumptions

The following assumptions were made when performing the analysis of Project impacts on land use:

- Approved but not yet constructed solar energy facilities will be constructed.

4.7.2.3 Environmental Effect Indicators, Magnitude, and Duration

Impacts to land use described in this section would occur if the Project would:

- Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the Project (including but not limited to the general plan, specific plan, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect;
- Conflict with existing utility ROWs;
- Conflict with existing or authorized land uses, specifically where the Project would create a direct long-term impact;
- Physical conflict with existing residential, commercial, industrial, military, or agricultural uses (i.e., displacement of homes, businesses, solar energy facilities, center-pivot irrigation agriculture fields);
- Conflict with planned land uses, specifically residential subdivisions or other sensitive land uses at the final plat approval stage;
- Existing land uses not being restored to allow for pre-construction uses or activities (for areas disturbed and not containing permanent structures);
- Significant nuisance impacts to existing land uses; or
- Interference with military operations at the YPG.

Impacts to land use may be negligible, minor, moderate, or major, and may have durations that are qualified as temporary, short term, or long term (Table 4-8).

Table 4-8 Land Use Impact Magnitude and Duration Definitions

ATTRIBUTE OF IMPACT		DESCRIPTION SPECIFIC TO LAND USE
Magnitude	Negligible	Very little effect on land uses such that the effect would not be perceptible to a human observer or user. Action would be in compliance with land management plans and zoning and would not conflict with existing ROWs or other authorized uses. Less than 5 percent of a land area associated with a particular use would be affected.
	Minor	Action would be in compliance with land management plans and zoning and would not conflict with existing ROWs or other authorized uses. Less than 10 percent of a land area associated with a particular use would be affected.
Magnitude	Moderate	Action may or may not be in compliance with land management plans and zoning and may or may not conflict with existing ROWs or other authorized uses. Less than 25 percent of a land area associated with a particular use would be affected.
	Major	Action would not be in compliance with land management plans and zoning or would conflict with existing ROWs or other authorized uses. More than 25 percent of a land area associated with a particular use would be affected.
Duration	Temporary	Limited to active construction or decommissioning.
	Short-term	10 years or less.
	Long-term	More than 10 years.

4.7.3 No Action Alternative

Under the No Action Alternative, no ROW would be granted for the Project and the transmission line, SCS, and ancillary facilities would not be constructed. The BLM-administered land on which the Project is proposed would continue to be managed as it currently exists. Lands in the analysis area would remain as is, which is primarily undeveloped desert land available for grazing, subject to existing closures or restrictions. Current land uses in the analysis area described in Section 3.7 would continue under the No Action Alternative. There would be no changes that would alter existing land uses beyond current conditions.

4.7.4 Direct and Indirect Effects Common to All Action Alternatives

4.7.4.1 Construction

The implementation of the Project would not alter existing land ownership. Temporary use areas would be returned to their existing condition in accordance with BLM standards following construction. Standard BLM authorizations for ROW grants, in accordance with Title V of the FLPMA, as amended (43 U.S.C 1761–1771) would apply for all portions of BLM-administered

land that would be included in the Project. BLM-authorized ROWs identified in the LR2000 database, such as roadways, transmission lines, utilities, and pipelines; oil, gas, solar energy, and mining leases; and other permits, leases, and easements (HDR 2017d); may be temporarily affected by changes in access, but these ROWs would not be precluded by construction of the Project. For non-BLM lands, ROWs would be obtained as easements or leases, as appropriate. Other authorized land uses, such as grazing and recreation, may experience minor displacement during construction since these activities are dispersed and not concentrated within certain areas.

4.7.4.2 Operations, Maintenance, and Decommissioning

The presence of the Project would have effects on land use plan compliance and land use authorizations and rights. The presence of the Project would also have negligible to minor long-term effects on residential, agricultural, military, and industrial uses.

Land Use Plan Compliance

The analysis area is located within 14 Federal, state, and local planning areas; the Project would be in compliance with these plans except for the Yuma RMP, Lake Havasu RMP, CDCA Plan (LUPA-BIO-PLANT-2), La Paz County Zoning Plan, and Town of Quartzsite General Plan (Appendix 4, Table 4.7-1).

Land Use Plan Amendment Effects

BLM RMP Amendments

The portion of BLM-administered land required to grant a utility corridor where a Yuma RMP amendment would be required totals 2,122 acres (Appendix 4, Table 4.7-2). This would affect less than 0.1 percent of the 1.3 million acres of lands managed under the Yuma RMP. There are 85,485 acres of BLM-administered land in the land use study area; therefore, the acreage that would change to a designated utility corridor for all of these segments would be 2 percent of the BLM-administered land in the land use study area. This would be a minor effect on general land use in the study area. Because all of these segments would not be chosen for the Project, the actual impacts under the Project would be negligible. This RMP amendment would not conflict with any other management direction in the Yuma RMP.

An amendment to the Yuma or Lake Havasu RMPs to address VRM non-conformance (Section 4.11.8) would not have any effects on land use.

CDCA Plan of 1980 as Amended

None of the Proposed Action or Action Alternative segments in California would be in compliance with CMA LUPA-BIO-PLANT-2 (Section 4.4.9). The amendment to the CDCA Plan to bring the Project into compliance with CMA LUPA-BIO-PLANT-2 would not result in any effects on current land uses in the study area. This amendment would not conflict with any other management direction in the CDCA Plan.

Land Use Authorizations and Rights-of-Way

The primary land use change associated with the Project would be the development of currently natural or undeveloped land for a new transmission line and ancillary facilities (i.e., SCS, access roads). Authorized uses such as grazing and recreation would not be precluded by the presence and operation of the Project. If the Project is authorized, the Project would have to conform to the terms and conditions of other previously issued BLM ROWs in the Project footprint, if applicable. The Project would reduce the capacity for the BLM-designated corridors to house future electricity transmission projects in the future. Otherwise, there would be no impacts to BLM-designated utility corridors and other existing BLM ROWs, since the Project would span all pipelines, and structure construction would avoid other facilities. Similarly, the Project would have to conform to the terms and conditions of other previously issued authorizations and ROWs (state, tribal, county, city, and private land) in the Project footprint. The Project, if authorized, would include terms and conditions in the ROW grant (applicable to those BLM-administered land on which the Project and alternatives would occur) that would be applied under Title V of the FLPMA, as amended (43 USC 1761–1771). Further, the Project would also need to conform to the DRECP's CMAs of the CDCA Plan, where applicable (Appendix 2C). Therefore, there would be no conflicts to other existing BLM-designated utility corridors or existing BLM ROW authorizations.

Decommissioning of the Project could make the ROW facility available for other similar uses (i.e., reuse of all or part of the project's facilities by another entity), or the land encumbered by the ROW facilities could be partially or fully reclaimed with reclaimed portions returning to the Project's pre-application conditions. Previous authorized uses would be restored to allow for pre-construction uses or activities, less areas containing permanent structures.

4.7.5 Direct and Indirect Segment-specific Effects

Segment-specific discussions that follow are broken out by Proposed Action and Action Alternatives, and are presented for:

- Those segments that were found not to meet the criteria of an appropriate use on the Kofa NWR and would not be compatible with the goals of the refuge;
- Segments that would not be within a designated utility corridor; and,
- Segments that would conflict with a land use plan.

An amendment to the CDCA Plan would be required for all California segments to be in compliance with CMA LUPA-BIO-PLANT-2 (Appendix 2C). Segments that would require a land use plan amendment to address issues with visual resources management are described in Section 4.11.8.

4.7.5.1 Proposed Action Segments

Segment p-06 would cross 24 miles of the Kofa NWR; however, the Project was not found to be a compatible use with the goals of the refuge and therefore approval to cross the Kofa NWR would not be granted to DCRT (Appendix 1A). The authorization of a ROW within the Kofa NWR requires a "Finding of Appropriateness of a Refuge Use" to determine whether the use meets the

criteria for an appropriate use. The Kofa NWR was established in 1939 "for the conservation and development of natural wildlife resources, with an emphasis on conservation of desert bighorn sheep" (USFWS 2017). Management objectives include to "maintain and enhance the natural diversity of flora and fauna…" and to "recover population and maximize genetic diversity of desert bighorn sheep; reintroduce Sonoran pronghorn and establish a viable population; manage fire; manage wildlife waters; and prevent establishment of invasive species" (USFWS 2017). Upon review of the application for the ROW for this segment, the USFWS determined that the Project does not meet the criteria for an appropriate use because it "does not promote wildlife-dependent recreation and does not support the purpose for which the refuge was established and the mission of the NWR System" (USFWS 2017).

The USFWS (2017) found that the construction and maintenance of the Project on the Kofa NWR:

- "May cause habitat fragmentation, degrade habitat quality through introduction of contaminants, disrupt wildlife movement corridors, alter hydrology, facilitate introduction of invasive species, and disturb wildlife";
- "Would conflict with the legal requirements to maintain biological integrity, diversity, and environmental health";
- "Will create additional traffic on the east-west road across the northern part of Kofa NWR…" that "will increase the likelihood of off-road vehicular incursions";
- "Would increase fire danger from the power line directly";
- Would be "damaging and detrimental to the quality of wildlife-dependent recreation including hunting, wildlife viewing, wildlife photography, and interpretation"; and that
- The cumulative and incremental impacts of the new proposed ROW in addition to the existing power line and pipeline ROWs may pose the greatest impact to the refuge (USFWS 2017).

The Project was found not to be a compatible use with the goals of the refuge; therefore, this would be a major impact on land use if the Project were approved. In the Lower Sonoran RMP, the area is classified as a low known sensitivity area which indicates it does not undermine proposed allocations. Therefore, this would be a minor impact on land use.

4.7.5.2 Alternative Segments

- Segments x-01, x-02b, x-03 and x-04 cross BLM-administered land that is not within a designated utility corridor; a utility corridor would need to be designated for these segments to be in compliance with the Yuma RMP.
- Segments qn-02, x-05, and x-06, and a portion of the BLM-administered land in Segments qs-01 and qs-02, would not be within a designated utility corridor, and would therefore not be in compliance with the Yuma RMP. These segments would require an amendment to the Yuma RMP in order to be in compliance.

- None of the BLM-administered land in Segments cb-01, cb-02, cb-04, cb-05, and cb-06 would be within a designated utility corridor, which would not be in compliance with the Yuma RMP. These segments would require an amendment to the Yuma RMP in order to be in compliance.

- A portion of Segment i-03 would fall approximately 0.2-mile outside of a designated corridor; this portion also would not be in compliance with the Yuma RMP. These segments would require an amendment to the Yuma RMP in order to be in compliance.

- Alternative Segments x-01 through x-04, Segments x-05 and x-06, and Segments cb-01, cb-02, cb-04, cb-05, and cb-06, would not be consistent with the La Paz County Zoning Plan.

- Alternative Segment qn-02 crosses a Tier III growth area, which is identified for growth beyond 2035. This would be a minor, long-term impact on land use and this segment would not be in compliance with the Town of Quartzsite General Plan.

4.7.6 Mitigation Measures

There are no MMs identified for land use for any of the specific segments and thus, no MMs have been identified for any of the full-route alternatives or subalternatives described below. The applicant has committed to APMs, and the BLM developed required BMPs, that would further reduce impacts to land use.

4.7.7 Construction of Full Route Alternative and Subalternative Effects

4.7.7.1 Proposed Action

Segment p-06 was determined to be an inappropriate use and not compatible with the goals of the Kofa NWR; therefore, the USFWS would not issue approval for a ROW for Segment p-06.

No amendment to the Yuma RMP would be necessary to grant the Project ROW under the Proposed Action, as all proposed segments would be within designated corridors. The Proposed Action segments in California would not be in compliance with the CDCA Plan (CMA LUPA-BIO-PLANT-2); therefore, an amendment to the CDCA Plan would be necessary for the Project to be in compliance with CMA LUPA-BIO-PLANT-2 (Appendix 4, Table 4.7-1).

4.7.7.2 Alternative 1: I-10 Route

Alternative 1 would avoid the Kofa NWR but would not be consistent with the Town of Quartzsite General Plan where the alternative passes through the Dome Rock 14-Day Camping Area within the Quartzsite planning area, and portions of it would not be consistent with the La Paz County Zoning Plan for segments outside existing corridors (Appendix 4, Table 4.7-1). Overall, besides avoiding the Kofa NWR, Alternative 1 would have greater impacts to land use (as described in Section 4.7.4) than the Proposed Action.

Unlike the Proposed Action, a Yuma RMP amendment would be necessary to grant the ROW under Alternative 1, because three alternative segments would not be within a designated corridor.

As under the Proposed Action, the Proposed Action and Action Alternative segments in California would not be in compliance with the CDCA Plan (CMA LUPA-BIO-PLANT-2); therefore, an amendment to the CDCA Plan would be necessary for the Project to be in compliance with CMA LUPA-BIO-PLANT-2 (Appendix 4, Table 4.7-1).

Subalternatives to Alternative 1 (1A through 1E)

There would not be any measurable differences in land use effects between the Alternative 1 subalternatives (1A through 1E) and Alternative 1, with the exception one additional segment than under Alternative 1 would require an RMP amendment for a ROW under Subalternatives 1A and 1B.

4.7.7.3 Alternative 2: BLM Utility Corridor Route

Alternative 2 would avoid the Kofa NWR but would not be consistent with the La Paz County Zoning Plan where the alternative would not occur along the DPV1 or I-10 in the La Paz County planning area. Alternative 2 would not be consistent with the Town of Quartzsite General Plan where the alternative passes through the La Posa LTVA and Dome Rock 14-Day Camping Area within the Quartzsite planning area, and portions of it would not be consistent with the La Paz County Zoning Plan for segments outside existing corridors (Appendix 4, Table 4.7-1). Overall, besides avoiding the Kofa NWR Alternative 2 would have greater impacts to land use (as described in Section 4.7.4) than the Proposed Action.

Unlike the Proposed Action, a Yuma RMP amendment would be necessary to grant the ROW under Alternative 2, because two alternative segments would not be within a designated corridor. As under the Proposed Action, the Proposed and Alternative Segments in California would not be in compliance with the CDCA Plan (CMA LUPA-BIO-PLANT-2); therefore, an amendment to the CDCA Plan would be necessary for the Project to be in compliance with CMA LUPA-BIO-PLANT-2 (Appendix 4, Table 4.7-1).

Subalternatives to Alternative 2 (2A through 2E)

Under Subalternative 2A, the route would pass through an area classified as a low known sensitivity area which indicates it does not undermine proposed allocations. Subalternative 2A would also include more NRCS-classified farmland in California. Under Subalternatives 2A and 2B, one additional segment than under Alternative 2 would require an RMP amendment to grant a ROW and under Subalternative 2C three additional segments than under Alternative 2 would require an RMP amendment to grant a ROW. The impacts under Subalternatives 2D and 2E would not differ from Alternative 2.

4.7.7.4 Alternative 3: Avoidance Route

Alternative 3 would avoid the Kofa NWR but would not be consistent with the La Paz County Zoning Plan where the alternative would not occur along the DPV1 or I-10 in the La Paz County planning area (Appendix 4, Table 4.7-1). Overall, besides avoiding the Kofa NWR Alternative 3 would have greater impacts to land use (as described in Section 4.7.4) than the Proposed Action.

Unlike the Proposed Action, a Yuma RMP amendment would be necessary to grant the ROW under Alternative 3, because five alternative segments would not be within a designated corridor.

As under the Proposed Action, the Proposed and Alternative Segments in California would not be in compliance with the CDCA Plan (CMA LUPA-BIO-PLANT-2); therefore, an amendment to the CDCA Plan would be necessary for the Project to be in compliance with CMA LUPA-BIO-PLANT-2 (Appendix 4, Table 4.7-1).

Subalternatives to Alternative 3 (3A through 3M)

Alternative 3 subalternatives 3A, 3E, and 3H would require an additional RMP amendment and/or would be inconsistent with an additional plan than Alternative 3.

4.7.7.5 Alternative 4: Public Lands Emphasis Route

Alternative 4 would not cross the Kofa NWR but would not be consistent with the La Paz County Zoning Plan where the alternative would not occur along the DPV1 or I-10 in the La Paz County planning area (Appendix 4, Table 4.7-1). Overall, besides avoiding the Kofa NWR Alternative 4 would have greater impacts to land use (as described in Section 4.7.4) than the Proposed Action.

Unlike the Proposed Action, a Yuma RMP amendment would be necessary to grant the ROW under Alternative 4, because five alternative segments would not be within a designated corridor. As under the Proposed Action, the Proposed Action and Action Alternative segments in California would not be in compliance with the CDCA Plan (CMA LUPA-BIO-PLANT-2); therefore, an amendment to the CDCA Plan would be necessary for the Project to be in compliance with CMA LUPA-BIO-PLANT-2 (Appendix 4, Table 4.7-1).

Subalternatives to Alternative 4 (4A through 4P)

One additional segment than under Alternative 4 would require an RMP amendment for a ROW under Subalternatives 4B and 4D.

4.7.7.6 BLM-Preferred Alternative

The Preferred Alternative would avoid the Kofa NWR. The Preferred Alternative would not be consistent with the La Paz County Zoning Plan (Appendix 4, Table 4.7-1) where the alternative would not occur along the DPV1 or I-10 in the La Paz County planning area. The Preferred Alternative would affect more solar energy facilities than the Proposed Action. Overall, the Preferred Alternative would have less impacts to land use (as described in Sections 4.7.4.1 and 4.7.5) than the Proposed Action.

Unlike the Proposed Action, a Yuma RMP amendment would be necessary to grant the ROW under the Preferred Alternative, because one segment would not be within a designated corridor. As under the Proposed Action, the portion of the Preferred Alternative in California would not be in compliance with the CDCA Plan (CMA LUPA-BIO-PLANT-2); therefore, an amendment to the CDCA Plan would be necessary for the Project to be in compliance with CMA LUPA-BIO-PLANT-2 (Appendix 4, Table 4.7-1).

4.7.8 Residual Impacts

There would not be any mitigation for land use; therefore, there would not be any residual impacts.

4.7.9 CDCA Plan Compliance

CMA LUPA-LANDS-8 would apply to the Project; all new transmission lines of 161kV or greater must be located in a designated utility corridor unless it would be located within a DFA (Appendix 2C). Because all Proposed Action and Action Alternative segments would be located within a DFA, the Project would be in compliance with this CMA.

Except for CMA LUPA-BIO-PLANT-2, the Project would be in compliance with all of the CMAs in the CDCA Plan that apply to the Project (Appendix 2C). CDCA Plan compliance with CMA LUPA-BIO-PLANT-2 would be achieved through BMP-BIO-31 (Section 4.4.9).

4.7.10 Unavoidable Adverse Effects

There would not be any moderate or major unavoidable adverse effects associated with the Project.

4.7.11 Cumulative Effects

The past and present land uses in the CEA (Table 3.12-1) have had a direct effect on the conversion of lands from one use to another (i.e., undeveloped land that is converted to a power plant, transmission line ROW, solar energy facility, etc.). Land in the CEA located east of the Colorado River and outside designated ROWs is largely undeveloped and is characterized by vacant desert, agricultural lands, and by areas used for grazing, transportation corridors, utilities, recreation, and widely dispersed, low-density residential development.

Past development has increased human use of land in the CEA. However, because of the limited availability of water east of the Colorado River, human development in that portion of the CEA has been limited to small scattered towns and cities and various isolated or linear projects such as the Ehrenberg Wash Pit and Plomosa Mine Quarry, the EPNG line, and transmission lines, among large tracts of undeveloped land.

Reasonably foreseeable actions in the CEA that, when combined with the Project, may have cumulative land use effects include solar energy facilities, a power plant, and mines (Appendix 4, Table 4.7-3). The overall cumulative impact of these developments is generally consistent with the long-term management planning tools such as BLM RMPs and numerous state, county, and municipal-level long-range planning documents.

The Project would have moderate, short-term cumulative impacts to the management of lands and future or planned land uses since the Project would preclude non-compatible future or planned land uses such as other transmission lines, pipelines, or renewable energy development from being located within the same footprint as the Project. This would also be true for other similar projects provided in Appendix 3, Table 3.12-2 since they would also preclude other projects from being located in the same footprint. As development occurs, the rural environment would become increasingly more residential, commercial, and industrial; however, the limited availability of water would limit expansive future residential, commercial, and water-dependent industrial development, as it has in the past.

In general, an increase in development would contribute to changes in land use and the modification of the character of the CEA. As development occurs, the rural environment would

become increasingly more residential, commercial, and industrial. If populations increase as a result of development, the use of designated recreation areas and dispersed recreation within the CEA also could increase. In addition, the quality of the recreational setting could be degraded by the loss of a wilderness aesthetic, visual intrusions upon the landscape, and potentially increased regional haze due to the cumulative increase in development. This would further reduce the amount of open space in which to recreate, but would increase the ability to meet the energy needs of developing and nearby communities. The cumulative effects of past, present, and reasonably foreseeable projects to land use would be minor to moderate, although this Project would contribute only negligibly to this overall cumulative effect.

Cumulative impacts to recreational land uses and visual resources are presented in their respective sections, Sections 4.8.11 and 4.11.13.

4.7.12 Irreversible and Irretrievable Commitments of Resources

There would not be any irreversible or irretrievable commitments related to land use.

4.7.13 Relationship of Short-term Uses and Long-term Productivity

The short-term changes to land use would not affect the long-term productivity related to existing and future land uses.

4.8 RECREATION

4.8.1 Introduction

Effects to recreation resources are discussed in this section in terms of adjacent recreation areas and OHV use. Impacts to expected to be minor and similar for each alternative.

4.8.2 Methods for Analysis

4.8.2.1 Analysis Area

The analysis area for recreation would include all potential disturbance areas along with all portions of the study area where indirect effects could occur.

4.8.2.2 Assumptions

The following assumption was made when performing the analysis of Project effects on recreation:

- OHV routes in Johnson Canyon would need to be closed for the duration of Project construction except for Alternative 1.

4.8.2.3 Environmental Effect Indicators, Magnitude, and Duration

Effects to recreational resources described in this section would occur as a result of:

- Project-related changes that alter or otherwise physically affect established, designated, or planned recreation areas, resources, experiences, or activities;
- Increased demand for recreation activities due to the influx of people during construction and operation that would exceed capacity for that activity in a given area such as a campground, wilderness, or hunting area and/or trails;
- Conflicts with applicable Federal, state, or local recreation policies;
- Conflicts with established recreational areas;
- Decreased accessibility to areas established, designated, or planned for recreation;
- An activity that would result in an effect to existing recreational OHV designations/routes, which results in the activity being incompatible with OHV designations (open, closed, closed except for administrative use, etc.) and/or OHV routes;
- Prevents long-term recreational use or use during peak season or impedes or discourages existing recreational activities; or
- Physically degrade existing recreation resources.

4.8.3 No Action Alternative

Under the No Action Alternative, no ROW would be granted for the Project and the transmission line, SCS, and ancillary facilities would not be constructed. The BLM-administered land on which the Project is proposed would continue to be managed as it currently exists. Lands in the analysis area would remain as is, which is primarily undeveloped desert land available for dispersed and developed recreation, subject to existing closures or restrictions. Current recreational use (recreation opportunities and activities, recreation settings, desired recreation experiences, and adjacent recreation areas) in the analysis area described in Section 3.8 would continue under the No Action Alternative. There would be no changes that would alter existing recreation opportunities and activities, settings, desired experiences, or adjacent recreation areas in the analysis area beyond current conditions.

4.8.4 Direct and Indirect Effects Common to All Action Alternatives

4.8.4.1 Construction

Potential construction related effects would be localized, short-term, and negligible to moderate. Construction of the Project would not permanently preclude the use of or access to any existing recreation opportunities or activities, but some temporary effects to these resources would occur during the construction phases of the Project. OHV use would be temporarily affected as construction noises, visual disturbances, vehicle and equipment travel, and/or the presence of other humans within approximately 1 mile of a recreation area or opportunity could detract from these recreation opportunities and activities. Recreation users that seek opportunities for solitude commonly seek areas where they would be less likely to see other humans. Access to developed

and dispersed recreation areas may be temporarily precluded, restricted, or more cumbersome during active construction.

As described in Appendix 2A, temporary signs directing vehicles to alternative park access and parking would be posted in the event construction temporarily obstructs parking areas near trailheads (BMP-REC-01, BMP-REC-02). Temporary signs advising recreation users of construction activities and directing them to alternative recreation routes, as appropriate, would be posted on both sides of all recreation route intersections or as determined through DCRT coordination with the respective jurisdictional agencies. This may cause adjacent recreation areas unaffected by the construction, whether developed and/or available for dispersed recreation, to become temporarily more crowded while construction in the area is active. For example, those wishing to camp in an area affected by the construction would be more likely to concentrate in campsites unaffected by construction, causing those areas to be more crowded than they might normally be. This would be a short-term, moderate effect on other recreation areas that due to its short duration would not lead to an accelerated deterioration of these areas.

A schedule of construction activities would be posted near entrances to recreational areas as well as the Project website. Signs would be installed near access roads notifying the public of construction activities in the area, as well as to the eventual presence of permanent transmission facilities (BMP-REC-01, BMP-REC-02).

OHV users may be temporarily affected by construction noises, visual disturbances, vehicle and equipment travel, and/or the presence of construction workers. Access to designated OHV routes may be temporarily precluded, restricted, or more cumbersome during active construction. As described for Recreation Opportunities/Activities above, BMP-REC-01 and BMP-REC-02 (Appendix 2A) would inform OHV riders of alternative parking areas and OHV routes.

The recreation experience may be affected for some OHV users, in particular those that were familiar with the area prior to construction of the Project. Some unauthorized OHV use could occur during construction when workers are not present (such as on weekends or in between construction phases).

4.8.4.2 Operations, Maintenance, and Decommissioning

The ROW would generally be open to recreation where on public land unless specifically prohibited by the BLM or other regulatory authority (e.g., OHV use). As described in Appendix 2A (APMs and BMPs), plastic mesh or paint would be used to mark guy wires in areas used for recreation. Permanent high visibility guy markers would be installed during construction (BMP-REC-03).

The presence of a transmission line after construction would not be likely to eliminate a recreational use or access to recreation but the quality of, or experience associated with, a recreational use may be altered. In particular, the effect of the Project on segments not already occupied by the DPV1 or other transmission lines would be greater than on segments within existing transmission ROWs. For example, OHV riding in Johnson Canyon is a popular recreation pursuit because its pristine qualities and technical challenges that are unique to the area; OHV users in this area may experience more impacts to their recreational experience than in other areas.

Depending on the perception of the decreased quality to an individual – and the extent of familiarity with the area pre- and post-Project – this effect would be negligible to moderate and long term. Effects to the recreation experience related to views of the Project structures are provided in Section 4.11.

Maintenance activities could result in disturbance to recreationists and would be generally limited to vehicular traffic associated with routine inspections of the line and traffic and noise resulting from scheduled or unscheduled maintenance as well as periodic trimming and removal of vegetation. Maintenance or repair activities would occur intermittently over the life of the Project; however, the effects would be temporary as maintenance would occur only once in many months to years and the effects would cease upon completion of the maintenance or repair activity.

In areas not previously occupied by a transmission line, there would be an increased safety risk to OHV users of collision with guy wires and other Project structures. This would be a minor to moderate effect on the safety risk to OHV users. The operation of the Project in the presence of the current DPV1 or other transmission lines may increase the risk for some users (by increasing the number of guy lines and structures) or decrease the risk for some users (because users are already aware of the safety risk from these features). Using self-supporting four-legged tangent structure or monopole structures would mitigate this risk to negligible to minor (MM-REC-02).

Following construction activities, the presence of permanent new or widened roads that would be used for operation and maintenance of the Project could change the OHV use patterns in the area, subject to Federal, state, and local OHV and traffic laws and regulations. New access roads constructed for the Project would be signed and would be closed to the public, but illegal OHV use would not be entirely preventable on the new and widened access roads. This would result in an increased chance for user-created route proliferation. An increase in user-created trails would conflict with the BLM's OHV-use strategies, creating management challenges and potentially increasing user conflicts. The resultant effect from increased OHV use would be a minor to moderate effect to recreation opportunities/activities.

Removal of the transmission line upon completion of the Project would result in relinquishing the ROW. Land previously occupied by the ROW and associated transmission line structures would be available for other land uses and the effect to the recreation experience due to the infrastructure would be removed.

4.8.5 Direct and Indirect Segment-specific Effects

Segment-specific discussions that follow are broken out by Proposed Action and Action Alternatives, and are presented for:

- Segments that could cause temporary disruption to access to recreation areas during construction;
- Segments that could impact the recreation experience for users of recreation areas;
- Segments that would affect access to OHV routes; and
- Segments that could affect the recreation experience of OHV users.

4.8.5.1 Proposed Action Segments

- Segment p-01 would affect recreation access to the Big Horn Mountains WA, and by extension, the Hummingbird Springs WA.

- Segments p-03 through p-06 would affect recreation access in the eastern portion of the Project Area on the Yuma East Undeveloped, La Posa Destination, and Plomosa SRMAs.

- Segment p-06 would affect recreation access on the Kofa NWR.

- Segment p-06 has substantially more OHV routes located within 0.5-mile of the proposed route than the other Proposed Action segments in the eastern portion of the Project Area, and the most proposed Arizona Peace Trail. Therefore, this segment would affect OHV riders more than the other Proposed Action segments in the eastern portion of the Project Area and would also have the potential for the most increase in illegal OHV use. The ROW would include none or very little OHV routes or the proposed Arizona Peace Trail for Segments p-01 or p-02.

- Segment p-07 has substantially more OHV routes located within 0.5-mile of the proposed route in the Quartzsite area than the other Proposed Action segments and therefore would affect OHV riders more than the other Proposed Action segments near Quartzsite. It would also have the potential for the most increase in illegal OHV use.

- Segments p-07 though p-13 would require self-supporting structures to protect OHV users.

- Segment p-09 has substantially more OHV routes located within 0.5-mile of the proposed route in the Copper Bottom Pass area than the other Proposed Action segments, but Segment p-13 has substantially more proposed Arizona Peace Trail within 0.5-mile of the proposed route in the Quartzsite Zone than the other proposed segments. Proposed Action Segments p-09 and p-13 would affect OHV riders more than the other Proposed Action segments in the Quartzsite Zone, and would also have the potential for the most increase in illegal OHV use. Proposed Action Segment p-14 would include very few OHV routes.

- Segment p-17 would affect the most amount of classified OHV routes in the area near the Colorado River and in California. Therefore, these segments would affect OHV riders more than the other segments in this area and would also have the potential for the most increase in illegal OHV use.

4.8.5.2 Alternative Segments

- With the exception of Segments x-01, i-01, and i-02, all other Action Alternative segments in the eastern portion of the Project Area would affect recreation access to the Yuma East Undeveloped, La Posa Destination, and Plomosa SRMAs.

- Segments qn-02, qs-01, qs-02, and x-07 would have substantially more effects to recreation areas near Quartzsite than the other Action Alternative segments. All of these segments would cross both the La Posa LTVA and Dome Rock Camping Areas.

- Segment i-06 would bisect the Dome Rock Camping Area and Segment i-08s would cross the Ehrenberg Sandbowl OHV Area; therefore, these segments would have substantially more effect on recreation areas in the Copper Bottom area than the other Action Alternative segments.

- Segment in-01 has the greatest amount of OHV routes located with 0.5-mile of the Action Alternative segments in the eastern portion of the Project Area. Segments i-03 and x-04 have the most amount of proposed Arizona Peace Trail. Therefore, these Action Alternative segments would affect OHV riders more than the other Action Alternative segments in the eastern portion of the Project Area and would also have the potential for the most increase in illegal OHV use. The ROW would include none or very little OHV routes or proposed Arizona Peace Trail for Segments i-01 and x-02a.

- Segment qn-02 has the greatest amount of OHV routes located with 0.5-mile of the Action Alternative segments near Quartzsite. Alternative Segments qs-01 and qs-02 have the most amount of proposed Arizona Peace Trail. Therefore, these segments would affect OHV riders more than the other Action Alternative segments near Quartzsite and would also have the potential for the most increase in illegal OHV use.

- Segments i-06 and i-07 have substantially more OHV routes located within 0.5-mile of the Project than the other Action Alternative segments in the Copper Bottom area. Segment cb-02 has the most amount of proposed Arizona Peace Trail of the Action Alternative segments. Therefore, these segments would affect OHV riders more than the other Action Alternative segments in the Copper Bottom area and would also have the potential for the most increase in illegal OHV use.

- Segment cb-02 includes Johnson Canyon; in addition to having high OHV recreational value in the Copper Bottom area, the proposed Arizona Peace Trail and other OHV routes along this segment would be closed temporarily during construction.

- Segments x-15 and x-16 would affect the most amount of classified OHV route in the area near the Colorado River and in California. Therefore, these segments would affect OHV riders more than the other segments in this area and would also have the potential for the most increase in illegal OHV use.

- Segments i-04, i-05, qs-01, qs-02, cb-05, and cb-06 would require self-supporting structures to protect OHV users.

4.8.6 Mitigation Measures

The following MMs have been identified for recreation:

MM-REC-01: To mitigate effects related to the temporary construction closure of the proposed Arizona Peace Trail and other OHV routes through Johnson Canyon, MM-REC-01 would require that construction of the Project occur outside of peak OHV season. Construction in Johnson Canyon would occur between the months of July and September.

MM-REC-02: In areas of high OHV use, such as in Copper Bottom Zone and the Ehrenberg Sandbowl OHV Area, Project tower structures with guy lines would be replaced with self-supporting (no guy lines) four-legged tangent structures or monopoles. Additionally, in all other areas where guyed V structures are used, the anchor position would be placed no less than 50 feet from any trail or road, and the lowest guy line would be at least 15 feet above any road or trail crossed by a guy wire. This would reduce the safety risk to OHV users.

MM-REC-03: New access roads will be gated where appropriate, and signage including road status will be posted at all new access road junctions.

In addition, the BLM developed required BMPs that would further reduce impacts to recreation resources (Appendix 2A).

4.8.7 Construction of Full-Route Alternative and Subalternative Effects

4.8.7.1 Proposed Action

There would be negligible to minor effects to recreation areas under the Proposed Action. The most substantial effect would be related to temporary changes in access to recreation areas. Under the Proposed Action, the long-term effects to recreation would be negligible because of the presence of the existing DPV1; there would be little change to the present condition.

There would be negligible to moderate effects on OHV routes and the proposed Arizona Peace Trail. The Project would not preclude use of existing OHV routes, but the ROW and associated new or widened access roads may increase illegal OHV use, in particular in portions of the analysis area and ROW with higher current OHV route densities. Because the Proposed Action would follow the existing DPV1, the Project would have negligible changes on the recreation experience of OHV users on OHV routes and the proposed Arizona Peace Trail.

4.8.7.2 Alternative 1: I-10 Route

Under Alternative 1, the temporary changes in access to recreation areas during construction would be similar to the Proposed Action. However, the long-term effects to recreation quality on recreation areas in the Project Area except in the eastern portion (where Alternative 1 would be the same as the Proposed Action) would be greater than those under the Proposed Action, because the Project would be a new, substantial feature on the landscape that would change a recreational user's experience from the current condition.

The most substantial difference in recreation effects between Alternative 1 and the Proposed Action is to camping areas near Quartzsite and to the Ehrenberg Sandbowl OHV Area. The La Posa LTVA and the Dome Rock Camping Area would be crossed by several Alternative 1 segments. There would be minor to major effects to these recreation areas under Alternative 1. Also, the north end of the Ehrenberg Sandbowl OHV Area would be crossed by Alternative 1, but it would not be crossed by the Proposed Action. This would be a minor effect on the Ehrenberg Sandbowl OHV Area. The Kofa NWR would not be crossed, thus no impacts to recreation areas or uses in this area would occur.

The effects to OHV routes and the proposed Arizona Peace Trail under Alternative 1 would be the similar to those under the Proposed Action.

Subalternatives to Alternative 1 (1A through 1E)

There would not be any differences in recreation effects between the Alternative 1 subalternatives (1A through 1E) and Alternative 1.

4.8.7.3 Alternative 2: BLM Utility Corridor Route

Under Alternative 2, the temporary changes in access to recreation areas during construction would be similar to the Proposed Action. The long-term effects to recreation quality on recreation areas would be the same as under the Proposed Action in all areas except near Quartzsite, which would be greater than those under the Proposed Action because the Project would be a new, substantial feature on the landscape that would change a recreational user's experience from the current condition.

A substantial difference in recreation effects between Alternative 2 and the Proposed Action is to the La Posa LTVA near Quartzsite. The La Posa LTVA would be crossed by two Alternative 2 segments. There would be minor to moderate effects to the La Posa LTVA under Alternative 2. However, in comparison to Alternative 1, Alternative 2 would avoid the Dome Rock Camping Area and the Ehrenberg Sandbowl OHV Area.

The effects to OHV routes and the proposed Arizona Peace Trail under Alternative 2 would be the similar to those under the Proposed Action.

Subalternatives to Alternative 2 (2A through 2E)

The only subalternative that would have differences in effects to recreation from Alternative 2 is Subalternative 2C; the route would go through Johnson Canyon (Segment cb-02) rather than Copper Bottom Pass, which would have a larger effect on OHV use because Johnson Canyon is undeveloped, and the Project could take away from the user's experience. Also, during construction of Segment cb-02 the proposed Arizona Peace Trail and other OHV routes would be temporarily closed, which would have moderate effects on OHV users. Mitigation would reduce this to a minor effect (Section 4.8.6).

4.8.7.4 Alternative 3: Avoidance Route

Under Alternative 3, the temporary changes in access to recreation areas during construction would be similar to the Proposed Action. The long-term effects to recreation quality on recreation areas would be the same where Alternative 3 includes Proposed Action segments and greater where Alternative 3 includes Action Alternative segments because within the Action Alternative segments, the Project would be a new, substantial feature on the landscape that would change a recreational user's experience from the current condition. This alternative would avoid the Kofa NWR. Unlike Alternatives 1 or 2, Alternative 3 would not affect the Dome Rock Camping Area, La Posa LTVA, or the Ehrenberg Sandbowl OHV Area.

Alternative 3 would avoid both Johnson Canyon and Copper Bottom Pass, which would be less of an effect to OHV routes in this area than the Proposed Action.

Subalternatives to Alternative 3 (3A through 3M)

Subalternatives 3E and 3F would go through the La Posa LTVA, which would result in greater impacts to recreation than Alternative 3. Subalternative 3K would go through Johnson Canyon (Segment cb-02) rather than Copper Bottom Pass, which would have a larger effect on OHV use than Alternative 3 because Johnson Canyon is undeveloped and the Project could take away from the user's experience. Also, during construction of Segment cb-02 the proposed Arizona Peace Trail and other OHV routes would be temporarily closed, which would have moderate effects on OHV users. Mitigation would reduce this to a minor effect (Section 4.8.6). Subalternative 3L would go through the Dome Rock Camping Area, which would result in greater impacts to recreation than Alternative 3.

4.8.7.5 Alternative 4: Public Lands Emphasis Route

Under Alternative 4, the temporary changes in access to recreation areas during construction would be similar to the Proposed Action. The long-term effects to recreation quality on recreation areas would be the same where Alternative 4 includes Proposed Action segments and greater where Alternative 4 includes Action Alternative segments because within these Action Alternative segments, the Project would be a new, substantial feature on the landscape that would change a recreational user's experience from the current condition. This alternative would avoid the Kofa NWR. Alternative 4 would avoid the Ehrenberg Sandbowl OHV Area and Dome Rock Camping Area, but would run adjacent to the La Posa LTVA.

Alternative 4 would run through Johnson Canyon, which would be more of an effect to OHV routes in this area than the Proposed Action.

Subalternatives to Alternative 4 (4A through 4P)

The only subalternative that would have differences in effects to recreation resources from Alternative 4 is Subalternative 4E: the route would avoid Johnson Canyon and instead go over Cunningham Peak; this would reduce OHV effects.

4.8.7.6 BLM-Preferred Alternative

Under the Preferred Alternative, the temporary changes in access to recreation areas during construction would be similar to the Proposed Action. The long-term effects to recreation quality on recreation areas would be the same as under the Proposed Action except on Segment x-05 where the Project would be a new, substantial feature on the landscape that would change a recreational user's experience from the current condition; in this location the effects on recreation would be greater than those under the Proposed Action. Similar to the Proposed Action, the Preferred Alternative would avoid the La Posa LTVA and the Dome Rock Camping Area.

The effects to OHV routes and the proposed Arizona Peace Trail under the Preferred Alternative would be the similar to those under the Proposed Action.

4.8.8 Residual Effects

After implementation of MMs, there would be residual negligible to minor effects on illegal OHV use and minor to moderate effects related to the temporary construction closure of the proposed

Arizona Peace Trail through Johnson Canyon and residual negligible to minor increase in safety risk to OHV users, respectively.

4.8.9 CDCA Plan Compliance

CMAs DFA-REC-1, DFA-REC-2, DFA, REC-4, DFA-REC-5, DFA-REC-7 would apply to the Project (Appendix 2C). The Project would comply with these CMAs through BMP-REC-01 (Appendix 2A).

4.8.10 Unavoidable Adverse Effects

Unavoidable adverse effects would result from the presence of the Project within the Dome Rock Camping Area, La Posa LTVA, or Ehrenberg Sandbowl OHV Area. The presence of the Project within the Dome Rock Camping Area would be an unavoidable, major, adverse, long-term effect on this recreation area. The effect to the La Posa LTVA from segments crossing this area would also be unavoidable, adverse, and long term but would be less because the La Posa LTVA is approximately five times larger than the Dome Rock Camping Area, so access would be less affected and the presence of the Project would be less of a substantial feature. However, at both camping areas, sites further from the Project may be more desirable, which could change camping patterns on the areas and concentrate use in portions farther from the Project. Greater deterioration of these portions of the recreation areas may occur due to the concentrated use. This would be an unavoidable, adverse, minor to moderate, long-term effect on these camping areas. Similarly, portions of the Ehrenberg Sandbowl OHV Area that were not near the Project may be more desirable than those near the Project; these locations may experience heavier OHV use. The heavier use may decrease the recreation experience for some OHV users.

The temporary closure of OHV use in Johnson Canyon would be an unavoidable, adverse, moderate effect on OHV users on the proposed Arizona Peace Trail and other OHV routes. This would be mitigated to a minor effect (Section 4.8.6).

4.8.11 Cumulative Effects

Historic proliferation of authorized and unauthorized roads and trails, the establishment of Federal, State, County and private lands, and community development have all shaped the recreation opportunities, settings, and desired experiences in the CEA. Though land in the analysis area is largely undeveloped, it is characterized by both developed (i.e., utility ROWs) and undeveloped desert, agricultural lands, and by areas used for grazing, transportation corridors, utilities, recreation, and widely dispersed, low-density residential development. In general, construction activities from the Project, when considered with other linear ROW projects (e.g., solar energy facility generation tie-in lines, transmission lines, and pipeline projects) would contribute to the modification of the character of the recreation setting, which would contribute to potentially detracting from desired recreation experiences. Construction activities of the Project and other reasonably foreseeable actions may detract from or temporarily hamper access to recreational opportunities.

Where the Project would occur in existing ROWs and disturbed areas, the likelihood that primitive or unconfined recreational settings and desired are currently being pursued is low, therefore no

cumulative impacts are anticipated; this would be true for other reasonably foreseeable projects that are expansions. However, the likelihood that users will be seeking primitive and unconfined recreational opportunities (i.e., backpacking, nature study) proximate to the other past, present, and reasonably foreseeable actions within the CEA during construction may not be as likely, since the existence of these actions may not follow existing ROWs and may not dictate which recreational opportunities can be successfully pursued; they may be planned in areas that currently only support primitive recreation, and thus there would be less areas available to seek these opportunities. Larger projects, such as solar facilities, and specifically the proposed 8,000-acre La Paz County land purchase, would permanently remove lands from recreation.

The Proposed Action route would be constructed adjacent to the existing DPV1. The DPV1 was constructed across or adjacent to recreation areas in La Paz and Maricopa Counties in Arizona, and Riverside County in California, including the Kofa NWR. Adding the Project adjacent to this existing ROW would intensify the overall development that crosses these recreational resources. Any additional projects that may traverse these recreational areas would further increase the industrial development and further reduce the undeveloped, natural landscape of the recreational areas.

OHV riders may have cumulatively more opportunities available as a result of the Project and other past transmission line and pipeline development projects, since these projects required new access roads just as the Project would. New access roads used for construction (as well as maintenance) provide additional avenues for riders to gain access to locations that were previously unavailable. Adding the Project structures with guy wires adjacent to a ROW that already contains the DPV1 or other transmission lines would cumulatively add to the safety risk to OHV riders in some cases; however, MM-REC-02 would reduce this cumulative effect (Appendix 2, Section 2.4). Both increasing authorized and unauthorized OHV use is likely to result in increasing complaints from landowners and the public. As the Project adds to road density at the same time OHV use increases, there would be a need for additional enforcement and physical barriers to protect some areas.

The quality of the recreational setting and desired experiences could be degraded by the loss of undeveloped landscape character and visual intrusion on the landscape as a result of the cumulative impact of the Project construction and the past, present, and reasonably foreseeable actions identified in Appendix 3, Tables 3.12-1 and 3.12-2. The cumulative impact of this alteration of the recreation setting would be minor since recreation settings would be available in adjacent settings, and other cumulative actions would be far-removed and would not affect adjacent lands along the entire ROW. Operation and maintenance activities of the Project would result in minor cumulative effects, since the Project would already be constructed and standard operation and maintenance activities would be so periodic as to not affect recreation opportunities, experiences, or desired settings.

4.8.12 Irreversible and Irretrievable Adverse Effects

There would not be any irreversible or irretrievable adverse effects on recreation related to the Project.

4.8.13 Relationship Between Short-term Use and Long-term Productivity

The short-term changes to recreation would not affect the long-term productivity related to existing and future recreation.

4.9 SOCIOECONOMICS

4.9.1 Introduction

Impacts to socioeconomics are discussed in terms of effects on the economy, population, housing, tax revenues, public services, property values, and the tourism and recreation related economy.

4.9.2 Methods for Analysis

4.9.2.1 Analysis Area

Impacts to socioeconomics are analyzed at the county level and/or at the census block group geographic level, as appropriate. Economic effects from the Project were estimated using the RIMS II regional economic model (BEA 1997).

4.9.2.2 Assumptions

The construction phase of the Project would have a greater impact on socioeconomic factors than the operations and maintenance phase. The decommissioning phase would be similar to the construction phase relative to anticipated socioeconomic impacts.

4.9.2.3 Environmental Effect Indicators, Magnitude, and Duration

Potential impacts to socioeconomic conditions may be either beneficial or adverse. Impacts may result from any of the following:

- Change in employment opportunities, directly or indirectly, resulting from the Project, compared to current and historic trends;
- Change in taxes resulting from the Project, compared to current and historic trends;
- Change in population, increased infrastructure, or other change that induces growth resulting from the Project;
- Physical division of an established community resulting from the Project;
- Displace substantial numbers of people or existing housing on a permanent basis, necessitating the construction of replacement housing outside the local region;
- Project-related induced long-term population growth to an extent that could not be accommodated by existing local housing, local services, and infrastructure;
- Project-related substantial long-term reduction in revenue for local businesses, government agencies, or Indian tribes;

- Project impacts that would substantially alter the lifestyles or quality of life, including non-market values, of populations using, or residing in proximity to, the Project;
- Project impacts that would substantially alter production or delivery of current levels of ecosystem services to local and regional populations;
- Conflict with applicable land use plans and policies associated with socioeconomics, public services, or utilities created by the Project;
- Percent change in property values; and,
- Change in revenue generated by recreation.

4.9.3 No Action Alternative

Under the No Action Alternative, no ROW would be granted for the Project and the transmission line, SCS, and ancillary facilities would not be constructed. Current conditions in the analysis area described in Chapter 3 would continue under the No Action Alternative.

4.9.4 Construction of Action Alternative Segments

4.9.4.1 Direct and Indirect Effects Common to All Action Alternatives

The Project would involve a relatively short-term construction phase followed by long-term (30-50 years) operation and maintenance of a new transmission line and appurtenant facilities, including the SCS and substation equipment. During the construction phase, crews responsible for specific construction tasks would likely not remain in any one area for the full duration of the construction period, which is estimated by DCRT to be approximately 24 months. Thus, impacts at any one location along the construction route would be for a shorter time period than the full construction phase.

DCRT's general contractor would hire a number of local workers and non-local workers to complete the Project. They would also spend money on materials and services for construction, with the majority of those expenditures going to suppliers outside the analysis area.

DCRT has developed and provided estimates of the required workforce—and anticipated expenditures for labor, supplies, and materials for the Project. These estimates are assumed to be adequate to determine construction impacts for any of the Action Alternatives and any associated subalternatives.

Overall, the Project would contribute to future economic development and long-term job growth in the region by improving reliability of the electrical grid and increasing the ability of the grid to meet the demand of future growth such as facilitating solar and other new electrical generating facilities. By increasing the efficiency and capacity of the electrical grid the Project would increase the profitability of electrical utilities by lowering costs and further the states' efforts to increase the percentage of electricity generated from renewable sources.

Economic Effects

As shown in Appendix 2, Tables 2.2-24 through 2.2-25, the construction crew for the transmission line would consist of approximately 120 workers and take a year and a half to two years to complete. Substation work would require a crew of about 40 workers over a year (with procurement taking approximately 300 days).

Construction of the Project is projected to support approximately 160 short-term construction jobs for up to two years, as well as another 63 indirect jobs that would be supported by local purchases of supplies and materials for construction, based on the RIMS II multipliers for the three-county region (Appendix 4, Table 4.9-1). An additional 100 new positions would be supported by (induced) household expenditures by the construction workforce (local and non-local) during the construction period. Further, as detailed in Appendix 4, Table 4.9-2, Project construction would impact local earnings, based on the RIMS II multipliers, in addition to the earnings of the construction workforce (direct earnings), roughly doubling this amount.

The third impact that can be calculated using the RIMS II model is the change in "final demand" or overall economic benefit to the local region. Based on a $241 million direct construction cost and the RIMS II multiplier of 2.0214[1] to capture the direct, indirect, and induced economic impacts, there would be an overall economic impact of $487.2 million related to construction of the Project.

Population and Housing

Approximately 55 percent of the construction workforce is expected to consist of non-local employees who would reside in the analysis area during the construction period but very few of these employees are expected to be accompanied by their families. Two scenarios regarding population and housing impacts were considered. At the low end (Scenario One) the indirect and induced jobs are assumed to be filled entirely by local residents and estimates of population effects include only the direct Project construction workers and their accompanying families. At the high end (Scenario 2) half the indirect and induced jobs are assumed to be filled by workers who migrate to the analysis area.

Under Scenario One, approximately 92 workers and family members would move into the area for the duration of the Project, including about eight children. Under Scenario Two, approximately 190 workers and family members would move into the area for the duration of the Project, including about 16 children. Appendix 4, Tables 4.9-3 and 4.9-4 provide a breakdown of these estimates and the resultant percentage increases in population, respectively. Due to the low percentages (less than 0.1 percent for each area considered), the Project's impact on population would be considered negligible and short term.

Non-local workers would require housing in the analysis area. For purposes of considering potential effects on housing conditions, the number of projected non-local workers is compared to the estimated availability of rental housing, motel/hotel rooms, and RV sites within the analysis area. As detailed in Appendix 4, Table 4.9-5, for Scenario One, only 77 housing units would be

[1] This multiplier is based on the RIMS II 2007 Benchmark Input-Output Table for the Nation and 2015 regional data.

required and for Scenario Two, 158 housing units would be required. Vacancy rates described in that same section suggest that the Project's impact on available housing would negligible.

Tax Revenue Effects

Construction-related economic activity would also generate additional tax revenues for state and local governments in the Project Area. Sources of new tax revenues would be sales and use taxes, and property taxes. Tax rates vary depending on whether the land is leased or owned, public or private, so it would be difficult to estimate what the tax proceeds would be from the Project before a final route is selected. In any case, income from taxes generated by the Project could be considered a positive impact for local units of government.

Effects on Public Services

In addition to the temporary increase in demand for housing described above, the non-local construction workforce and any non-local workers and families who migrate to the area to fill indirect employment opportunities, would also create additional short-term demands for public services such as police and fire protection, education, and medical services. Much like the housing situation, these added demands are unlikely to create substantial challenges in the Project Area due to the comparatively small numbers of non-local workers. The effects on public services during the construction period should be negligible to minor and short term.

Effects on Property Values

The primary impacts to residential and other developed properties during construction are from noise, dust, heavy equipment, and perhaps access. An inventory of land use within the analysis area for the Proposed Action and Action Alternatives was completed. Residential or Rural Residential land accounted for 8 percent of the total area within the land use analysis area. The majority of that is classified as Rural Residential (just under 12,000 acres out of 12,799 acres), indicating that the land use analysis area is primarily rural in nature with few residences present. Construction phase impacts would be short term as construction in any specific area would be accomplished fairly quickly. Therefore, it is unlikely that the construction phase would have a lasting impact on property values.

Effects on Recreation and Tourism Economy

Based on the recreation impact analysis provided in Section 4.8, impacts to recreation and recreation areas would be localized and short term. Some temporary effects from construction would include noise, dust, visual disturbance, and restricted access. Noise associated with construction could result in short-term indirect impacts to wildlife watching, if the noise were to cause wildlife to avoid areas impacted by construction noise. Considering the large number of recreational opportunities and their areal extent, these effects should be minor.

Dispersed recreation activities, such as hiking and equestrian activities, might also be temporarily affected in some locations for short periods of time. These short-term, localized impacts are unlikely to result in a discernible impact to the tourism- and recreation-related economy.

4.9.5 Operations, Maintenance, and Decommissioning

In contrast to the large workforce and expenditures required for construction, ongoing operations and maintenance would require few workers and have relatively little direct economic impact in the Project Area.

4.9.5.1 Economic Effects

The operations and maintenance phase would require a minimal workforce with an annual payroll of $195,000 (DCRT 2017). There would be comparatively few other expenditures for materials or supplies. In contrast to the No Action Alternative; however, each of the Action Alternatives would meet the purpose and need for the Project in improving reliability of the electrical grid in California and Arizona, increasing the ability of the grid to meet demand growth in the region, or facilitating potential renewable generation development in the region. The long-term economic impacts from these aspects cannot be modeled in RIMS II, but would be beneficial and could be major.

4.9.5.2 Tax Revenue Effects

The transmission line and appurtenant facilities could produce more substantial property tax revenues for local governments once fully constructed. Here too it would be difficult to accurately estimate property taxes before a final route is selected. Property tax revenues would decrease over time during the period of operations due to depreciation in the value of the facilities.

4.9.5.3 Population Effects

Ongoing operations and maintenance would require relatively few workers. The Project would have negligible to minor long-term effects on the population of the Project Area.

4.9.5.4 Housing Effects

The Project would have negligible to minor, long-term effects on housing within the Project Area.

4.9.5.5 Effects on Public Services

The Project would have negligible to minor long-term effects on most public services within the Project Area during the operations and maintenance phase. However, to the extent the Project improves reliability of the electrical grid in southern California and Arizona and increases the ability of the grid to meet demand growth in the region, it could provide long-term improvements for the area in terms of electric utility service. Taxes collected on the transmission line and associated facilities have the potential to improve public services.

4.9.5.6 Effects on Property Values

The concern that transmission lines may cause long-term decreases in property values has led to extensive research on the subject, but the conclusions are not clear or consistent. Instead the research indicates that the effects of transmission lines on property values appear to differ depending on the situation. Please The majority of the existing literature has focused on urban residential properties in densely populated northern regions. This, in conjunction with the

inconsistent results, makes it difficult to directly apply the findings to the largely rural Project Area.

Property owners allowing the use of a portion of their property for the transmission line ROW would be compensated by DCRT for the encumbrance the line creates upon their land and potential reductions in their property values.

In general, because of the small amount of residential land in the analysis area, its distance from the Project, and the nature of rural residential properties, loss of property value is anticipated to range from negligible to moderate.

4.9.5.7 Effects on Recreation and Tourism Economy

Ongoing operations and maintenance should have little or no long-term effect on the tourism- and recreation-related economy. As noted in the previous section on property values, it has been demonstrated that impacts from visual disturbance dissipate quickly with distance from transmission lines; given the vast area available for high-quality recreation the transmission line and its associated facilities should have negligible impact on the recreation and tourism economy.

4.9.6 Mitigation Measures

There are no MMs identified for socioeconomics for any of the specific segments. No MMs have been identified for any of the full-route alternatives or subalternatives described below.

4.9.7 Construction of Full Route Alternative and Subalternative Effects

4.9.7.1 Proposed Action

In general, the socioeconomic impacts would include provision of some jobs, some increase in tax income to local units of government, and a short-term increase in local spending for goods and services during the construction phase. Two areas of local concern during scoping were impacts to residential property values and to the recreation and tourism economy. In both cases the Proposed Action probably produces the lowest negative impacts as it crosses fewer residential areas overall, and, being located adjacent to the existing DPV1 line over a large distance, it would likely have a lower visual impact on currently undeveloped areas. Among the five full-route alternatives, the Proposed Action would impact the second lowest acreage of residential and rural residential lands within 2,000 feet of the line (the Land Use study area), at 1,833 acres over the full length of the line.

4.9.7.2 Alternative 1: I-10 Route

Socioeconomic impacts for Alternative 1 would be largely the same as for the Proposed Action, with the exceptions of impacts to residential properties, and recreation and tourism in the Project Area. Regarding residential properties, Alternative 1 would impact the greatest amount of residential acreage among the five full-route alternatives at 3,960 acres. Regarding recreation and tourism, the I-10 route would follow I-10 and avoid impacts to the Copper Bottom Pass area, but would cross through the Dome Rock Camping Area, both of which are heavily used for recreation.

However, Alternative 1 likely would not change the contribution of recreation and tourism to local economies in the Project Area.

Subalternatives to Alternative 1 (1A through 1E)

Impacts anticipated from Subalternatives to Alternative 1 are substantially similar to those listed above.

4.9.7.3 Alternative 2: BLM Utility Corridor Route

Socioeconomic impacts for Alternative 2 would be largely the same as for the Proposed Action, with the exceptions of impacts to residential properties, and recreation and tourism in the Project Area. Regarding residential properties, Alternative 2 would impact the second greatest amount of residential acreage among the five full-route alternatives at 3,315 acres. Regarding recreation and tourism, Alternative 2 would place the Project parallel to SR 95, east of the highway and within the eastern portion of the La Posa LTVA. The presence of the Project within the LTVA could impact the quality of the recreational experience, either resulting in condensing use in other portions of the LTVA or a reduction in LTVA users. A reduction in LTVA users could, in turn, could change the contribution of recreation and tourism to local economies in the Project Area.

Subalternatives to Alternative 2 (2A through 2E)

Impacts anticipated from Subalternatives to Alternative 2 are substantially similar to those listed above.

4.9.7.4 Alternative 3: Avoidance Route

Socioeconomic impacts for Alternative 3 would be largely the same as for the Proposed Action, with the exceptions of impacts to residential properties, and recreation and tourism in the Project Area. Regarding residential properties, Alternative 3 would impact the third greatest amount of residential acreage among the five full-route alternatives at 3,229 acres. Regarding recreation and tourism, Alternative 3 would impact Cunningham Peak and currently undeveloped portions of the Dome Rock Mountains, while avoiding the actual Copper Bottom Pass area. However, Alternative 3 likely would not change the contribution of recreation and tourism to local economies in the Project Area.

Subalternatives to Alternative 3 (3A through 3M)

Impacts anticipated from Subalternatives to Alternative 3 are substantially similar to those listed above.

4.9.7.5 Alternative 4: Public Lands Emphasis Route

Socioeconomic impacts for Alternative 4 would be largely the same as for the Proposed Action, with the exceptions of impacts to residential properties, and recreation and tourism in the Project Area. Regarding residential properties, Alternative 4 would impact the least amount of residential acreage among the five full-route alternatives at 1,371 acres. Regarding recreation and tourism, Alternative 4 would impact Johnson Canyon and associated undeveloped portions of the Dome Rock Mountains, while avoiding the actual Copper Bottom Pass area. If the technical OHV

qualities of Johnson Canyon were perceived by recreation users to have been degraded, recreational use of the Canyon would reduce and could change the contribution of recreation and tourism to local economies in the Project Area.

Subalternatives to Alternative 4 (4A through 4P)

Impacts anticipated from Subalternatives to Alternative 4 are substantially similar to those listed above.

4.9.7.6 BLM Preferred Alternative

Socioeconomic impacts for the Preferred Alternative would be largely the same as for the Proposed Action.

4.9.8 Residual Impacts

From a socioeconomic perspective, the primary residual impact would be the ongoing collection of taxes for the life of the Project.

4.9.9 CDCA Plan Compliance

There are no CMAs related to socioeconomics that would apply to the Project.

4.9.10 Unavoidable Adverse Effects

No unavoidable adverse effects are anticipated.

4.9.11 Cumulative Effects

The CEA for socioeconomics is Maricopa and La Paz Counties in Arizona and Riverside County, California. This geographic extent was selected as the CEA because socioeconomic factors, such as public services and utilities are often provided at the county level, and the local labor force is expected to come primarily from within these counties. In addition, statistical data on population, housing demand, and other socioeconomic indicators are typically provided at the county level.

Past, past development and population growth have expanded the demand for housing and increased the available workforce. The Project would not cause existing housing or persons to be displaced or necessitate the construction of replacement housing elsewhere. In addition, there would be no impact from construction workers requiring housing that exceeds the supply of local housing or temporary housing facilities and minimal potential changes in the demand for labor or in local employment. As growth has been accounted for in various local and regional plans and projections and no changes to that growth would be likely to occur as a result of the Project, displacement of and demand for housing and changes in the local labor market would not be considered as cumulative effects and are not discussed further. Given the current workforce in the area and the amount of available housing, cumulative impacts as a result of construction workers on the local housing market are considered to be negligible to moderate during Project construction. A cumulative effect would result if the interaction among the effects of the Project and other past, present, and reasonably foreseeable actions combined.

Construction of the Project transmission line in conjunction with renewable energy generation projects (such as solar generating stations) would facilitate the transmission of energy to consumers and may encourage additional development of renewable energy sources.

The Project in conjunction with reasonably foreseeable energy, utility, and other infrastructure projects could support population increases in the area in the foreseeable future. While from a socioeconomic viewpoint this could be positive within the CEA, some members of the public have expressed concern about impacts to the traditional tourism and recreation-based economy. The CEA has a rural character and local communities rely on that character to draw visitors that support their local economy.

4.9.12 Irreversible and Irretrievable Commitment of Resources

The Project would not result in irreversible or irretrievable commitments of socioeconomic resources.

4.9.13 Relationship of Short-term Uses and Long-term Productivity of Resource

The Project does not involve trade-offs between short-term uses and long-term productivity from a socioeconomic standpoint.

4.10 ENVIRONMENTAL JUSTICE

4.10.1 Introduction

One census block group in Maricopa County, three in La Paz County, and five out of six in Riverside County are be considered EJ Populations, using conservative assumptions and standards. These EJ Populations are enumerated in Appendix 3, Table 3.10-3 and shown in Figure 3.10-1, Figure 3.10-2, and Figure 3.10-3 (Appendix 7).

4.10.2 Methods for Analysis

4.10.2.1 Analysis Area

The EJ study area for this EIS is the area within 0.5-mile of the Proposed Action and Action Alternatives (Figure 3.9-1, Appendix 7). This is a commonly used buffer distance for EJ study areas. The analysis area includes the study area and all census block groups crossed by the Proposed Action and Action Alternatives. This ensures the inclusion of adjacent and nearby communities that may be affected by the final route.

4.10.2.2 Assumptions

Evaluation of EJ effects involves assessment of the potential for disproportionately high and adverse effects on minority or low-income populations. Minority and low-income populations in proximity to the ROW for the Project Action and Action Alternatives were identified in Chapter 3.

The analysis assumes that all appropriate design features, APMs, and BMPs would be implemented (Appendix 2A).

4.10.2.3 Environmental Effect Indicators, Magnitude, and Duration

The following indicator was considered when analyzing potential impacts to EJ populations:

- Construction or operation of the Project would have a disproportionately high and adverse effect on minority or low-income populations in the area (as defined by EO 12898).

The magnitudes and durations used to describe impacts to EJ populations are the same as those provided in Table 4-1.

4.10.3 No Action Alternative

Under the No Action Alternative, no ROW would be granted for the Project and the transmission line, SCS, and ancillary facilities would not be constructed. Current conditions in the analysis area (Section 3.10) would continue under the No Action Alternative.

4.10.4 Construction of Action Alternative Segments

4.10.4.1 Direct and Indirect Effects Common to All Action Alternatives

Several census block groups in the analysis area can be defined as EJ populations under CEQ and BLM guidelines because they either have a proportion of minority residents that is greater than average for the state in which they are located, they have a greater proportion of individuals or families that are living below the poverty level, or both. Most of the potential short-term, negligible to minor adverse effects on EJ populations associated with construction of the Project would be localized in nature, including noise and other types of disruption occurring during construction; longer term effects may affect visual resources and property value. Potential adverse effects on local housing conditions and the demand for public services during construction, discussed in Section 4.9, would be somewhat more dispersed.

Given these characteristics of the area and the Project, low-income and minority populations would be affected by the Project, regardless of which Action Alternative is selected given the locations of low-income and minority populations throughout the area. Any reasonably direct route between the two substations crosses two of the four block groups in Arizona where there are EJ populations; any less direct route taken to avoid these block groups would require several times more disturbance, particularly in currently undisturbed or pristine areas. In California, where five of the six block groups in the analysis area contain EJ populations, and the Colorado Substation is surrounded by EJ populations, there is no route that would eliminate impacts to EJ populations.

The analysis of effects by resource area provided in this chapter indicates that few, if any, of these effects would be "high," for the purpose of this analysis. In fact, the Action Alternatives are adjacent or nearly adjacent to existing transmission lines, interstate highways, or other utility corridors as a means of minimizing new disturbance to either the natural or human environment.

In the case of the Action Alternatives considered in this EIS, construction effects would occur over a relatively short duration. Visual and air quality effects that related to EJ would not constitute a disproportionate adverse impact.

Low-income and minority populations may also be positively affected by the Project, including the short-term economic stimulus from construction activities and expenditures, short-term and longer-term increases in tax revenues, and added capacity and reduced congestion for electricity transmission. These impacts are likely to be more geographically dispersed than the localized adverse effects.

4.10.4.2 Maricopa and La Paz Counties, Arizona

In Maricopa County, Arizona, one block group out of three was identified with a minority population percentage greater than the overall minority population percentage in the EJ comparison area, as shown in Figure 3.10-1 (Appendix 7). In La Paz County, Arizona, three block groups out of ten were identified with minority or low-income population percentages greater than the EJ comparison area percentages. The presence of residential, commercial, or industrial uses for these areas was described in Section 3.10.2.2.

The BLM LTVA and private RV parks in and around Quartzsite have seasonal (that is, temporary) and long-term residents that would not be represented by US Census Bureau data, and as such, it is possible there could be minority and low-income representation exceeding the comparable populations within the EJ comparison area. For the Town of Quartzsite, Arizona CDP, the census data show 4.1 percent minority representation and a low-income population of 9.6 percent.

A portion of Segment p-11 is adjacent to CRIT reservation lands and Segments i-06 and cb-03 would cross CRIT reservation lands. The block group data covering this area show a 98 percent minority population, with 26.5 percent Native Americans. The lands crossed by Segments p-11, i-06, and cb-03 are all undeveloped and do not include residences. For tribes and tribal members EJ issues, if any, are addressed through the consultation process (Sections 3.6 and 4.6). Scoping consultation with the CRIT resulted in a request for further, detailed consultation regarding its lands and adjacent areas.

Direct and indirect effects from construction would be short term and minor. Given the extent of the Project, impacts such as noise and other disruption would occur relatively briefly at any one locale.

4.10.4.3 Riverside County, California

In Riverside County, California, five of the six block groups have minority and/or low-income populations greater than the EJ comparison area percentages. The presence of residential, commercial, or industrial uses for these areas was described in Section 3.10.2.2.

Income data for the city of Blythe CDP, the CCD area of Blythe, Ripley CDP, and Mesa Verde CDP were presented in Section 3.10.2.3. These local areas along the Proposed Action and Action Alternatives have low-income percentages that are greater than the EJ.

Direct and indirect effects from construction would be short term and minor. Given the extent of the project, impacts such as noise and other disruption, would occur relatively briefly at any one locale.

4.10.5 Operations, Maintenance, and Decommissioning

During operations and maintenance there would be negligible activity on the ground, and, therefore, negligible impacts to EJ Populations. Decommissioning impacts would be similar to those described for construction.

4.10.6 Mitigation Measures

There are no MMs identified for EJ for any of the specific segments and, thus, no MMs have been identified for any of the Action Alternatives or subalternatives described below. The Project has been designed to utilize existing utility corridors and avoid environmentally sensitive areas to the extent possible.

4.10.7 Construction of Full Route Alternative and Subalternative Effects

4.10.7.1 Proposed Action and Alternatives 1 through 4

While there is some difference among the Proposed Action and Action Alternatives, including applicable subalternatives, the short-term, negligible to minor impacts on EJ populations would be similar between all alternatives.

4.10.7.2 BLM Preferred Alternative

The effects on EJ under the Preferred Alternative would be similar to the Proposed Action and Action Alternatives. These effects would be negligible to minor but generally short term.

4.10.8 Residual Impacts

Development of the new transmission line may have some residual impacts on property values near the transmission line. Any impacts would likely be modest due to the predominantly low-density rural setting and the presence of existing transmission and utility lines nearby.

4.10.9 CDCA Plan Compliance

There are no CMAs related to environmental justice that would apply to the Project.

4.10.10 Unavoidable Adverse Effects

Low-income or minority populations (EJ populations) would likely experience adverse effects on a localized basis from construction, operation, maintenance, and decommissioning of the Project. As discussed previously, these adverse effects are all expected to be minor at most and distributed equally among EJ and non-EJ populations (i.e., not disproportionately). Since EJ population areas

would need to be crossed regardless of the Action Alternative selected, this would be an unavoidable adverse impact.

4.10.11 Cumulative Effects

The EJ CEA includes the three-county area and the block groups used for evaluating impacts. Like most proposed transmission lines, the proposed routes, under the various alternatives, would use the corridors of existing linear features (such as transmission lines, roads, pipelines, and railroads) as much as possible. Co-locating with existing linear infrastructure tends to minimize environmental and social impacts and avoid relatively undisturbed areas.

Co-locating a new transmission line in an area that already has existing transmission facilities or other linear infrastructure would add incrementally to any existing impacts from that infrastructure on visual resources, quality of life, property values, and other aspects of nearby properties. It is likely, however, that the incremental impact of adding an additional transmission line in areas that already have linear infrastructure in place would not be a major cumulative effect since visual and property value effects would have already taken place, therefore co-location would result in less impact than adding a new transmission line in an area without existing linear facilities.

Almost all the EJ communities that could be affected by construction and operation of the Project already have existing transmission lines in place. Development of a new transmission line in these areas would likely have a smaller cumulative impact than in areas without such existing linear features.

There would be no permanent or temporary displacement of low-income or minority businesses or residents under the Project to contribute to potential cumulative effects on minority populations. The health and safety of these populations would be protected during both construction and operation at the same levels as other populations by implementing the safety measures described in the APMs and BMPs, and other protocols described in Chapter 2, as well as other resource-specific mitigations plans, such as the Hazardous Materials Management Plan. It is assumed that future projects would be required to mitigate any significant impacts on these populations; therefore, cumulative impacts on minority and low-income populations as a result of the Project in combination with reasonably foreseeable future projects also would be minimal.

4.10.12 Irreversible and Irretrievable Commitment of Resources

The Project would not result in irreversible or irretrievable commitments to EJ populations.

4.10.13 Relationship of Short-term Uses and Long-term Productivity

There would be no short-term uses versus long-term productivity conflicts to EJ as a result of the implementation of the Project.

4.11 VISUAL RESOURCES

4.11.1 Introduction

Impacts to visual resources are discussed in terms of the visual impact of contrast between the Project and surrounding landscape, conformance with established Federal and local requirements for management of visual resources, and plan amendment requirements to achieve conformance.

4.11.2 Methods for Analysis

4.11.2.1 Analysis Area

Impacts to visual resources are analyzed for portions of the study area (Section 3.11.1) where the Project would be visible, as documented by the KOPs.

4.11.2.2 Assumptions

The analysis assumes that:

- All appropriate design features, APMs, BMPs, and any additional monitoring and MMs included in Section 4.11.7 would be implemented. All categories of these would be mandatory, and where applicable would be in place before construction begins.
- The selected KOPs are representative of the views of the majority of sensitive viewers in the Project Area.

4.11.2.3 Environmental Effect Indicators, Magnitude, and Duration

Impacts to visual resources would occur if:

- Project-related changes would reduce scenic quality rating scores based on the BLM visual resource inventory system;
- The Project results in major and unmitigated visual changes that degrade or disrupt views of scenic landscapes from highly sensitive viewing locations such as parks, residences, historic monuments, scenic trails, community gateways, and other culturally or regionally important viewpoints;
- The Project conflicts with visual standards, ordinances, or policies established by the BLM, other potentially affected Federal entities, or other state, county, or local agencies;
- The Project results in visual intrusion or disruption to a viewshed of recognized cultural significance (e.g., eligible for registration with the NRHP, or identified as a TCP);
- The Project results in visual resource contrast ratings that conflict with the management goals of assigned VRM or interim VRM classes;

- The RMP Amendment associated with the Project reduces VRM class objectives that would be required for future management of portions of the Project Area as a result of the impacts from the Project;
- The Project has a substantial adverse effect on a scenic vista;
- The Project substantially degrades the existing visual character or quality of the site and its surroundings; or
- The Project creates a new source of substantial light or glare which would adversely affect day or nighttime views in the area.

Units of measures include:

- Scenic Quality Classification – Classes A, B, & C;
- Sensitivity Classification – high, medium, and low;
- Distance zones – foreground-middle ground, background, seldom seen;
- VRI Classes I, II, III, & IV;
- Level of visual contrast; and,
- Conformance to VRM Class Objectives for Classes I, II, III, & IV.

4.11.2.4 Visual Contrast Rating

The BLM performs a process called contrast rating, as described in Manual H-8431-1 (BLM 1986b), Visual Resource Contrast Rating, to analyze potential visual impacts of proposed projects and activities. The degree to which a management activity affects the visual quality of a landscape depends on the visual contrast created between a project and the existing landscape. The basic design elements of form, line, color, and texture are used to make this comparison and to describe the visual contrast created by the Project. This assessment process provides a means for determining visual impacts and for identifying measures to mitigate these impacts. The 10 environmental factors were analyzed to determine specific effects observed from each KOP. When the views from KOPs were found to not meet the VRM classes established for the viewed area that would be impacted by the Project, analysis was used to determine the scope of the effect and establish boundaries for VRM class changes, which would both address the issue of Project non-conformance as well as provide for future manageability of the area by the BLM. Visual Contrast Rating Worksheets were completed for all KOPs, which provide detailed analysis of visual impacts as determined from each KOP.

4.11.2.5 Simulations

KOPs were selected for simulation to aid in analysis of:

- Segments perceived to be non-conforming to VRM Class objectives,
- Non-BLM publicly sensitive areas, and,

- Generally representative areas.

Simulations were used to aid in visualization and description of Project impacts, and determinations for appropriate MMs and RMP amendments. Simulations were prepared using models of proposed structure types and estimated structure locations placed along the centerline for the simulated segments. Due to the desert environment where the Project is proposed, reclamation and revegetation would be a slow and long-term prospect, with limited expected recovery. Where possible and estimated to be visible, ground disturbance at the bases of the structures was also simulated. In many cases, access disturbance would be required for structure construction, and would have long-term visual effects similar to ground disturbance at the structure bases. However, specific access routes have not been proposed or estimated for the Project, and due to the level of subjectivity, could not be simulated.

The majority of structures for the Project are proposed to be guyed V structures. Analysis of impacts to recreation found that guyed V structures pose an unacceptable human health and safety risk to OHV recreationists in heavily used recreation areas, such as the vicinity of the LTVA and Copper Bottom Pass. To address this safety risk, self-supporting lattice structures with matching color and span lengths to match the existing DPV1 structures or monopoles would replace the proposed guyed V structures as mitigation to eliminate the hazards associated with guy wires. However, these required changes in structures in certain areas also affect the visual resources analysis. Where structure changes would be required in areas simulated, additional simulations were prepared showing the replacement structure types.

4.11.2.6 Analysis of KOPs/Segments not Simulated

Simulations were also used to be representative of visual impacts as a guide to analysis of KOPs/segments not simulated. While the 10 environmental factors were evaluated in the visual contrast rating process for each KOP, in collectively reviewing Project simulations, it was found that the distance between the viewer and the Project (proximity), structure form contrast, background/skylining of infrastructure, and intervening vegetation/topography had relatively consistent, and therefore predictable visual impacts. Therefore, these visual elements were used to estimate visual impacts for KOPs/segments not simulated.

Appendix 4, Section 4.11 provides details regarding the process used for analysis of KOPs/segments not simulated.

4.11.3 No Action Alternative

Under the No Action Alternative, a ROW would not be granted for the Project and the transmission line, SCS, and ancillary facilities would not be constructed. The visual resources of the lands on which the Project is proposed would continue to be managed as it currently directed by the various applicable BLM RMPs and other local planning ordinances and guidelines. Lands in the analysis area would remain as is, which is primarily undeveloped desert or agricultural land. Current visual resources in the analysis area described in detail in Chapter 3, Section 3.11 would be unchanged under the No Action Alternative. There would be no changes that would alter views, view sheds, scenic quality, or sensitivity levels of the scenic resources beyond current conditions.

4.11.4 Direct and Indirect Effects Common to All Action Alternatives

During construction, visual impacts would result from the introduction of construction vehicles, equipment, and construction materials within staging areas, access roads, and within the transmission line ROW. The presence of work crews, vehicles and other equipment, and dust generated by construction activities would be visible in views toward the Project Area from the surrounding area at varying distances depending on local conditions. Motion, dust, and activity would attract attention in certain circumstances. Where the Project would be in closer proximity to viewers and there is a lack of intervening topography or vegetation, ground disturbance from access routes and at structure bases could be visible to observers.

Disturbance resulting from construction would be largely short-term in duration, and visible effects from active construction would diminish subsequent to clean up and reclamation of the temporary staging areas and access roads. Reclamation of desert vegetation can take years to complete and conditions in areas of disturbance are expected to change over the years as reclamation takes place. Because of the small scale of vegetation disturbance required, there would be minimal visible contrasts that would be reduced over time.

Sensitive viewers would be affected by the short-term Project construction impacts. However, the transmission line structures would cause a major, long-term change to scenery, while construction of the structures and facilities would be temporary. Landform modification would be noticeable and create visual contrast within the viewshed. Examples of transmission structure visibility are provided in Appendix 4, Section 4.11.

The Project would be visible to some degree from many locations within the eastern portion of the Project Area. In terms of numbers, the vast majority of sensitive viewers would be traveling along I-10; substantially fewer viewers would be traveling Salome Road, and fewer still would be traveling the relatively limited number of local routes. A large portion of the lands in this area are BLM-administered land, but there are also large areas of private lands with isolated residences that could be impacted visually.

The majority of the BLM-administered land in the area is rated scenic quality C. While portions of any of the Action Alternatives may reduce the scenic quality, overall, because the scenic quality in the units containing the Action Alternatives in this area is C, impacts to scenic quality would not further reduce the scenic quality rating of the units.

Because of the north-south linear nature of the Project Area in the vicinity of Quartzsite, visibility of the Project would be limited to those area within approximately 3 miles of the viewer, with the more distant area becoming faded, camouflaged, or obscured by atmospheric conditions, and intervening topography and/or vegetation. The majority of the visual impacts in this area would be to Federal lands managed by the BLM. However, some of the Action Alternatives on BLM-administered land surround the community of Quartzsite and have potential to impact the views of private landowners.

Similar to the eastern portion of the Project Area, the majority of the BLM-administered lands are rated scenic quality C. While the Project in this area may reduce the scenic quality, overall, because the scenic quality in the units containing the segments is C, impacts to scenic quality would not further reduce the scenic quality rating of the units. However, where the sensitivity of the eastern

portion of the Project Area is largely moderate, the sensitivity in the vicinity of Quartzsite is high, making any changes to scenic quality more noticeable to viewers in the area.

Visibility of the Project in the vicinity of Copper Bottom Pass varies and would be located in deep and narrow V-shaped canyons within the Dome Rock Mountains, limiting the extent of views, but placing viewers in close proximity. Portions of the Proposed Action and Action Alternatives would be located in open areas outside the Dome Rock Mountains, with more panoramic views and greater opportunity for long-distance visibility. However, this area is heavily used for OHV recreation, with routes ranging from maintained gravel roads to two-track routes, to a technical OHV route through Johnson Canyon. The result is viewers would frequently be placed in close proximity and in some cases, the Project would be viewed in conjunction with the existing DPV1 transmission line. For all segments that would be viewed in conjunction with the existing DPV1 transmission line, the surface of the structures would be dulled to match the existing infrastructure, if not treated to color blend with the mountainous backdrop, which could help reduce contrast.

This portion of the Project Area is almost exclusively Federal land managed predominantly by the BLM, but also by Reclamation and the CRIT. The visual effects would be felt by those traveling across or recreating on public lands, with little or no impacts expected to the views of private landowners.

The scenic quality in this portion of the Project Area is rated mostly B with high sensitivity. Of the entire Project Area, Federal lands in the Copper Bottom Pass area have the greatest potential for reductions in scenic quality of the unit(s) and noticeable impact to viewers, which is heavily used for recreation. Consequently, the VRI and VRM Classes in this area tend to be the highest within the Project Area, meaning the area has the least tolerance for visual change without major impacts.

Visually, where the Project approaches the Colorado River would be viewed in context of the river and the bluff where the river gives way to the floodplain. Crossing into eastern California would be viewed in the context of the cultivated river floodplain, with sporadic residential development. Generally speaking, the Project in these areas would be visible for long distances but may be partially obscured or overwhelmed by other intervening visual features, such as trees. The westernmost portion of the Project Area rises over a bluff above the floodplain to be on sandy, sparsely vegetated desert plain, where the Project would be viewed in the context of numerous existing or proposed energy production or transmission facilities, including the Colorado River Substation.

The scenic quality of BLM-administered land in the westernmost portion of the Project Area is rated mostly B, and most of the areas have high sensitivity. However, the area in the vicinity of the Colorado River Substation contains large utility corridors and areas slated for energy development, with numerous solar projects either under review or approved. Thus, the VRM Class for this area is Class IV.

Appendix 2A lists APMs and BMPs that would be applied to the Project to minimize visual impacts.

4.11.5 Direct and Indirect Segment-specific Effects

Appendix 4, Tables 4.11-1 through 4.11-4 summarize segment-specific visual impacts and mitigation by KOP for all segments. Completed visual contrast rating forms for all KOPs provide detailed analysis of visual impacts as determined from each KOP. Segment-specific discussions that follow are broken out by Proposed Action and Action Alternative, and are presented for:

- Those segments that do not conform to established VRM Classes;
- Those segments that require mitigation or have mitigation from other resources that would affect visual resource impact analysis;
- Those segments that would require an RMP amendment; or
- Those segments that would affect the views of private landowners.

Appendix 4, Tables 4.11-5 and 4.11-6 provides a summary of the visual resource-related RMP Amendments to the Yuma RMP and Lake Havasu RMP, respectively.

4.11.5.1 Proposed Action Segments

All Proposed Action segments in the eastern portion of the Project Area would conform to BLM VRM Class objectives. However, the Yuma RMP would need to be amended to change the VRM Class of Segment p-06 east of the Kofa for management consistency.

Segments p-08 and p-09 would primarily be viewed by travelers on US 95; however, OHV recreationists on the access road paralleling the DPV1 transmission line or on any number of OHV routes east of US 95 would also be viewing these segments. Views of these segments from US 95 are represented by KOP 29 (Figure 4.11-7a, Appendix 7, showing the proposed guyed V structures). Segments p-08 and p-09 would be readily viewed from KOP 29 directly east and west of and crossing US 95. In addition to the DPV1 transmission line, at this intersection the WAPA 161kV H-frame structures, monopole structures of the distribution line providing power to the Cunningham Peak communications site, associated conductors, and pipeline infrastructure are visible, making the area look visually cluttered and developed. Because of the presence of the large self-supporting lattice structures of the DPV1 transmission line, the addition of the Project structures would be a relatively minor addition.

Because guyed V structures would pose an unacceptable human health and safety risk to OHV recreationists in heavily used recreation areas, such as the vicinity of the LTVA and Copper Bottom Pass, in this location, self-supporting lattice structures with matching color and span lengths to match the existing DPV1 structures would replace the guyed V structures as mitigation to eliminate the hazards associated with guy wires (Figure 4.11-7b, Appendix 7). However, regardless of structure type and application of additional MMs, taken together, this level of development would be a major modification to the visual environment and dominate the view. Thus, VRM Class III objectives would not be met.

An amendment to the Yuma RMP to change the VRM Class of Segments p-07, p-08, and p-09 from Class III to Class IV would be required to achieve conformance. Consequently, amendment of the RMP to similarly change the VRM Class of Segment p-06 west of the Kofa NWR would be

implemented in order to achieve management consistency in this area (Figure 4.11-8, Appendix 7).

Proposed Action Segments p-09, p-10, p-11, p-12, and p-13, as viewed from KOPs 30, 32, 35, 37, and 38 (simulated, Figures 4.11-9, 4.11-10, 4.11-11a and b, 4.11-6 a and b, 4.11-12a and b, respectively, Appendix 7) would be within the BLM utility corridor designated VRM Class III. The existing DPV1 transmission line and the Proposed Action would follow Copper Bottom Pass Road, placing travelers on the road (primarily recreationists) within approximately 0.1- and 0.2-mile of the Project. Additionally, west of the Dome Rock Mountains, a variety of gravel roads, two tracks, and OHV trails wind around through the area, greatly varying distances between viewers and infrastructure. Along the Proposed Action, viewers would be observing the Project in the context of the DPV1 transmission line. As viewers move through the landscape, when the Project would be in closest proximity to the viewers, the structures would outsize the landscape features and portions would be skylined. As viewed in that situation, the Project, in conjunction with the DPV1 infrastructure, would be a major modification to the landscape and would dominate the view, thus not conforming to VRM Class III objectives.

DCRT proposes a combination of guyed V and self-supporting lattice structures for these Proposed Action segments (Figure 4.11-13a, Appendix 7). Because guyed V structures would pose an unacceptable human health and safety risk to OHV recreationists in heavily used recreation areas, such as the Copper Bottom Pass area, along these segments, self-supporting lattice structures would replace the guyed V structures as mitigation to eliminate the hazards associated with guy wires (Figures 4.11-13b, 4.11-9, and 4.11-6b, Appendix 7).

While replacement of guyed V structures with structures roughly matching those of the DPV1 transmission line, and regardless of application of any additional MMs, taken together, this level of development along these segments does not meet VRM Class III objectives. An amendment to the Yuma RMP to change the VRM Class of these segments from Class III to Class IV would be required to achieve conformance. The entirety of the BLM utility corridor along Segments p-09, p-12, and p-13 would be changed to VRM Class IV because of the open nature of these areas and thus any additional future development within the corridor would be viewed in context of both the Project and the DPV1 transmission line.

The VRM Class in the BLM utility corridor containing Segments p-10 and p-11 would also be changed to Class IV; however, the extent of this change would be limited to the viewshed where both the Project and DPV1 would be visible (bounded by the adjacent ridgetops), while the rest of the utility corridor would remain VRM Class III (Figure 4.11-14[2], Appendix 7). Any future development in the corridor outside of the viewshed of the Project and DPV1 transmission line would not be viewed in the context of that infrastructure and could conform to VRM Class III standards.

[2] For purposes of the EIS, location of the VRM Class III/IV boundary as discussed here has been estimated. Should this segment be included in the selected alternative, the boundary would be precisely located using a viewshed analysis.

4.11.5.2 Alternative Segments

The only Action Alternative segments in the eastern portion of the Project Area that would not conform to BLM VRM Class objectives are Segment i-04, which is viewed from KOP 20 (simulated, Figure 4.11-4a, Appendix 7) and Segment in-01, viewed from KOPs 19, 20, and 59.

Segment i-04 would range in distance from viewers on I-10 from 0.1-mile to 0.4-mile. Portions of Segment i-04 are used for OHV recreation during the heavy visitor use season, which would put recreationists in close proximity to the Project infrastructure. Because guyed V structures would pose an unacceptable human health and safety risk to OHV recreationists in heavily used recreation areas, in this location, self-supporting lattice structures or monopoles would replace the guyed V structures as mitigation to eliminate the hazards associated with guy wires (Figure 4.11-4b, Appendix 7). However, regardless of structure type and application of additional MMs, taken together, this level of development would be a major modification to the visual environment and dominate the view. Thus, VRM Class III objectives would not be met. An amendment to the Yuma RMP to change the VRM Class of Segment i-04 from Class III to Class IV would be required to achieve conformance (Figure 4.11-15, Appendix 7).

Segment in-01 (Figure 3.11-26, Appendix 7) would be on the north side of I-10 divided between the Yuma and Lake Havasu FOs. The portion of the route within the YFO would be within a BLM designated utility corridor and would be approximately 0.2-mile from viewers on I-10 at the closest point, and slightly less than 0.3-mile along the majority of that portion of the segment; all of which would be designated VRM Class III. Because the Project would be less than 0.3-mile from viewers along I-10, the infrastructure would be expected to outsize surrounding landforms, be a major modification and dominate view; therefore, would require amendment of the Yuma RMP to change the VRM Class from III to IV (Figure 4.11-15, Appendix 7).

The portion of Segment in-01 within the Lake Havasu FO would be within a BLM utility corridor, crossing approximately 3 miles of lands designated VRM Class II and 5 miles of lands designated VRM Class IV. Segment in-01 within the Lake Havasu FO would be approximately 0.1-mile from viewers along I-10 at its closest point, but most portions would be approximately 0.2-mile away. The segment would meet VRM Class IV objectives; however, would not meet VRM Class II objectives given proximity to the Project in that area. Therefore, an amendment of the Lake Havasu RMP would be required to change the VRM Class from II to IV along this segment. In the Quartzsite area, Segment x-06 would be primarily viewed from within the LTVA; however, OHV recreationists on the access road paralleling the DPV1 transmission line or on any number of OHV routes east of US 95 and the LTVA would also be viewing this segment. Views of this segment from within the LTVA are represented by KOPs 22 (simulated, Figure 4.11-16a, Appendix 7, showing the proposed guyed V structures). Views of the Project along Segment x-06 would be most impacted for those occupiers of the outer eastern edge of the LTVA, where the segment would be a few hundred feet away. During the heavy visitor use season, views would become more blocked and muted as viewers move into the central portion of the LTVA, where RVs would intervene in the view.

Segment x-07 would parallel the east side of US 95 and the existing WAPA 161kV transmission line. This segment would be viewed either from the highway or from within the LTVA, as represented by KOPs 28 (simulated, Figure 4.11-17, Appendix 7). Similar to Segment x-06, views

would become more blocked and muted as viewers move into the central portion of the LTVA, where RVs would intervene in the view.

The structures and conductors along these segments would pose a large, dominating presence that would be a major modification to the visual environment (Figure 4.11-17, Appendix 7).

Because guyed V structures would pose an unacceptable human health and safety risk to OHV recreationists in heavily used recreation areas, such as the vicinity of the LTVA and Copper Bottom Pass, along Segment x-06, either self-supporting lattice structures or monopoles would replace the guyed V structures (Figures 4.11-16b and c, Appendix 7) as mitigation to eliminate the hazards associated with guy wires (Figures 4.11-18a and b, Appendix 7). Along Segment x-07, lattice H-frame structures would replace the guyed V structures to more closely resemble the WAPA 161kV structures, as well as eliminate guy wires.

Regardless of structure type and application of any additional MMs, taken together, this level of development along Segments x-06 or x-07 would result in major modifications to the visual environment and dominate the view. Thus, VRM Class III objectives would not be met. An amendment to the Yuma RMP to change the VRM Class of Segment x-06 from Class III to Class IV for 0.3-mile either side of segment centerline would be required to achieve conformance. An amendment to the Yuma RMP to change the VRM Class of Segment x-07 from Class III to Class IV, where applicable would be required to achieve conformance.

Segment qs-01 (Figure 3.11-12, Appendix 7) would also be located in the northern portion of the LTVA east of US 95 and south of I-10, in a heavily recreated area southeast of Quartzsite. Similar to Segments x-06 and x-07, proposed guyed V structures would be replaced with other structures to eliminate the hazards associated with guy wires. Because the structures would be replaced with a different type, it is recommended that in this location the guyed V structures be replaced with monopoles to more closely match the WAPA 161kV structures, which would also reduce contrast and visual clutter.

Segment i-06 (Figure 3.11-17, Appendix 7) would range between 0.1- and 0.2-mile from viewers traveling on I-10, in close proximity to the heavily recreated areas south of Quartzsite and Copper Bottom Pass. Similar to Segment i-04, proposed guyed V structures would be replaced with other structures to eliminate the hazards associated with guy wires. However, regardless of structure type and application of additional MMs, due to proximity of viewers, this level of development would be a major modification to the visual environment and dominate the view. Thus, VRM Class III objectives would not be met. An amendment to the Yuma RMP to change the VRM Class of Segment i-06 from Class III to Class IV would be required to achieve conformance for the portion of the segment located on BLM-administered land.

Segments cb-01, cb-02, and cb-03 would all be located in narrow canyon settings with limited visibility. Of these Action Alternative segments, only the portion of Segment cb-03 on BLM-administered land would be located within the BLM utility corridor along the Proposed Action route and Copper Bottom Pass Road; however, it would be on the opposite side of the canyon from the DPV1 transmission line, as viewed from KOP 35 (simulated, Figure 4.11-11b, Appendix 7). Similar to the Proposed Action segments, travelers (recreationists) on the road would be in relatively close proximity to the Project along Segment cb-03 where the closest structures would outsize the surrounding landscape features and portions may be skylined. Despite the fact that the

DPV1 infrastructure would be on the opposite side of the road, the Project would still be viewed in the context of the DPV1 transmission line, and taken together, would be a major modification to the landscape and would dominate the view, thus not conforming to VRM Class III objectives. Similar to the Proposed Action segments, because mitigation would not reduce impacts to allow Project conformance to VRM Class objectives, the Yuma RMP would be amended to VRM Class IV with the extent of the change limited to the viewshed where both the Project and DPV1 would be visible (bounded by the adjacent ridgetops), while the rest of the utility corridor would remain VRM Class III (Figure 4.11-14[3], Appendix 7). Mitigation measures similar to those described above for portions of Segment cb-03 located within the BLM utility corridor would also be recommended for the portion of Segment cb-03 located on CRIT lands; however, the CRIT would ultimately be responsible for determining required mitigation for portions of the segment on CRIT land.

Portions of Segments cb-01 and cb-02 would be within the BLM utility corridor designated VRM Class III, where they would connect to the Proposed Action route. The portion of these segments outside of the utility corridor would be located exclusively within VRM Class II areas, as viewed from KOPs 33 and 34 (simulated, Figures 4.11-19 and 4.11-20a and b, Appendix 7, respectively). Segment cb-01 would cross the flank of Cunningham Peak to the west side of the Dome Rock Mountains and connect to Segment cb-04. Distant views contain Cunningham Peak and the communications site on its top; however, from areas outside of the Copper Bottom Pass area, the transmission infrastructure would either not be visible or minorly visible but indistinguishable, due to distance from viewers. Segment cb-02 would follow a portion of Johnson Canyon, then cross a ridge to connect to Segment cb-04.

As described for the Proposed Action segments, the closest structures to viewers along Segments cb-01 or cb-02 would outsize the landscape features and portions would be skylined. Because either of these segments would be a new addition in a heavily used, relatively scenic, and visually sensitive area, the Project would be a major modification to the landscape and would dominate the view, thus not conforming to VRM Class II objectives. To mitigate for visual impacts in these visually sensitive areas, no access would be constructed, surface disturbance would be minimized, and color treating for both disturbed rock surfaces and the structures to reduce contrast with the surrounding landscape would occur. Similar to the Proposed Action segments, because mitigation would not reduce impacts to allow Project conformance to VRM Class objectives, the Yuma RMP would be amended to VRM Class IV (both inside and outside the utility corridor) with the extent of the change limited to the viewshed where either segment would be visible (bounded by the adjacent ridgetops), while the rest of the utility corridor unaffected by the Project would remain VRM Class III.

Segment cb-04, as viewed from KOP 34 (simulated, Figures 4.11-20a and 4.11-20b, Appendix 7), would cross VRM Class II and III designated lands west of the Dome Rock Mountains, the eastern portion of which would have enclosed views of deep canyons connecting to Segments cb-01 or cb-02, then opening up to broader views of the west side of the Dome Rock Mountains and points west. The proposed structures for Segment cb-04 are guyed V structures, but because this is in the heavily recreated Copper Bottom Pass area, guyed V structures would be replaced with self-

[3] For purposes of the EIS, location of the VRM Class III/IV boundary as discussed here has been estimated. Should this segment be included in the selected alternative, the boundary would be precisely located using a viewshed analysis.

supporting lattice structures to eliminate potentially hazardous guy wires. Similar to Segments cb-01 and cb-02, the structures closest to viewers would outsize surrounding landscape features, a portion would be skylined, and the Project would be new development in a previously undeveloped area, and thus would not conform to VRM Class objectives. The Yuma RMP would be amended to change the VRM to Class IV in an area 0.3-mile either side of the centerline of Segment cb-04.

Segments cb-05 and cb-06, as viewed from KOPs 36 and 38 (simulated, Figures 4.11-21 and 4.11-12b, Appendix 7, respectively) would offer alternative connections from Segment cb-04 to the Proposed Action route. On BLM-administered land, Segment cb-05 would cross VRM Class III designated lands while Segment cb-06 would cross lands primarily designated VRM Class II. Both segments would occur in areas with predominantly open panoramic views that are heavily used for OHV recreation, which would place viewers in close proximity to the infrastructure. Because of the heavy recreation use, proposed guyed V structures would be replaced with self-supporting lattice structures to eliminate potentially hazardous guy wires. These lattice structures would also reduce contrast with the existing DPV1 infrastructure, where viewed in conjunction with the Project. As described for the Proposed Action and other Action Alternatives, these segments would not conform to VRM Class II and III objectives and the Yuma RMP would need to be amended to Class IV in an area 0.3-mile either side of the centerline of these segments to achieve conformance.

4.11.5.3 Residents and Local Viewers

Potential impacts to residents in the easternmost portion of the Project Area are represented by KOPs 5, 7, 19 (Figures 3.11-27, 4.11-2, and 4.11-3, Appendix 7, respectively). Potential impacts to travelers and other viewers on private lands are represented by KOPs 2 and 6 (Figures 3.11-28a and b and 4.11-25, respectively; Appendix 7), along Salome Road, and KOP 18 (simulated, Figures 4.11-22a and b, Appendix 7) near developments at the Vicksburg Road exit off I-10.

Segments qs-01 and qs-02, represented by KOPs 24 and 26 (Figure 3.11-12 and simulated Figure 4.11-23, Appendix 7, respectively); and qn-02, represented by KOP 27 (Figure 3.11-14, Appendix 7), would be in relatively close proximity to the community of Quartzsite and would be visible from private lands.

Segment qs-01 would be on BLM-administered land approximately 0.25-mile away at its nearest point from the RV Park where KOP 24 is located. Because the Project along this segment would be less than 0.3-mile away from the viewer, the existing infrastructure begins to outsize the surrounding landscape features and dominate the view, and the Project would add to visual clutter. The Project along Segment qs-01 is proposed to use guyed V structures; however, those structures would be replaced with monopoles to eliminate potential hazards to OHV recreation from guy wires. This replacement would also reduce the contrast between the Project and the existing WAPA 161kV monopole structures. Addition of the Project along this segment with monopole structures would have a moderate to major impact to the views of RV park residents by increasing the sense of development and visual clutter.

Segment qs-02 would be on BLM-administered land approximately 0.75-mile away from the RV Park where KOP 26 is located. The Project along Segment qs-02 is proposed to use guyed V structures; however, those structures would be replaced with monopoles to eliminate potential hazards to OHV recreation from guy wires. This replacement would also reduce the visual clutter of the guy wires in the view. Addition of the Project along this segment with monopole structures

would have a negligible to minor impact to the views of RV park residents as the vertical structures would blend well with the other single pole vertical elements in the view.

Segment qn-02 would be on BLM and ASLD lands northeast, north, and northwest of Quartzsite. The nearest residence would be approximately 0.2-mile south of the segment, and the segment would be new development in an undeveloped area north and northwest of the residences. Northeast of the KOP, the segment would be paralleling the existing WAPA 161kV transmission line. As previously described, at distances less than approximately 0.3-mile from the Project, the Project is estimated to be outside the surrounding landscape features and dominate the view. Therefore, the Project along Segment qn-02 would have a moderate to major impact on views of private landowners in this area.

4.11.6 Operations, Maintenance, and Decommissioning

The structures, conductors, permanent access roads, and SCS, would increase visual contrast, mainly during the operational phase of the Project. Visual impacts would be most evident where cleared areas created scars, barren areas, or unnatural lines and contrast resulting from clearing which would remain for the life of the Project. The most evident and long-term visual contrasts result from the presence of structures and conductors within the landscape. These vertical structures, conductors, guy wires, and access roads would introduce long, linear disturbance that would contrast in areas where the Project would be relatively close to the KOP and in relatively natural areas where no development or existing infrastructure is visible or noticeable in the landscape.

During maintenance, types of activities would be similar to but smaller in scope, and less noticeable than during construction (for example, structure or conductor maintenance or repair may require similar types or levels of effort to construction, but would occur in more discrete areas, requiring less equipment and/or disturbance that would be noticeable). During decommissioning, activities (types and levels of effort, and extent of disturbance) would be similar to construction, and likely equally noticeable.

Impacts to VRI were analyzed based on Scenic Quality Rating Unit (SQRU) scores (Appendix 4A). Most SQRU scores were solidly within the range such that any reductions in scenic quality that would result from the Project would not change the overall rating for the unit.

4.11.7 Mitigation Measures

The applicant has committed to APMs, and the BLM developed required BMPs, that would minimize impacts to visual resources (Appendix 2A). However, the following MMs would be required for VRM compliance and/or to reduce impacts to visual resources:

MM-VIS-01: Minimize disturbance at structure bases.

MM-VIS-02: No access routes would be constructed to structure sites, and thus structure sites be accessed by foot or helicopter.

MM-VIS-03: Apply surface treatments (such as Permeon, or an approved equal) to newly exposed rock and gravel to blend with surrounding rock face and minimize visual impact of attention-attracting disturbance.

MM-VIS-04: Limit height of structures to that absolutely necessary for safety and operation in order to minimize skylining and reduce the need for beacons to protect dark sky resources and maintain astronomical viewing opportunities.

MM-VIS-05: Shorten span lengths and design the route to follow canyon routes to minimize elements (conductors in particular) that would be overhead of viewers and skylined.

MM-VIS-06: Use structure type to match existing structures and reduce form contrast.

4.11.8 Resource Management Plan Amendments

RMP Amendments to address issues with visual resources management would only be required for the Yuma and Lake Havasu RMP. The following Proposed Action and Action Alternative segments shown on Figure 4-1 would require RMP amendments for VRM Class change to achieve conformance if selected as part of the selected alternative:

- Segments p-06 through p-13
- Segments cb-01 through cb-06
- Segments i-03 through i-06
- Segment in-01
- Segments qs-01, qs-02, and qn-01
- Segments x-06 and x-07

Appendix 4, Tables 4.11-5 and 4.11-6 summarize visual resource-related RMP amendments by segment to the Yuma RMP and Lake Havasu RMP, respectively.

4.11.9 Construction of Full Route Alternatives and Subalternative Effects

4.11.9.1 Proposed Action

Full Route Analysis Summary

The Proposed Action route would parallel the existing DPV1 transmission line and minimize associated visual impacts by utilizing existing access. This route would avoid visual impacts to the Town of Quartzsite and associated RMPAs that would be required for segments in that vicinity; and amendment of the Lake Havasu RMP. Additionally, the Proposed Action route would avoid direct impacts to CRIT land and to sensitive recreational users of Johnson Canyon. This route would not meet VRM Class objectives and would require amendment of the Yuma RMP for Segments p-16 through p-13.

Linear KOP

The Proposed Action would impact the linear KOP along I-10 in the eastern portion of the Project Area approaching and between the two I-10 crossings of Segment p-01 (Figure 4.11-24a, Appendix 7). Scenic quality in this area is rated B, except for a very small area near the easternmost crossing; and sensitivity is moderate. At the crossings, the infrastructure would appear as a major modification and dominate views within approximately 0.3-mile either side of each crossing, and north and south of each crossing location.

However, travelers on I-10 going 75 miles per hour (mph) would only be viewing each crossing in close proximity for a few seconds. The crossings would be within the Arizona Department of Transportation (ADOT) easement for I-10 and on a combination of ASLD and private lands on either side of the easement. The BLM recommends structure changes in these locations to reduce contrast and the sense of visual clutter; however, ultimately, the type of structures used would be determined between DCRT and the landowner.

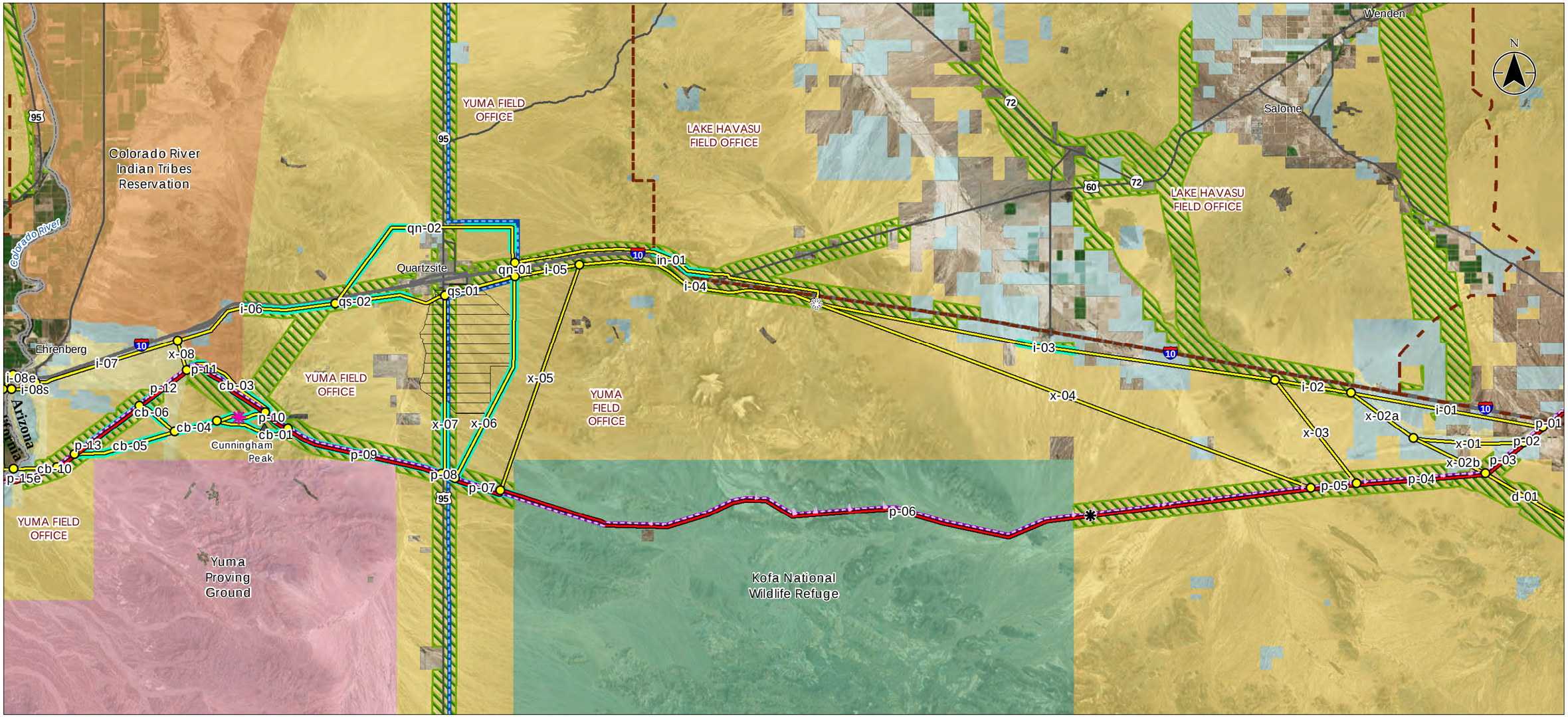
4.11.9.2 Alternative 1: I-10 Route

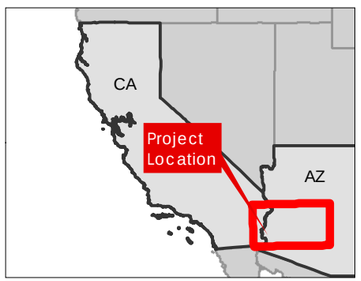
Full Route Analysis Summary

The I-10 full route would utilize only a small portion of the Proposed Action route (Segment p-01), then from the westernmost I-10 crossing, follow I-10 until turning south to connect to the Colorado River Substation. Placing the transmission line along I-10 would consolidate disturbance and development along the existing highway, large portions of which would be within BLM utility corridors. This route would result in direct impacts to more state, private, and CRIT lands along I-10, would have greater visual impacts to the Town of Quartzsite, and would have the greatest visual impact to numbers of viewers in the Project Area, due to proximity along I-10. However, a greater portion of the route on BLM-administered lands would meet VRM Class objectives, with only Segments i-03 through i-06 requiring amendment of the Yuma RMP.

Linear KOP

From the western crossing of I-10 by Segment p-01 (Figure 4.11-24b, Appendix 7), Alternative 1 would continue west, paralleling the south side of I-10. With the exception of Segment p-01, most of the segments along the I-10 route would involve adding new transmission line infrastructure in areas where there is no existing infrastructure. Many of these areas are open lands with minimal or no perceived development. Addition of the transmission line along these routes would add a visible and, in many cases, noticeable development. However, most of the areas crossing BLM-administered land would meet established VRM Class objectives. For the majority of the route, the Project would be 0.3-mile or more away from viewers traveling along I-10, which at its nearest points would place the Project within the context of the surrounding landscape. Under Alternative 1, the Alternative SCS location would be used, connected by Segments i-03 and i-04; however, the Alternative SCS would meet VRM Class III objectives as viewed by travelers along I-10. Views along I-10 crossing CRIT lands would be similarly impacted. East of the Colorado River, the Project infrastructure along I-10 would generally range between 0.3- and 0.7-mile away from viewers on I-10, with exception of a few segments; therefore, the relative size of the infrastructure in the landscape would minorly fluctuate (Figure 4.11-25 and Figure 4.11-26, Appendix 7) as travelers move along the highway.





Notes
1. Coordinate System: World Mercator
2. Data Source(s): Project data - HDR; Land Status - BLM
3. Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

- Proposed Series Compensation Station
- Alternative Series Compensation Stations (2 possible site locations; ~75' feet apart)
- Johnson Canyon
- Route Segment Node
- Proposed Action*
- Alternative Route
- Route Segment requiring RMP Amendment
- Existing DPV1 Transmission Line*
- Existing WAPA 161kV Transmission Line
- BLM Long-term Visitor Area
- Peak
- BLM Utility Corridor
- BLM Field Office Boundary

Land Status
- Bureau of Land Management
- Bureau of Reclamation
- Local or State Parks
- Indian Lands
- Military
- Private
- State
- USFWS

* = Existing DPV1 follows the Proposed Action. DPV1 and the Proposed Action are cartographically offset for display purposes. Because the routes are cartographically offset, in some cases, the routes do not precisely depict the estimated TWL alignment.

0 5.5 11 Miles

1:327,160 (At original document size of 11x17)

Figure 4-1
Ten West Link
Proposed Action and Alternative Segments that would Require an RMP Amendment for VRM Class Change

Near the Colorado River, the I-10 route would diverge from I-10 to the south, placing the Project 0.5-mile to 1.5 miles south of the Interstate, further reducing the visibility and visual effects of the Project on I-10 travelers. With greater distance, the infrastructure would be better absorbed by the surrounding landscape and less noticeable. Intervening vegetation or other development may occasionally block or blend the Project views (Figure 4.11-22a and b, Appendix 7).

Along the I-10 linear KOP, scenic quality on Federal lands is mostly B with notable exceptions of the Big Horn Mountains Wilderness. The New Water Mountains, the Dome Rock Mountains, and in the general vicinity of the Colorado River Substation, which are A. Visual sensitivity along I-10 is almost evenly divided between moderate and high, with areas of high sensitivity being in the general vicinity of Quartzsite and west of Blythe in the vicinity of the Colorado River Substation. Impacts to viewers along I-10 are going to be minor in areas of lower scenic quality and sensitivity and moderate in areas of higher scenic quality and sensitivity. Additionally, there are larger areas of higher scenic quality south of I-10 than there are to the north, meaning that viewers along I-10 attracted to the distant scenic views to the south would be viewing these areas with the Project in the intervening landscape. In areas of moderate impact, the visibility of distant scenic quality A areas may further increase the adverse visual impact of the Project, notably Segment i-04.

Subalternatives

Subalternatives 1A, 1B and 1E would locate the project further away from I-10 viewers, thus reducing visual impacts in those areas, as compared to the Alternative 1 route. Subalternative 1C would move the transmission line to the north side of I-10 such that I-10 viewers in an area of high sensitivity would not be viewing the distant high-quality scenery with the Project in the immediate foreground, reducing visual impacts in a portion of the I-10 linear KOP. Additionally, this subalternative would move the Project out of a heavily recreated area where structure change would not be required. Subalternative 1D would blend with existing infrastructure, result in minor impacts, and require a VRM Class change from III to IV.

4.11.9.3 Alternative 2: BLM Utility Corridor Route

Full Route Analysis Summary

The Alternative 2 route would impact the portion of the Project east of Quartzsite similar to Alternative 1, and the portion of the Project west of Quartzsite similar to the Proposed Action. An amendment to the Yuma RMP would be required for Segments p-09 through p-13 to achieve conformance. Unlike the Proposed Action and Alternative 1, views of recreationists in the LTVA and travelers on SR 95 would be impacted by the Project paralleling SR 95; whereas neither the Proposed Action or Alternative 1 would affect this group of sensitive viewers. However, the portion of the route in this area would be within a BLM utility corridor but would require an amendment of the Yuma RMP for Segment x-07 to achieve conformance.

Linear KOPs

The I-10 linear KOP encompassing Segments i-01 through i-05 would be the same as described for Alternative 1.

Segment x-07 would impact the linear KOP along US 95 south of Quartzsite. The views of travelers on US 95 currently include the WAPA 161kV transmission line, including H-frame

structures on the east side of the highway, and single-pole distribution lines on the west side of the highway. The Project would add lattice H-frame structures east of and parallel to the existing WAPA 161kV infrastructure within the BLM utility corridor, that would remain a relatively consistent distance from US 95 viewers traveling at highway speeds. The segment would connect to Segment p-09, convert to self-supporting lattice structures, and turn west to follow Copper Bottom Pass Road, crossing over US 95. The large lattice H-frame structures would be a major modification and would dominate the views for travelers on US 95, particularly in conjunction with the existing utility infrastructure.

Subalternatives

Subalternatives 2A and 2B would locate the project further away from I-10 viewers, thus reducing visual impacts in those areas, as compared to the Alternative 2 route. Subalternatives 2C and 2D would have no effect on visual resource impacts as viewed within the I-10 linear corridor. Additionally, this subalternative would move the Project out of a heavily recreated area where structure change would not be required. Subalternative 1E would have no discernable change in visual impacts, as compared to the Alternative 2 route.

4.11.9.4 Alternative 3: Avoidance Route

Full Route Analysis Summary

The Alternative 3 route would impact the portion of the Project east of Quartzsite similar to Alternative 1; except Segments p-02, p-03, p-04, and x-03 would route the Project away from private and state lands along I-10 and reduce the visual effects to travelers along that portion of I-10. The Project would avoid visual impacts to the Town of Quartzsite and minimize visual impacts to recreationists in the LTVA by routing the Project along Segment x-05. West of US 95, visual impacts would be similar to the Proposed Action, except the Project would be routed over Cunningham Peak, requiring an amendment of the Yuma RMP for Segments cb-01, cb-04, and cb-05 to achieve conformance. At the Colorado River, this route would follow Segment cb-10, shifting the visual impacts of river crossing north and separate from the existing DPV1 infrastructure. Segment cb-10 would connect with Segments x-11, ca-01, x-12, and ca-06; this portion of the route would not follow other existing transmission infrastructure and would visually impact a different set of local residents and road users. Segments ca-07 and 09 would be located on BLM-administered land, meeting the VRM Class objectives within utility corridors, and would connect to the Colorado River Substation via Segment x-19.

Linear KOP

Under Alternative 3, the I-10 linear KOP in the eastern portion of the Project Area would be impacted as described under the Proposed Action. Segment x-03 would connect the Proposed Action Route from Segment p-04 up to the I-10 route at Segment i-03, continuing through Segment i-04, where impacts to the linear KOP would be as described under Alternative 2. Alternative 3 would diverge from the I-10 linear KOP at Segment x-05, which would also avoid any impacts to the US 95 linear KOP. The Alternative 3 route would not be visible from I-10 until Segments ca-06, ca-07, and ca-09, where the Project would be approximately 1.5 miles south of I-10 for approximately 8 miles before turning south along Segment x-19 to connect to the Colorado River

Substation. Impacts to this portion of the I-10 linear KOP would be as described under Alternative 2.

Subalternatives

Subalternative 3A would further reduce impacts to visual resources, as compared to the Alternative 3 route. Subalternative 3B would have the same impact to the affected portion of the I-10 linear KOP as described for Alternative 1. Portions of Subalternative 3C would virtually eliminate visual impacts in some areas, while increasing visual impacts in others. Subalternative 3D would move the transmission line to the north side of I-10 such that I-10 viewers in an area of high sensitivity would not be viewing the distant high-quality scenery with the Project in the immediate foreground, reducing visual impacts in a portion of the I-10 linear KOP. Subalternative 3E would result in minor impacts to the views of I-10 travelers, while possibly resulting in moderate to major impacts to nearby residents. Subalternatives 3F, 3J, and 3L would have the same impacts as described under Alternative 1. Subalternative 3G would blend with existing infrastructure, result in minor impacts, and require a VRM Class change from III to IV. Subalternative 3H would have impacts to visual resources of I-10 travelers similar to Alternative 3 and increase the visual impacts in other areas, as compared to Alternative 3. Subalternative 3K and 3M would have no effect on visual resource impacts as viewed within the I-10 linear corridor.

4.11.9.5 Alternative 4: Public Lands Emphasis Route

Full Route Analysis Summary

Alternative 4 would be a combination of other full routes. The route would minimize visual impacts to travelers on I-10 by limiting the route to Segment in-01. However, the route would follow Segment x-06 along the boundary of the LTVA, impacting the views of recreationists in that area and requiring an amendment of the Yuma RMP to achieve conformance. West of US 95, visual impacts would be similar to the Proposed Action, except the Project would be routed through Johnson Canyon, along Segments cb-02, cb-04, and cb-05, impacting the visual resources of recreationists in that area. Following the Proposed Action route west of Johnson Canyon, this full route alternative would require amendment of the Yuma RMP for Segment p-13 to achieve conformance. In California, the visual impacts would be the same as the Proposed Action, until the Alternative 4 route turns north on Segments x-12 and 13, connecting to Segment ca-06. This portion of the route would not follow other existing transmission infrastructure and would visually impact a different set of local residents and road users. Impacts from Segments ca-07, ca-09, and x-19 would be the same as described for Alternative 3.

Linear KOP

The Alternative 4 route would remain south and not impact the visual resources along the I-10 linear KOP until Segment i-04. Under Alternative 4, the Alternative SCS location would be used, connected by Segments x-04 and i-04; however, the Alternative SCS would meet VRM Class III objectives as viewed by travelers along I-10. Other impacts were previously described as follows:

- Segment in-01 – Subalternative 1C
- Segments ca-06, ca-07, ca-09, x-19 – Alternative 3

All other segments would not impact views along the I-10 linear KOP.

Subalternatives Subalternative 4A, 4E, 4F, 4G, 4K, 4L, 4M, 4N, and 4P would have no effect on visual resource impacts as viewed within the I-10 linear corridor. Subalternative 4B would have the same impacts as described for Alternative 2. Subalternative 4C would virtually eliminate visual impacts in some areas, while increasing visual impacts in others. Subalternatives 4D and 4I would have the same impacts as described under Alternative 1. Subalternative 4H would impact visual resources similar to impacts in the eastern portion of the Project Area on Reclamation-managed public lands.

4.11.9.6 BLM Preferred Alternative

Full Route Analysis Summary

East of Quartzsite, the BLM Preferred Alternative would have the same impacts as Alternative 1. By following Segment x-05, the BLM Preferred Alternative would avoid visual impacts to the Town of Quartzsite, the LTVA, and travelers along US 95. West of the intersection of Segment x-05 with Segment p-07, the route would follow the Proposed Action route through the Copper Bottom Pass area, requiring amendment of the Yuma RMP for Segments p-09 through p-13 to achieve conformance. Impacts for the remainder of the route would be the same as those described for Alternative 2.

Linear KOP

Impacts to the I-10 linear KOP for Segments i-01 through i-04 would be the same as described for Alternative 1. The BLM Preferred Alternative would cross and not follow US 95, and therefore there would be no impacts to that linear KOP.

Subalternatives

The portion of the BLM Preferred Alternative containing Subalternative 4D would have the same impacts as described under Alternative 1.

4.11.9.7 Mitigation Summary

Table 4-9 summarizes the mitigation required for the Proposed Action and the full route Action Alternatives. Additional detail by KOP is provided in Appendix 4, Tables 4.11-1 through 4.11-4.

Table 4-9 Mitigation Summary for Full Route Alternatives

ALTERNATIVE	VIS-01	VIS -02	VIS-03	VIS -04	VIS-05	VIS-06
Proposed Action	X	X	X	X		X
Alternative 1	X		X			X
Alternative 2	X		X	X		X
Alternative 3	X	X	X	X		X[1]
Alternative 4	X	X	X	X	X	X[1]
Preferred Alternative	X	X	X	X	X	X[1]

[1]Any structure changes on non-BLM lands would be negotiated between the DCRT and landowner.

[2]Partial, mitigation measure only applies to a portion of the full route.

4.11.10 Residual Impacts

After the application of mitigation, non-conforming segments would continue to not conform to established VRM Class objectives, and RMPs would be amended to allow the Project to conform to lower VRM Class objectives. Even where structure changes are required to address potential recreation hazards from guy wires, and where structures are changed to match any existing structures, segments would continue to be a major modification on the landscape and dominate views. However, implementation of mitigation would reduce the contrasts and overall impacts, even if the VRM Class objectives could not be met.

4.11.11 CDCA Plan Compliance

CMAs LUPA-VRM-1, LUPA-VRM-2, DFA-VRM-1, and DFA-VPL-VRM-1 would apply to the Project (Appendix 2C) and would be satisfied by information provided in Appendix 4, Section 4.11. DFA-VPL-VRM-3, LUPA-TRANS-BIO-1, LUPA TRANS-BIO-3, LUPA TRANS-BIO-4would also apply to the Project (Appendix 2C). The Project would comply with these CMAs through APM-AES-04 through APM-AES-06, and BMP-AES-04 and BMP-AES-06 through BMP-AES-08 (Appendix 2A).

4.11.12 Unavoidable Adverse Effects

The Project would be visible in the landscape within approximately 3 miles of viewers; and noticeable between 1 and 2 miles away, particularly where there is no existing development. Where the Project would follow the existing DPV1 transmission line, the Project, in combination with the existing infrastructure would result in increased visual clutter and would result in contrast in structure form when guyed V structures would be used adjacent to the existing self-supporting lattice structures of the DPV1 transmission line. Where visible, ground disturbance would be obvious and noticeable for many years, if not permanently because of the desert environment and difficulty with revegetation and reclamation.

4.11.13 Cumulative Effects

As previously discussed, the Project, in combination with the existing infrastructure of the DPV1 transmission line would result in increased visual clutter, and contrast in structure form when guyed V structures would be used adjacent to the existing self-supporting lattice structures of the DPV1 transmission line. Within the BLM utility corridor along I-10, the combination of the highway and transmission infrastructure would increase the sense of development within the corridor as viewed by travelers along I-10. Appendix 3, Tables 3.12-1 and 3.12-2 list past, present, and foreseeable projects within the CEA. Of the 12 reasonably foreseeable future projects noted, 6 are utility scale renewable energy projects totaling 27,714 acres which would substantially increase developed human use of land.

Two large-scale solar facilities are planned in the easternmost portion of the CEA, the Harquahala Solar Project in Maricopa County and the La Paz County land purchase for solar development in La Paz County, both would be south of I-10. The Harquahala Solar Project would be in an area currently under agricultural use, while the La Paz County land purchase would be in an undeveloped desert area. However, both facilities could not be viewed simultaneously in

conjunction with the Project. For travelers along I-10, these future facilities, in conjunction with the Project and the existing Harquahala Power Plant, would change the character of the landscape from either undeveloped or rural to heavy energy infrastructure.

South of Quartzsite along Segments qs-02 and x-07, the combination of the Project with the existing transmission infrastructure would intensify the visual sense of energy infrastructure, and increase the level of visual clutter, similar to the DPV1 transmission line. However, southwest of Quartzsite, the transmission line would be viewed in context of development along the edge of Quartzsite, which would help the addition of the Project to blend and be less noticeable.

Similar to the Quartzsite area, the Project in conjunction with the existing DPV1 infrastructure in the Copper Bottom Pass area, would intensify the visual sense of energy infrastructure and increase the level of visual clutter. Along I-10, the combination of the highway and transmission infrastructure would increase the sense of development within the corridor as viewed by travelers along I-10. If visible from I-10, the reasonably foreseeable West Port Gold Project would increase the industrial character as well.

The majority of future development would occur in California, in the vicinity of the Colorado River Substation. The addition of four solar projects and associated gen-tie lines, and the Blythe Energy Power Plant/Sonoran Energy Project in conjunction with the Project and existing energy infrastructure, would change the character of the landscape in that area; but in the context of heavy energy infrastructure, the Project would blend and not be individually noticeable.

4.11.14 Irreversible and Irretrievable Commitment of Resources

The main irreversible or irretrievable commitment of resources with regard to visual resources would be the effects of ground disturbance. Because of the desert environment, reclamation and revegetation to achieve a visually naturalized state is extremely difficult, if not impossible. While structures, foundations, and conductors can all be physically removed at the end of the life of the Project, disturbance from cleared bases and access routes may never fully visually recover.

4.11.15 Relationship of Short-term Uses and Long-term Productivity

Short-term impacts on viewsheds in the Project Area would be tied to temporary visual intrusions from construction activities and structures. The visual intrusion of the transmission line and landscape contrast created by the Project infrastructure would remain for the operational life of the Project. Ground disturbance may remain visible and indefinitely impact the viewshed to varying degrees.

Chapter 5 Consultation, Coordination, and Preparation

CHAPTER 5 CONSULTATION, COORDINATION, PREPARATION

5.1 INTRODUCTION

CEQ regulations implementing NEPA require that Federal agencies provide meaningful opportunities for the public and stakeholders to provide input and identify their concerns with regard to the EIS process. Federal laws, such as the ESA, the CWA, and the NHPA, mandate public involvement and consultation with agencies and/or Federally recognized tribal governments. This chapter provides an overview of consultation and coordination efforts undertaken by the BLM throughout the entire process of developing this DEIS.

5.2 INTERRELATIONSHIPS BETWEEN AGENCIES (OTHER FEDERAL, TRIBES, STATE, LOCAL)

Agencies, tribes, and organizations that have jurisdiction and/or specific interest in the Project were contacted at the beginning of scoping, during the resource inventories, and prior to the publication of this DEIS to inform them of the Project, verify the status and availability of existing environmental data, request data and comments, and solicit their input regarding the Project. Additional contact was made to clarify or update information provided by the agencies and organizations.

Section 106 of the NHPA and its implementing regulations found at 36 CFR 800.14 provide Federal agencies with the authority to negotiate PAs to govern the implementation of their Section 106 responsibilities. A draft PA establishing the APE for Section 106 review and outlining the methods of identification, evaluation, and treatment of historic properties has been prepared for the Project. Both the Arizona and California SHPOs participated in drafting the PA.

5.2.1 Cooperating Agency Coordination

A cooperating agency is any Federal, state, or local government agency or tribe that has jurisdiction by law or special expertise regarding environmental impacts of a proposed project. Those entities that chose to contribute to the preparation of this DEIS as cooperating agencies are listed in Table 5-1. Others may be added as the process moves forward.

Table 5-1 Cooperating Agencies

FEDERAL	ARIZONA	CALIFORNIA
EPA	AGFD	CPUC
DOD YPG	ASLD	
USFWS	MAG	
WAPA	La Paz County	
Reclamation	Town of Quartzsite	

5.3 NATIVE AMERICAN CONSULTATION

5.3.1 Applicable Laws, Regulations, Policies, and Plans

The BLM complied with numerous laws, regulations, policies, and plans specific to cultural resources, specific to the protection of tribal sacred sites, traditional cultural places, and other areas of cultural or religious significance to Indian tribes; as well as protocols regarding consultation with Indian tribes. These include NHPA, American Indian Religious Freedom Act, Native American Graves Protection and Repatriation Act, Archaeological Resource Protection Act of 1979, Native American Graves Protection and Repatriation Act, and Federal executive orders and manuals.

5.3.2 Federal Consultation Process

As the lead Federal agency responsible for ensuring compliance with the provisions of Section 106 of the NHPA, and other regulatory requirements specific to historic properties and tribal concerns, the BLM has initiated consultation with affiliated Indian tribes. Affiliated Indian tribes were identified by BLM Field Offices (Yuma, Palm Springs-South Coast, Lake Havasu, Hassayampa, and Lower Sonoran), as well as through communication with the Native American Heritage Commission in California.

The BLM's consultation protocols include formal government-to-government and Section 106 consultation through letters and outreach, and face-to-face meetings and conference calls. In addition, the BLM has requested tribal input through the NEPA scoping process and workshops.

BLM consulted with the following 21 Indian tribes with jurisdiction or interest in the Project:

Agua Caliente	Fort McDowell	San Manuel
Ak-Chin	Fort Mojave	Soboba
Augustine	GRIC	Tohono O'odham
Cabazon	Hopi Tribe	Torres Martinez
Chemehuevi Tribe	Morongo	Twenty-Nine Palms
Cocopah Tribe	Quechan Tribe	Yavapai-Apache
CRIT	SRPMIC	Yavapai-Prescott

Efforts to initiate government-to-government consultation with these tribes have been undertaken. The tribal responses to the request for government-to-government consultation are in the Project record and available upon request.

5.4 PUBLIC PARTICIPATION SUMMARY

The scoping process and public participation program for the Project are described in this section. To collect agency and public input for the environmental review process associated with the Project, the BLM and CPUC administered a public notice and participation program. Although the public scoping requirements of NEPA and CEQA differ somewhat, the requirements are intended to initiate the public scoping process for the DEIS preparation; provide information about the Project; and solicit information (comments from affected public agencies, governmental representatives, tribal representatives, and the public) that will be helpful in the environmental review process. The following sections summarize efforts taken to consult and coordinate with all interested persons, agencies, tribes, and organizations.

5.4.1 Scoping Process

In accordance with NEPA, the BLM solicited public comments during a formal 45-day scoping period from March 23 through May 9, 2016. The NOI to Prepare an EIS was published in the *Federal Register*, Volume 81, No. 56, Page 15556 on March 23, 2016. The publication of the NOI initiated the formal 45-day scoping period. The NOI complied with the requirements of 40 CFR 1508.22.

A website with pertinent information for the Project was launched concurrently with publication of the NOI and will remain active throughout the Project. The site is available via the BLM Arizona State Office website (https://www.blm.gov/site-page/programs-planning-and-nepa-project-arizona-10-west-link). The BLM's ePlanning website for the Project also has information relative to the Project:

https://eplanning.blm.gov/epl-front-office/eplanning/planAndProjectSite.do?methodName=renderDefaultPlanOrProjectSite&projectId=59013&dctmId=0b0003e880af08fd

Legal notices and/or advertisements informing the public about the scoping opportunity for the Project were published in the appropriate newspapers in Arizona and California.

The BLM prepared scoping invitation letters that summarized the Project and proposed Federal actions, and opportunities to participate in the public involvement process. The mailing list of potentially interested parties was compiled from several sources including mailing lists from prior projects located in the Project area; local field office mailing lists; DCRT outreach mailing lists and landowner mailing addresses along the proposed route based on tax assessor records; the CPUC consultation list; and independent research to discover local special interest groups. The mailing list also includes additional parties who might be interested in the Project such as adjacent land owners or land managers. In addition to the invitation letter mailing, the BLM prepared email notifications of both the agency-only scoping meeting and the public scoping meetings.

Three public scoping meetings were held in Tonopah, Arizona, Quartzsite, Arizona and Blythe, California from April 12-14, 2016, to introduce the proposed Project and solicit feedback and comments. More information is on file in the Project administrative record. Representatives from the BLM and its contractors were present at each meeting to answer questions, discuss the Project,

and accept public comments. In addition, representatives from DCRT were present to answer questions about the technical aspects of their proposed Project.

5.4.2 Additional Public Participation Opportunities

5.4.2.1 Agency Scoping Meeting

An agency-only scoping meeting was held on April 12, 2016, at the BLM National Training Center in Phoenix, Arizona, to solicit comments from tribal, Federal, state, and local agencies with jurisdiction or interest in the Project. Twenty-five agency representatives were in attendance in addition to the BLM staff and its contractors, which included representatives from the Colorado River Indian Tribes, Quechan Tribe, Gila River Indian Community Tribal Historic Preservation, USFWS, U.S. Department of Energy/Western Area Power Administration, U.S. House of Representatives, ASLD, AGFD, Arizona State Parks, CPUC, California Department of Fish and Wildlife, and Maricopa County (Stantec 2016a).

5.4.2.2 Economic Strategies Workshop

An Economic Strategies Workshop (ESW) was held on June 14, 2016, in Quartzsite, Arizona. The purpose of the workshop was to identify potential social and economic challenges posed by the Project and potential opportunities that might enhance or expand the social and economic goals of area communities. Letters of invitation to the workshop were sent to government agencies with an interest in the Project and to organizations and individuals who had expressed an interest in the ESW during public scoping. The workshop provided an opportunity for local and regional businesses, governments, individuals, and community organizations to identify, clarify, and discuss economic and social effects that may result from the Project. The feedback gathered from the workshop contributed to the analysis of what types of impacts may occur from the Project.

5.4.2.3 Public Notification of DEIS Availability

BLM will send notification of availability of the DEIS to people on the mailing list, will publicize availability of the DEIS via news releases, and will publish a NOA in the Federal Register. Subsequently, BLM will hold public meetings to gather input. The DEIS will be available online at https://eplanning.blm.gov/epl-front-office/eplanning/planAndProjectSite.do?methodName=renderDefaultPlanOrProjectSite&projectId=59013&dctmId=0b0003e880af08fd. Hardcopies will be available for review at associated BLM offices and at other select locations such as libraries. BLM will provide single hardcopies of the document at request.

5.5 CONSULTATION PROCESS FOR ESA SECTION 7 AND NHPA SECTION 106

5.5.1 ESA Section 7 Compliance

The USFWS has jurisdiction to protect threatened and endangered species, and this is explained in the ESA [16 U.S.C. Section 1531 et seq.]. The California BLM completed formal programmatic consultation with the USFWS under the DRECP and received a BO on August 16, 2016. This included that portion of the Project in California that is not within the Colorado River corridor. Future projects in conformance with all applicable CMAs addressed in the DRECP would cover activities pertaining to the Mojave desert tortoise and its critical habitat; no further consultation on this species would be required. However, species occurring within the Colorado River corridor were not included within the DRECP consultation, and potential effects to listed species within the river corridor and in Arizona have not been included in past consultations. Therefore, upon selection of the preferred Project alternative, the BLM intends to prepare a BA and make a determination of the potential Project-related effects to ESA-listed species (i.e., no effect; not likely to adversely affect; or, may adversely affect), which would establish consultation requirements with the USFWS.

5.5.2 NHPA Section 106 Compliance

Federal agencies must demonstrate compliance with the NHPA (16 U.S.C. 470, et seq.). Section 106 of the NHPA requires a Federal agency with jurisdiction over a project to evaluate the effect of the proposed project on properties included on, or eligible for, the NRHP. SHPOs and Tribal Historic Preservation Officers (THPOs) play important roles in the review of impacts on historic properties (places included in or eligible for inclusion in the NRHP) under Section 106 of the NHPA and its implementing regulations at 36 CFR § 800. Federal agencies must also provide the ACHP an opportunity to comment on the effects of the proposed project on historic properties. The BLM notified the ACHP on February 15, 2017 that the Project was likely to have an adverse effect and invited them to participate in consultations. ACHP declined in a letter dated March 9, 2017. The BLM requested that the ACHP participate as a party to the PA on January 11, 2018; and the ACHP accepted on January 25, 2018.

Section 106 of the NHPA and its implementing regulations, found at 36 CFR 800.14, provide Federal agencies with the authority to negotiate PAs to govern the implementation of their Section 106 responsibilities. A draft PA establishing the APE for Section 106 review and outlining the methods of identification, evaluation, and treatment of historic properties has been prepared for the Project. Any adverse effects that the Project or alternatives may have on historic properties would be resolved through compliance with the terms of a PA under Section 106 of the NHPA (16 U.S.C. Section 470). The PA covers a considerable amount of protocols, methods, and timeframes, and serves as a legally binding document for the Project.

As defined in 36 CFR § 800.6, there are three tiers of participation in a PA document: Signatories, Invited Signatories, and Concurring Parties, which all have varying levels of responsibility. The tribes, agencies, governmental bodies, etc. who are Participants in the Ten West Link Draft PA are on file in the Project administrative record. A smaller subset of the Participants came together as the Writing Group for the PA.

In their role as Lead Agency responsible for Project cultural resources compliance, the BLM developed the draft PA with assistance from agency and tribal stakeholders through a series of writing group meetings. The draft PA developed through the writing group was distributed for review and comment to all consulting parties prior to inclusion in the DEIS.

The draft PA is included for public comment in this EIS as Appendix 2D. At this time, this is only a draft and some language may change based on additional public comment and further discussion among the consulting parties. A revised draft PA will be included for public comment as an appendix in the FEIS. The final PA will be signed after the 30-day availability period on the FEIS ends and before the ROD is signed.

Implementation of the Project also would require local and state agencies in California to demonstrate compliance with CEQA (Appendix 1C), for which specific guidance regarding cultural resources is presented in Appendix K of the CEQA Guidelines. In Arizona, local and state agencies must comply with the Arizona antiquities laws. The list of consulting parties under Section 106 are on file in the Project administrative record.

5.6 LIST OF PREPARERS

Preparers and contributors involved in the DEIS and other aspects of the Project included staff from BLM, the CPUC, Dudek (CPUC's first party consultant), Stantec (BLM's NEPA third-party consultant), Galileo Project, LLC (BLM's administrative third-party consultant), and HDR Inc. (DCRT's first-party consultant). The actual personnel who contributed to the preparation, and how they contributed, are on file in the Project administrative record.

Appendix 1 Tabular Data Associated With Chapter 1

List of Tables

Table 1.5-1 Tribal and Federal Permits Required or Potentially Required

AGENCY	JURISDICTION AND/OR AUTHORIZING LAW	AUTHORIZATION/PERMIT
Colorado River Indian Tribes/Bureau of Indian Affairs (BIA)	Tribal lands	If CRIT lands are used: Land Occupational Use Conditional use permits for construction access, laydown areas, and predevelopment activities ROW Easement (BIA) THPO consultation under NHPA Section 106 Signatory to NHPA programmatic agreement
BLM	FLPMA – ROW grants on land administered by BLM	POD; Application for Transportation and Utility Systems and Facilities on Federal Lands (SF 299) (ROW Grant) RMP Amendment
	(Lead Agency) NEPA	Lead Agency: Prepare EIS
	NHPA, Section 106 review (36 CFR 800); EO 11593, EO 13007, EO 13084, EO 13175	Lead Agency: Compliance with Section 106. Obtain concurrence from the SHPOs.
	Endangered Species Act	Lead Agency: Obtain concurrence from USFWS if any potential take of Threatened, Endangered, or Candidate species
Reclamation	43 CFR Part 429 – land use authorization	Land use authorization (SF-299)
U.S. DOD – Army	U.S. Army Military Facilities	ROW Grant on YPG – BLM land withdrawal Right of Entry
USFWS	National Wildlife Refuge System Administration Act of 1966, as amended by the National Wildlife Refuge System Improvement Act of 1997 (16 USC 668dd[d]; 50 CFR Part 29, Subpart B)	Finding of Appropriateness (Appendix 1A) Certificate of Environmental Compatibility for the Kofa NWR ROW Grant – Crossing Kofa NWR
	ESA Section 7 Consultation, Biological Assessment	Consultation for Section 7 of the ESA Biological Opinion/Incidental Take Permit Habitat Conservation Plans – Riverside County

AGENCY	JURISDICTION AND/OR AUTHORIZING LAW	AUTHORIZATION/PERMIT
U.S. Army Corps of Engineers (USACE)	Clean Water Act (CWA), Section 404/Rivers and Harbors Appropriation Act, Section 10 – Construction or operation of facilities that may result in any discharge into U.S. navigable waters	Section 404 Permit Preconstruction Notification for Nationwide Permit (NWP) Section 10 Permit – Power transmission line crossing of navigable waters (Colorado River)
FAA	Safe, Efficient Use and Preservation of the Navigable Airspace, 14 CFR Part 77	Determination of No Hazard based on an application Notice of Proposed Construction or Alteration
FCC	Licenses/permits related to FCC frequencies and paths	Telecommunication Permit (as required)
FERC	Ratemaking for transmission facilities	Federal Power Act, Section 219, authorization for transmission rate incentives Federal Power Act, Section 205, acceptance of transmission revenue requirement and tariff FERC Stats. and Regs Order No. 679, pricing reform for interstate transmission
WAPA	§ 301 of the Hoover Power Plant Act of 1984 (Public Law 98-381), as amended (§ 301, "Western Area Power Administration Borrowing Authority)	Provide funding Ownership interest in fiber optic communication links

Table 1.5-2 State and Local Government and Other Entity Permits Required or Potentially Required

AGENCY	JURISDICTION AND/OR AUTHORIZING LAW	AUTHORIZATION/PERMIT
ACC	ARS Title 40, Chapter 2, Article 6.2 (§§ 40-360 to 40-360.13), ACC Rules of Practice and Procedure Revised Statutes related to transmission, substation, and generation projects	CEC needed for transmission lines greater than two poles and greater than 115kV, or power generation facilities 100MW or larger
	ARS Title 40, Chapter 2, Article 4 (§§ 40-281 to 40-287), ACC Rules of Practice and Procedure Revised Statutes related to certificates for public service corporations	CPCN should the power of eminent domain be necessary

AGENCY	JURISDICTION AND/OR AUTHORIZING LAW	AUTHORIZATION/PERMIT
Arizona Department of Transportation	Arizona streets and highways: ARS § 28-7053, Arizona Administrative Code (AAC) R17-3-501 to 509	Utility Crossing Permit Permit for Use of Highway ROW (US 95 and I-10) Oversize/Overweight Class C Permit Encroachment permit Rules and permits for outdoor advertising
Arizona Department of Agriculture	Native Plant Law (ARS §§ 3-901 to 916)	Notice of Intent to Remove or Destroy Protected Native Plants
Arizona SHPO	ARS §§ 41-861 to 864 (applies to any archaeological and paleontological work)	Compliance with State Historic Preservation Act (SHPA) and Compliance with Section 106 of the NHPA
Arizona State Museum	ARS § 41-865	Permit to Disturb Human Remains or Funerary Objects
ASLD	ARS § 37-461	ROW/Right-of-Entry Permit required for survey and construction of transmission line within ROWs on State Trust Land
AGFD	USFWS Coordination Act	Coordination with BLM, Reclamation, USFWS, and USACE to minimize disturbance to or loss of special status wildlife species habitat and Scientific Collecting Permit for Biological Monitors
ADEQ	ARS § 49-0255; AAC Title 18, Chapter 11	Arizona Pollutant Discharge Elimination System (APDES) Stormwater Permit for construction and operation activities affecting 1 acre or more
	CWA (33 CFR Parts 320, 322, 323, 325)	State Water Quality Certification (Section 401) for construction across water resources (state review required for all Federal Section 404 permits)
	AAC Title 18, Chapter 2, Article 6	Dust Control Plan (for La Paz County)
	AAC Title 18, Chapter 14, Articles 102 and 103	Aquifer Protection Permit
	AAC Title 18, Chapter 8	Hazardous Waste Generator Registration Air Quality Permit for Harquahala Mountain Engine/Generator (if greater than 325 horsepower) – prior to engine installation
	AAC Title 18, Chapter 2, Article 3	Class I Air Permit
Maricopa County	County roads and highways, flood control/ drainage channels	Road/Highway Encroachment/Crossing Permit Flood Control/Drainage Channel Encroachment/Crossing Permit Floodplain Use Permit Oversize Permit Stationary Dust-Generating Source Class I Air Permit

AGENCY	JURISDICTION AND/OR AUTHORIZING LAW	AUTHORIZATION/PERMIT
La Paz County	County roads and highways, flood control/ drainage channels	Overhead Utility Road Crossing Flood Control/Drainage Channel Encroachment/Crossing Permit
Harquahala Irrigation District	District irrigation/drainage channels	Encroachment/Crossing Permit
Maricopa County Air Quality Department	Maricopa County	Earthmoving Permit
SCE	SCE tariff	Interconnection Approval, Colorado River Substation
APS	APS wire interconnection process	Interconnection Approval, Delaney Substation
CAISO	Purpose and need for new transmission, substation, and generation projects	Selection of the Project Sponsor - DCRT
California State Lands Commission	Division 6 of the California Public Resources Code – Construction of a transmission line on state lands	ROW Easement Public Trust Land Use Lease (if applicable) Right-of-Entry
CDFW	California Fish and Game Commission (CFGC) Code Section 1600 et seq. – Alteration of any streambed, drainage, or lake	1601/1603 Permit, Lake or Streambed Alteration
	California Endangered Species Act – Take of state-listed threatened or endangered species	Consultation for take avoidance Incidental take permit (as required); no incidental take permit available for Federally Protected Species (FPS)
	CFG Code Sections 3511, 4700, 5050, and 5515	Consultation for take avoidance
	CFG Code Section 3503 – Migratory Bird Protection	Consultation
	Native Plant Protection Act – Taking of endangered or rare native plants	Consultation Take permit
	Natural Community Conservation Planning Program – Impacts to areas identified for conservation of natural communities and ecosystems	Consultation

AGENCY	JURISDICTION AND/OR AUTHORIZING LAW	AUTHORIZATION/PERMIT
California Department of Transportation (Caltrans), District 8	California Vehicle Code Section 35780 California streets and highways Code 660-711.21 CCR 1411.1–1411.6	Oversize/overweight loads Permit Road/Highway Encroachment/Crossing Permit (as required)
California Department of Water Resources	Water crossings	Encroachment/Crossing Permit (as required)
California Department of Toxic Substations Control	Hazardous Waste Control Act of 1972	EPA Hazardous Waste Generator ID
CPUC	California Public Utilities Code	CPCN Permit to Construct (PTC)
	CEQA	Issuance of a CPCN and/or PTC requires the CPUC to conduct an environmental review pursuant to CEQA.
California SHPO	Section 106 of the NHPA Review – Impacts to historic properties, including those eligible for or listed on the National Register of Historic Places	Section 106 consultation, Cultural Resource Management Plan
California Air Resources Board (CARB)	Statewide	Portable Engine Registration for Specified Non-Mobile Portable Engines
Riverside County	Riverside County Ordinance No. 348 (Section 18.29 of Article XVIII) – Gives county jurisdiction over electrical transmission projects, CEQA	Public Use Permit/Environmental Impact Review
	Riverside County Code of Ordinances, Section 12.08.020 and 10.08.010 County roads and highways flood control/drainage channels	Road/Highway Encroachment/Crossing Permit Transportation Permit (for oversize and overweight vehicles) Flood Control/Drainage Channel Encroachment/Crossing Permit

AGENCY	JURISDICTION AND/OR AUTHORIZING LAW	AUTHORIZATION/PERMIT
Colorado River Regional Water Quality Control Board (RWQCB), Region 7	CWA, Section 401 – Impacts to surface water quality from construction activities	401 Certification/Storm Water Construction General Permit 99-08-DWD
	CWA, Section 402 – Construction-related discharges to waters of the state, including construction projects that disturb more than 1 acre	Notice of Intent – California General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities National Pollutant Discharge and Elimination System (NPDES) Permit
	Porter-Cologne Act – Construction-related discharge to waters of the state	Waste Discharge Requirements
Mojave Desert Air Quality Management District	Eastern Riverside County Rule 403.2	Authority to Construct (ATC) permit and/or Permit to Operate (PTO) portable engines greater than 50 horsepower not registered under the CARB Portable Engine Registration Program (prior to installation of engine) Fugitive Dust Control Plan
Palo Verde Irrigation District	District irrigation/drainage channels	Encroachment/Crossing Permit
Kinder Morgan	Activities in area of pipeline	Pipeline Encroachment/Crossing Permit
El Paso Natural Gas	Activities in area of pipeline	Pipeline Encroachment/Crossing Permit
Southern California Gas	Activities in area of pipeline	Pipeline Encroachment/Crossing Permit
AT&SF Railroad	Activities in area of railroad	Encroachment/Crossing Permit
CAP	Activities in area of water canal	Crossing permit
Western Electricity Coordinating Council	Electrical interconnection coordination	Comprehensive Progress Report Prepare a system impact study and provide a path rating

Table 1.7-1 Federal Laws and Statutes with which the Proposed Action and Action Alternative Segments Must Conform

LAW OR STATUTE	REFERENCE
American Indian Religious Freedom Act of 1978	Public Law [PL] 95-341; 42 USC § 1996
Antiquities Act of 1906	16 USC 431 *et seq*.
Archaeological and Historic Data Preservation Act of 1974	PL 86-253, as amended by PL 93291; 16 USC § 469
Archeological Resources Protection Act, of 1979, as amended	16 USC 470aa *et seq*.
Bald and Golden Eagle Protection Act of 1940	16 USC §§ 668–668d, 54 Stat. 250, as amended; and PL 95-616 (92 Stat. 3114)
Clean Air Act (CAA) of 1990	PL 92-574; 42 USC 7401 *et seq*.
CWA	33 USC 1251 *et seq*.
Colorado River Basin Salinity Control Act of 1974	PL 93-320
Department of Transportation Act of 1966	PL 95-341; 42 USC § 1996
ESA of 1973	PL 85-624; 16 USC §§ 661, 664, 1008
Energy Policy Act of 2005	PL 109-59
Farmland Protection Policy Act	PL 97-98 and 7 CFR § 658
FLPMA of 1976	PL 94-579; 43 USC § 1701 *et seq*.
Federal Noxious Weed Act of 1974 as amended by the Food, Agriculture, Conservation, and Trade Act of 1990	USC 2801 *et seq*.
Federal Plant Pest Act	7 USC 150aa *et seq*.
Historic Sites Act of 1935	PL 292-74; 16 USC §§ 461–467
Land and Water Conservation Fund Act of 1965	PL 88-578
Migratory Bird Treaty Act of 1918	16 USC §§ 703–712, as amended
NEPA of 1969, as amended	PL 91-190, as amended by PL 94-52, PL 94-83, and PL 97-258; 42 USC § 4321
NHPA of 1966, as amended	PL 89-665; 54 U.S.C. 300101 et seq
Native American Graves Protection and Repatriation Act of 1990, as amended	25 USC 3001-30013 *et seq*.
Noise Control Act of 1972, as amended	42 USC 4901 *et seq*.
Noxious Weed Control and Eradication Act	PL 108-412
Nuisance Prevention and Control Act of 1990 as amended	16 USC 4701 et. seq.
Occupational Safety and Health Act	29 USC 651 *et seq*. (1970)
Paleontological Resources Preservation Act (PRPA) 2009	Public Law 111-11, 16 USC 470aaa

LAW OR STATUTE	REFERENCE
Pollution Prevention Act of 1990	42 USC 13101 *et seq*.
Religious Freedom Restoration Act of 1993	PL 103-141
Safe Drinking Water Act of 1974	42 USC s/s 300f *et seq*.
Safe, Accountable, Flexible, Efficient Transportation Equity Act	PL 109-59

Table 1.7-2 Executive Orders with which the Proposed Action and Action Alternative Segments Must Conform

EXECUTIVE ORDER	REFERENCE
Actions to Expedite Energy-related Projects	EO 13212
Consultation and Coordination with Indian Tribal Governments	EO 13084 EO 13175
Federal Actions to Address Environmental Justice in Minority Populations and Low-income Populations	EO 12898
Federal Compliance with Pollution Control Standards	EO 12088
Flood Hazard Evaluation Guidelines	EO 11296
Floodplain Management	EO 11988
Indian Sacred Sites	EO 13007
Intergovernmental Review of Federal Programs	EO 13272
Invasive Species	EO 13112
Preserve America	EO 13287
Protection and Enhancement of Environmental Quality	EO 11514
Protection and Enhancement of the Cultural Environment	EO 11593
Protection of Wetlands	EO 11990
Responsibilities of Federal Agencies to Protect Migratory Birds	EO 13186
Use of Off-Road Vehicles on the Public Lands	EO 11644

Table 1.7-3 Federal Regulations and Guidance with which the Proposed Action and Action Alternative Segments Must Conform

REGULATIONS AND GUIDANCE	REFERENCE
Federal Resource Management Planning	43 CFR Part 1600, Subpart 1610
BLM Land Use Planning Handbook	H-1601-1
BLM Land Use Permits and Leases	43 CFR 2920
BLM NEPA Handbook	H-1790-1
BLM Handbook - Improving and Sustaining BLM-Tribal Relations	H-1780-1
DOI Implementing NEPA Regulations	43 CFR Part 46
BLM Rights-of-Way Regulations	43 CFR 2800
CEQ General Regulations Implementing NEPA	40 CFR §§ 1500–1508
Floodplain Management	43 CFR § 6030
Prime and Unique Farmlands	7 CFR § 658
Responsibilities, and the ESA (June 5, 1997)	Secretarial Order 3206
Section 404 of the CWA and Its Implementing Regulations	33 CFR §§ 320–331 and 40 CFR § 230

Table 1.9-1 Issues Identified During Public and Agency Scoping

COMPONENT OR RESOURCE	ISSUE
Proposed Action	Would the Project result in new disturbance with associated resource impacts?
	Would the Project be compatible with the missions or needs of other jurisdictions?
Alternatives	Do the Action Alternatives reduce or avoid impacts, such as avoiding the need for a Section 404 permit, and impacts to the Kofa NWR, the YPG, Johnson Canyon, and state lands?
	Would the Action Alternatives take advantage of identified utility corridors?
Monitoring and Mitigation	Have or will appropriate and resource-specific monitoring programs and mitigation been developed in conjunction with the Project?
Air Quality and Greenhouse Gases	Would construction and operation of the Project result in generation of emissions and cause a change in ambient air conditions?
	Would the Project impact, or be impacted by, climate change, including GHG emissions?

COMPONENT OR RESOURCE	ISSUE
Vegetation Resources including Noxious and	Would the Project remove native vegetation and impact plant habitat, including rare, native, and special status plant species?
Invasive Weeds and Special Status Species	Would the Project influence the spread of invasive and noxious plants?
Wildlife including Special Status Wildlife, Migratory	Would the Project adversely affect wildlife, including special status species, by direct disturbance, stressing populations, and fragmentation of wildlife corridors and linkages?
Birds, and Fisheries	Would the Project increase predation by providing numerous perches for predatory birds to detect prey?
	Would the Project cause direct mortality to wildlife during construction due to construction vehicle traffic, vegetation removal, and excavation activities?
	Would the Project affect ESA-listed fish species and their habitat at the Colorado River crossing?
	How would adverse impacts to threatened, endangered, and sensitive wildlife species be minimized or avoided?
Cultural Resources	Would cultural resource sites be impacted by the Project?
Tribal Relationships and Treaty Rights	Would the BLM conduct government-to-government consultation with affected Indian tribes and adhere to NHPA Section 106 requirements?
	Would the Project impact the ability of tribal members to exercise their treaty rights in the Project Area?
Hazardous Materials and Hazardous and Solid Waste	How would the Project protect soil, groundwater, and communities in the Project Area from hazardous materials or petroleum products that would be used during construction and operation?
Land Use, Agriculture, Special Designations, and Wilderness	Would the Project impact military operations and training on the YPG through the transmission line EMFs, which could affect YPG radio frequencies and make the facility less secure?
	Would the Project interfere with agricultural operations and efficiency?
	Would the Project affect the wilderness values of naturalness, undeveloped quality, and opportunities for primitive recreation and solitude, both within designated wilderness and LWC?
	Would the Project be consistent with the Kofa NWR mission and purpose?

COMPONENT OR RESOURCE	ISSUE
Recreation	What would be the effect of the Project on hunting, recreation access, and recreational experiences within the Project Area?
	What would be the effect of Project on the pristine qualities and technical challenge of Johnson Canyon and the Arizona Peace Trail, which could detract from the recreation experience in these areas?
	Would the Project affect recreational vehicle camping in the Quartzsite area?
Socioeconomics	What would the Project's effect be on access to and cost of environmentally friendly energy sources?
	Would the Project affect property rents and values?
	Would the Project impact some recreation experiences that could lead to impacts on economic opportunities related to tourism and recreation in the Project Area?
	Would the Project impact the tax base in affected counties and/or the counties' ability to fund services for residents?
	Would Project construction affect employment opportunities?
	Would the transmission line affect revenue generation by other utilities?
	Should direct adverse economic impacts to local communities result from the Project, would there be indirect social impacts or impacts to future economic development options?
	Would indirect impacts from mitigation adversely impact economics in the Project Area?
Socioeconomics	Would social and economic conditions and impacts be broken out and identifiable by county?
Transportation, Public Health, and Safety	Would construction of new roads associated with the Project impact the level of OHV use within the Project Area and/or spread OHV use into new areas?
	Would the use of new and existing roads for access to the transmission line impact the potential for trespass on the YPG by OHV riders and unauthorized individuals?
	Would construction of the Project impact the threat of contracting valley fever via fugitive dust, which carries the virus?
	Would EMFs from the transmission line affect the health of those near the line or create the perception of potential adverse health effects?
	Would the Project affect the operation of existing utilities in the Project Area?
Visual Resources	How would the Project affect the quality of the visual landscape?
Water Resources	Would the Project could affect washes, stream channels, hydrologic function, and future flood control?
	Would the Project impact the quality and/or quantity of surface and groundwater?
	Would the Project affect agricultural irrigation, thus impacting groundwater and surface water supply?

Appendix 1A USFWS Finding of Appropriateness of Refuge Use

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Post Office Box 1306
Albuquerque, New Mexico 87103

In Reply Refer To:
FWS/R2/NWRS/AZ-NM/064736

January 26, 2017

Ms. Jennifer Rouda
Vice President, Environmental Development
Abengoa Transmission & Infrastructure
2929 North Central, Suite 1000
Phoenix, Arizona 85012

Dear Ms. Rouda:

The U.S. Fish and Wildlife Service (Service) has completed the enclosed Finding of Appropriateness of a Refuge Use (Finding) for the project proposed by Delaney Colorado River Transmission to construct a 500 kV transmission line across about 25 miles of Kofa National Wildlife Refuge (NWR).

The Finding was conducted pursuant to policy in the Service Manual (Chapter 603 FW 1). As previously advised, for a use to be found appropriate, it must be a wildlife-dependent recreational use; contribute to fulfilling the refuge purpose(s), National Wildlife Refuge System (NWRS) mission, or goals or objectives described in a refuge management plan; or meet the criteria addressed in the enclosed FWS Form 3-2319. This proposed transmission line it outside of any permitted right of way and based on our evaluation, the proposed project does not meet the criteria for an appropriate use and would interfere with and detract from fulfilling the NWRS mission and purpose of Kofa NWR. As such, the Service has found that the proposed project cannot be authorized and a right of way permit will not be granted for this project on Kofa NWR.

If you have questions, please contact me at 928-783-7861.

Sincerely,

Elaine E. Johnson

Elaine Johnson, Complex Manager

Enclosure (s)

Cc: Richard Weiss, Project Manager, Starwood Energy Group
Emilio Rodríguez-Izquierdo Serrano, VP Business Development, Phoenix Office, Abbengoa
Cary Olson, Senior Project Manager, HDR Engineering
Joseph Incardine, National Project Manager, Bureau of Land Management
Eduardo Arreola, Supervisory Project Manager, AZ State Office, Bureau of Land Management
John MacDonald, Field Manager, Yuma Office, Bureau of Land Management
Steve Spangle, Field Supervisor, AZ Ecological Services, U.S. Fish and Wildlife Service
Juliette Fernandez, Refuge Supervisor AZ/NM, U.S. Fish and Wildlife Service

FINDING OF APPROPRIATENESS OF A REFUGE USE

Refuge Name: Kofa National Wildlife Refuge

Use: 500 KV transmission line Right Of Way (ROW) request

This form is not required for wildlife-dependent recreational uses, take regulated by the State, or uses already described in a refuge CCP or step-down management plan approved after October 9, 1997.

Decision Criteria:	YES	NO
(a) Do we have jurisdiction over the use?	✓	
(b) Does the use comply with applicable laws and regulations (Federal, State, tribal, and local)?	✓	
(c) Is the use consistent with applicable Executive orders and Department and Service policies?		✓
(d) Is the use consistent with public safety?	✓	
(e) Is the use consistent with goals and objectives in an approved management plan or other document?		✓
(f) Has an earlier documented analysis not denied the use or is this the first time the use has been proposed?		✓
(g) Is the use manageable within available budget and staff?		✓
(h) Will this be manageable in the future within existing resources?		✓
(i) Does the use contribute to the public's understanding and appreciation of the refuge's natural or cultural resources, or is the use beneficial to the refuge's natural or cultural resources?		✓
(j) Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality (see section 1.6D, 603 FW 1, for description), compatible, wildlife-dependent recreation into the future?		✓

Where we do not have jurisdiction over the use ("no" to (a)), there is no need to evaluate it further as we cannot control the use. Uses that are illegal, inconsistent with existing policy, or unsafe ("no" to (b), (c), or (d)) may not be found appropriate. If the answer is "no" to any of the other questions above, we will generally not allow the use.

If indicated, the refuge manager has consulted with State fish and wildlife agencies. Yes ___ No ✓

When the refuge manager finds the use appropriate based on sound professional judgment, the refuge manager must justify the use in writing on an attached sheet and obtain the refuge supervisor's concurrence.

Based on an overall assessment of these factors, my summary conclusion is that the proposed use is:

Not Appropriate ✓ Appropriate ____

Refuge Manager: Elaine E Johnson Date: 21 Oct 2016

If found to be Not Appropriate, the refuge supervisor does not need to sign concurrence if the use is a new use.

If an existing use is found Not Appropriate outside the CCP process, the refuge supervisor must sign concurrence.

If found to be Appropriate, the refuge supervisor must sign concurrence.

Refuge Supervisor: [signature] Date: 1/24/17

A compatibility determination is required before the use may be allowed.

FWS Form 3-2319
02/06

Finding of Appropriateness of a Refuge Use

Proposed Use: Issuance of new right-of-way permit to DCR Transmission, LLC for construction and operation of Ten West Link 500 kV transmission line through the Kofa National Wildlife Refuge

DCR Transmission, LLC (DCRT), a California-based electric company, is proposing to construct a segment of a 500 kV line from east to west across the 24.8-mile width of Kofa National Wildlife Refuge (NWR). This would be part of the 114-mile, 500 kV Ten West Link transmission line that originates at the Delaney Substation in Maricopa County (AZ), traverses through La Paz County, and crosses the Colorado River into the Southern California Edison Colorado River Substation in Riverside County, CA. DCRT is requesting a new right-of-way (ROW) permit from the U.S. Fish and Wildlife Service (Service) for this proposed line which would be constructed on Kofa NWR adjacent to an existing Southern California Edison (SCE) transmission line (Devers Palo Verde 1). This new ROW request is from a different company (DCRT). It cannot be accommodated within the exiting SCE ROW and therefore, would require a new ROW.

The ROW requested would include a 24.8-mile long, 180-foot wide easement (90 feet on each side of the proposed transmission line). The requested ROW totals about 542 acres. It would be separated from the existing SCE ROW which is 160 feet wide by an 80-foot wide gap. The cumulative width of the existing SCE ROW (160ft), the gap (80ft), and the ROW requested by DCRT (180ft) would be 420 feet.

In May 2016, the Service's Southwest Regional Realty Division received an April 16, 2016 letter from DCRT requesting a "Certificate of Compatibility and Right of Way". Prior to review of a proposed use of a National Wildlife Refuge for compatibility, the use must first be found to be an Appropriate Use as outlined in 603 FW 1.

For a potential use of a refuge to be found appropriate, the use must meet at least one of the following conditions: (1) it is one of the six wildlife-dependent recreational uses identified in the National Wildlife Refuge System Improvement Act of 1997; (2) the use contributes to fulfilling the refuge purpose, the National Wildlife Refuge System mission, or goals and objectives of a refuge management plan; (3) the use involves the take of fish and wildlife under State regulations; or (4) the Refuge Manager has evaluated the use and found it to be appropriate.

Construction of a transmission line is clearly not a wildlife-dependent recreational use; it does not contribute to fulfilling the refuge purpose, NWR System mission, or goals and objective of a refuge management plan; and it does not involve hunting or fishing under State regulations. This proposed transmission line has not previously been evaluated for appropriateness and has thus not previously been found to be appropriate.

Based on these criteria and the justifications presented below for responding to the questions in the "Finding of Appropriateness of a Refuge Use" form (see attached), this proposed use is not appropriate and construction of a new transmission line across Kofa NWR should not be considered as a viable alternative in the Environmental Impact Statement under preparation by

the U.S. Bureau of Land Management (BLM). Further consideration by the Service of the ROW permit application submitted by DCRT should be discontinued.

The following discussion provides our reasoning for addressing each of the decision criteria in the attached Finding of Appropriateness checklist:

(a) Does the Service have jurisdiction over the use?

YES - Portions of the proposed electrical transmission line would be on lands managed as part of the Kofa NWR and owned in fee title. The Service has full jurisdiction over all uses proposed on this land. Service policy 340 FW3 states, "It is the policy of the Service to discourage the types of uses embodied in right-of-way requests. On areas in the National Wildlife Refuge System (System), if a right-of-way cannot be certified as compatible with the purposes for which a unit was established, it cannot be granted without authorization by Congress (50 CFR 29.21(g))."

(b) Does the use comply with applicable laws and regulations (Federal, State, tribal, and local)?

YES - It is unknown if the proposed electrical transmission line would be compliant with all applicable laws and regulations. It is assumed that construction of a new electrical transmission line at any location would only be permitted if it were consistent with all applicable laws and regulations.

(c) Is the use consistent with applicable Executive orders and Department and Service policies?

NO - It is the policy of the Service to discourage the types of uses embodied in ROW requests. If a ROW cannot be certified as compatible with the purposes for which a refuge was established and the mission of the NWR System, it cannot be granted without authorization by Congress (340 FW 3, Rights-of Way and Road Closings). In this case, Kofa NWR was established for the conservation of natural wildlife resources with an emphasis on conservation of desert bighorn sheep. Before any project is evaluated regarding its compatibility, it must first be determined by the Refuge Manager to be an appropriate use.

This proposed ROW would also be inconsistent with the NWR System Improvement Act of 1997 which mandates maintaining biological integrity, diversity and environmental health. Each refuge is required to protect and where appropriate, restore natural, historic ecological conditions including associated processes (e.g., native semi-desert grassland succession and regeneration). Historic conditions are those which were present prior to substantial, human-related changes to the landscape (601 FW 3.6D - Biological Integrity, Diversity, and Environmental Health).

ROWs and other construction projects may cause habitat fragmentation, degrade habitat quality through introduction of contaminants, disrupt wildlife movement corridors, alter hydrology, facilitate introduction of invasive species, and disturb wildlife. Proposed uses which would conflict with the legal requirement to maintain ecological integrity are not considered appropriate or compatible. Service policy (603 FW 2.5A) further states that proposed refuge uses that would

conflict with the legal requirements to maintain biological integrity, diversity, and environmental health are not compatible. This proposed use does not support these criteria.

(d) Is the use consistent with public safety?

YES - While likely no direct threat to public safety, the establishment of a new ROW for the construction and long term maintenance of a new transmission line will create additional traffic on the east-west road across the northern part of Kofa NWR. Additional traffic will increase the likelihood of off-road vehicular incursions and the potential for accidents involving motor vehicles, bicycles, horseback riders, and pedestrians on the refuge. In addition, the construction of a new transmission line would increase fire danger from the power line directly, and by maintenance activities such as vegetation clearing near and under the transmission line. Potential health effects of exposure to electromagnetic fields are unknown and may be a concern to some visitors.

(e) Is the use consistent with goals and objectives in an approved management plan or other document?

NO - The proposed project is contrary to specific refuge objectives, the establishment purpose of the refuge, the mission of the NWR System, and Service policy regarding management of wilderness.

Construction of a 500kV transmission line would be in conflict with the specific goals and objectives outline in the 1996 Kofa NWR and Wilderness and New Water Mountains Wilderness Interagency Management Plan and Environmental Assessment (Interagency Management Plan and EA). Refuge management programs are designed to protect natural resources and values of the refuge for the long-term and to provide for public appreciation of the refuge as appropriate and compatible with the refuge establishment purposes.

Management objectives and issues identified in the 1996 Interagency Management Plan and EA include:

- Preservation of Wilderness Values: Maintain or enhance the wilderness values of naturalness; maintain outstanding opportunities for solitude and primitive recreation and special features; and preserve and enhance scenic qualities.

- Wildlife and Habitat Management: Within a dominant wilderness context, maintain and enhance the natural diversity of flora and fauna, in particular listed and candidate species, sensitive species and special status species; recover population and maximize genetic diversity of desert bighorn sheep; reintroduce Sonoran pronghorn and establish a viable population; manage fire; manage wildlife waters; and prevent establishment of invasive species.

- Recreation and Public Access: Maintain high quality opportunities for recreation and wildlife dependent and/or primitive recreation that is compatible with the purposes for which

Kofa NWR was established including wildlife observation, hunting, camping, photography and wilderness opportunities for solitude.

Kofa NWR encompasses just over 666,000 acres of Sonoran desert habitat. It was established in 1939, and was "…reserved and set apart for the conservation and development of natural wildlife resources" (Executive Order 8039, 4 FR 438), with an emphasis on improving the population of desert bighorn sheep.

The overall management of the Kofa NWR focuses on providing for a diversity of plants and wildlife that currently exists or historically occurred on the refuge. The various habitats throughout the refuge are home to over 193 bird species, 43 species of reptiles and amphibians, 50 mammal species, including desert bighorn sheep, mule deer, bobcats, mountain lions and the endangered Sonoran pronghorn. The Sonoran desert tortoise, although not currently listed, still remains a species of concern.

Kofa NWR was established for the recovery of desert bighorn sheep populations. While the sheep have largely done well on the refuge, a recent population decline of nearly half the historic population of 800 sheep prompted investigations into possible causes of the decline and management actions targeted specifically toward recovery. Increased habitat fragmentation and construction activities that would occur as a result of a ROW for a transmission line, may slow population recovery and restrict sheep movements between mountain ranges. North-south movement between mountain ranges is important for sheep to maintain genetic diversity and since habitat conditions may vary dramatically between different locations based on sporadic and localized rainfall. It is important for the long-term survival of desert bighorn sheep to be able to move to areas with sufficient food and water, particularly during dry seasons or dry years and prolonged droughts.

The mission of the NWR System is "To administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans." Construction of a 500kV transmission line would not support nor be consistent with this mission.

The Wilderness Act of 1964, as amended, established the National Wilderness Preservation System and mandates that wilderness areas be administered for the use and enjoyment of the American people in such a manner as will leave them unimpaired for future use and enjoyment as wilderness. Congress designated 547,719 acres or over 80 percent of Kofa NWR, as wilderness through the 1990 Arizona Desert Wilderness Act. For refuges that encompass Congressionally-designated wilderness, the purposes of the Wilderness Act are additional purposes of the wilderness portion of that refuge (603 FW 2 2.6). While the proposed ROW would not lie directly within wilderness, it would be in close proximity and a project of this magnitude will inevitably have negative effects on the wilderness values and character of the refuge.

At least 22 species of plants protected under the Arizona Native Plant Law (Arizona Revised Statutes Title 3) have been documented or are highly likely to occur within the potential ground-

disturbing area. One endangered species has been documented and 10 wildlife species considered a Sensitive Species by BLM or Arizona Game and Fish Department (AGFD) Wildlife of Special Concern have moderate to high potential to occur in the area. Ground disturbance, construction and maintenance activities, and subsequent increase in traffic will increase possible introduction and dispersal of invasive species and disturbance to cryptobiotic soils and desert "pavement".

In 2011, the refuge began work to re-establish a population of the endangered Sonoran pronghorn on Kofa NWR which lies within the historic range of the species. This was undertaken to support recovery and down-listing of the species. The wild population has reached about 70 animals through reproduction and supplemental releases. Sonoran pronghorn are nomadic and require large expenses of land to survive as localized droughts are frequent and summer rains are sporadic. These animals must be able to move to areas with sufficient food and water throughout the year. Sonoran pronghorn have repeatedly been documented within the area of the proposed ROW and may be negatively impacted by general human disturbance, construction and maintenance activities, and associated habitat loss and fragmentation.

The Sonoran desert tortoise is a species of concern. Past surveys on Kofa NWR have indicated a healthy but low density tortoise population. Density and diversity of vegetation are important to tortoise distribution. An additional powerline would alter plant communities and reduce already limited cover, further fragment habitat, and increase the potential for encounters between people and tortoises.

Construction of spur roads and expansion of the utility corridor would impact small mammals and herpetofauna through habitat fragmentation and potential isolation of populations. Species affected may include BLM Sensitive Species or AGFD Wildlife of Special Concern such as the rosy boa and Gila monster. Construction activities would result in unavoidable direct mortality of a number of mammals and reptiles. Construction and maintenance activities associated with the ROW could negatively impact the four Arizona Partners in Flight Priority Species that occur on the refuge (Lucy's warbler, Le Conte's thrasher, lesser nighthawk, gilded flicker) by destroying nesting or foraging habitat or disrupting nesting activities. Collisions with towers and associated power lines would result in direct mortalities of migratory birds passing through the refuge. An increased width of disturbed area would affect the ability of small animals to move from one area of cover to another.

The cumulative and incremental impacts of the new proposed ROW in addition to the existing power line and pipeline ROWs may pose the greatest impact to the refuge. An expanded corridor of over 2.5 times the width of the existing power line ROW plus an additional high-voltage line would result in greater fragmentation of habitat for desert bighorn sheep, Sonoran pronghorn, Sonoran desert tortoise and other wildlife. Human activity associated with construction and maintenance, habitat disturbance and destruction, noise and dust from construction and maintenance, and the transmission line itself, as well as visual separation can discourage wildlife from crossing the disturbed area. As has been well documented with roads, the width and traffic level on a road largely determines the ability of wildlife to move from one area to another. Expansion of the disturbed area and increased activity could lead to greater separation of the north part of the refuge from the remainder, leading to reduced values for wildlife, increased

potential of accidents between wildlife and people, and reduced wilderness and recreational values for visitors.

Establishing a ROW for construction and long-term maintenance of a transmission line through Kofa NWR would not contribute to the purposes of the refuge nor the NWR System mission. In fact, a new ROW would detract from the refuge purposes. It is anticipated that such a ROW would have significant negative effects on wilderness values (e.g. noise impacts) and overall scenic qualities of the area; native plant and wildlife species, including desert bighorn sheep and endangered Sonoran pronghorn; nationally important species including the Sonoran desert tortoise and migratory birds; and would promote expansion of invasive plants and habitat fragmentation.

(f) Has an earlier documented analysis not denied the use or is this the first time the use has been proposed?

NO - The Ten West Link transmission line is a new project and DCRT's request for a ROW through Kofa NWR has not previously been considered.

(g) Is the use manageable within available budget and staff?

NO – A new ROW for a transmission line would require routine vegetation control and road maintenance. These activities would typically be conducted by the utility company but require oversight by refuge staff to ensure compliance with any stipulations in the ROW or special use permits. The commitment of staff may be significant, particularly in the vicinity of important natural resources and in proximity to wilderness. We would anticipate increased traffic from a ROW and potential widening of the road. This would necessitate increased law enforcement to prevent off-road violations and wilderness incursions and provide general oversight of the new activity. Resources required to oversee these additional activities are currently not available at the refuge and unlikely to be available in the future.

(h) Will this be manageable in the future within existing resources?

NO - Current resources are not available to manage these activities (see justification above for g) and are unlikely to become available in the future.

(i) Does the use contribute to the public's understanding and appreciation of the refuge's natural or cultural resources, or is the use beneficial to the refuge's natural or cultural resources?

NO - The construction of a transmission line through Kofa NWR would not contribute to the public's understanding and appreciation of refuge natural and cultural resources; nor is it beneficial to the refuge natural or cultural resources. The proposed use would be damaging to natural and cultural resources including fragile desert habitats, wildlife, and scenic landscapes. In particular, the scenic quality and wilderness values of the refuge would be compromised by the ROW. Due to their close proximity, activities associated with the proposed use would

detract from the values of nearby designated wilderness that the refuge is mandated to preserve and degrade the visitor experience in the vicinity of the transmission line.

(j) Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality (see section 1.6D, 603 FW 1, for description), compatible, wildlife-dependent recreation into the future?

NO - A new ROW and associated construction and maintenance on Kofa NWR would be damaging and detrimental to the quality of wildlife-dependent recreation including hunting, wildlife viewing, wildlife photography, and interpretation. The scenic quality and wilderness values of the refuge would be compromised by the ROW and wildlife and visitors engaged in hiking or camping would be disturbed by construction and maintenance activities, increased traffic, degradation of scenic refuge view sheds, and reduced opportunities to view wildlife due to disturbance and fragmentation and destruction of habitat.

The refuge encompasses approximately 666,000 acres and provides a wide range of wildlife-dependent recreation for visitors. Eleven criteria for "quality" wildlife-dependent recreation are defined in the Service Manual (605 FW 1, Section 1.6) and include providing opportunities for visitors to experience wildlife. Although open to visitors, Kofa NWR is largely designated wilderness and does not offer improved access (i.e. paved roads and trails) that support high visitor use. Therefore, the refuge provides a unique opportunity for wildlife-dependent recreation in a relatively isolated setting. Allowing a new ROW would impact wildlife-dependent recreational opportunities due to reduced habitat quality which directly impacts wildlife species upon which recreation is based. Additionally, the wilderness and scenic qualities of Kofa NWR would be compromised by the presence of a new ROW and the large size of the proposed transmission line. Allowing a new ROW would impair the quality of the visitor experience, lead to an increase in vehicle trespass into wilderness and other parts of the refuge, and likely reduce the opportunity of visitors to experience wilderness and wildlife.

In addition, the additional refuge resources needed to manage and oversee the new ROW activities would further reduce resources available for protecting wilderness values, native wildlife, endangered species, and providing for future wildlife dependent recreation.

Decision Justification

The proposal to construct a 500kV transmission line across nearly 25 miles of Kofa NWR does not meet the criteria for an appropriate use. As this proposed project does not promote wildlife-dependent recreation and does not support the purpose for which the refuge was established and the mission of the NWR System or the goals and objectives of the Interagency Management Plan and EA, we do not find it an appropriate use of the refuge.

Appendix 1B Memorandum of Understanding between BLM and CPUC

BLM Agreement No. _____
Cooperator's No. _____

MEMORANDUM OF UNDERSTANDING

between

THE BUREAU OF LAND MANAGEMENT

and

STATE OF CALIFORNIA PUBLIC UTILITIES COMMISSION
on the

Ten West Link 500kV Transmission Project

This **MEMORANDUM OF UNDERSTANDING** (MOU) is hereby entered into by and between the Bureau of Land Management, hereinafter referred to as the BLM, and the State of California Public Utilities Commission, hereinafter referred to as the CPUC. The BLM and CPUC are hereinafter referred together as the Parties.

A. INTRODUCTION and PURPOSE:

Delaney-Colorado River Transmission, LLC (DCR Transmission) is proposing to build the Ten West Link 500kV Transmission Project, a new 500 kV transmission line between the Arizona Public Service (APS) Delaney Substation, in Tonopah, Arizona, extending west to Southern California Edison's (SCE) Colorado River Substation, just west of Blythe in Riverside County, California (the Project). The Project involves the reintroduction of a portion of the transmission project previously proposed by SCE and referred to as the Devers-Palo Verde 500 kV No. 2 Transmission Line Project (DPV2 project). DCR Transmission submitted an Application for Transportation and Utility Systems and Facilities on Federal Land with BLM on September 14, 2015. The Project would span approximately 114 miles, including 97 miles in Arizona and 17 miles in California, largely following the existing DPV1 transmission line in an established utility corridor. The proposed route largely follows BLM-designated utility corridors, which are 1 mile in width, and the transmission line would be considered a compatible use within these corridors. DCR Transmission would require a 200 foot ROW for the transmission line and would be required to maintain a 250 foot separation from the existing DPV1 line in accordance with requirements set forth by CAISO. To the extent possible, DCR Transmission proposes to use existing access roads currently used to maintain the DPV1 transmission line. The Project also would include requisite transmission line series compensation located approximately in the middle of the route. The proposed series compensation substation would be arranged parallel to an existing compensation substation for DPV1 in Vicksburg, Arizona.

Because the CPUC is required to make a discretionary decision to determine if DCR Transmission can construct the Project in accordance with California Environmental Quality Act (CEQA) guidelines, CEQA is triggered. The BLM also has a decision to make concerning the ROW grant and also one or more plan amendments concerning the project. The BLM will begin preparing an Environmental Impact Statement (EIS) in 2016 in compliance with 1508.11 of the National Environmental Policy Act of 1969 (NEPA), CEQA Statutes Section 21061 and CEQA Guidelines Section 15221 and 15120 to 15132 and all other applicable laws, executive orders, regulations, and direction. The BLM personnel will work with CPUC staff to write the EIS in a manner that complies with both CEQA and NEPA.

The purpose of this MOU is to provide a framework for cooperation between the BLM and the CPUC to work together as lead agency and cooperating agency, in that order, in preparing and completing a joint environmental analysis and document that is in compliance with NEPA, CEQA, and all applicable laws, executive orders, regulations, direction, and guidelines. Work would include, but is not limited to, environmental and technical information collection, analysis and reporting. This Memorandum of Understanding includes meetings and/or conference calls as necessary for planning, information sharing, gathering and incorporating comments to the draft EIS to ensure CEQA compliance. Should the decision be made to authorize the Project, this Memorandum of Understanding continues the cooperation during construction of the Project, including the implementation of the mitigation measures and monitoring developed through the NEPA process. This cooperation serves the mutual interest of the Parties and the public.

B. STATEMENT OF MUTUAL BENEFIT AND INTERESTS:

The Council on Environmental Quality (CEQ) regulations (40 CFR 1506.2) direct federal agencies to cooperate with State and local agencies to the fullest extent possible to reduce duplication between NEPA and State and local requirements, including joint planning processes, environmental research and studies, public hearings, and environmental impact statements. The CEQ regulations (40 CFR 1501.6) provide for and describe both lead and cooperating agency status, and emphasize agency cooperation early in the NEPA process. For the purposes of this effort, BLM will be the lead agency developing one document in coordination with the CPUC acting as Cooperating Agency. CPUC will retain its approval authority for all aspects of the Project within its jurisdiction. CEQA Guidelines Sections 15222 and 15226 encourage similar cooperation by state and local agencies with federal agencies when environmental review is required under both CEQA and NEPA.

This MOU meets the intent of these regulations and provides guidance on the roles each agency will take. In consideration of the above premises, the Parties agree as follows:

C. BLM SHALL:

1. As lead Federal agency, be responsible for ensuring compliance with the requirements of NEPA, and the CEQ, and BLM regulations implementing NEPA, along with all applicable federal laws, executive orders, regulations and direction, and shall be responsible for the EIS and the scope and content of the portion of the EIS that relates to all necessary federal law and regulatory requirements.

2. Provide to the CPUC for review and comment a draft of the Project Description and Alternatives section as soon as they are available to ensure that adequate detail is included to support CPUC's review, analysis and decision.

3. Provide the administrative draft of the EIS to the CPUC for its review and comment prior to the release of the public draft.

4. Schedule meetings as necessary with the CPUC to discuss status updates, related findings, schedules and planning associated with the EIS.

5. Ensure that the BLM approved EIS contractor will complete the environmental analysis and prepare the EIS in a form and in substance that is consistent with this MOU and agreeable to the Parties;

6. Act as the intermediary, when necessary, for communications between the CPUC and the contractor related to the EIS;

7. Provide updated mailing lists to the contractor for distributing the Notice of Availability of the EIS to the public and to other Federal, State, and local agencies as required under NEPA. The BLM shall provide updated mailing lists of the EIS, and Record of Decision to the public and to other Federal, State, and local agencies as required by law;

8. Approve contractor's draft newspaper advertisements, public notices, and Notice of Availability of the document and ensure publication in appropriate periodicals;

9. Will ensure that the contract incorporates the condition that the contractor will provide all graphic handouts and presentations for public meetings/hearings. The contractor shall submit any such graphic presentations and/or handouts to the BLM for approval prior to distributing them at public meetings/hearings;

10. Be responsible for conducting public meetings and provide CPUC with sufficient advanced notice of these hearings so that the CPUC can attend in a cooperating role;

11. Will use its best efforts to ensure that the MOU between DCR Transmission and BLM incorporates all of the following conditions:
    (a) The contractor agrees to hold harmless and indemnify the BLM and CPUC with respect to any and all claims, demands, cause(s) of action, and liabilities which may arise from the contractor's performance, purchases, or services utilized in the preparation of the EIS.
    (b) The contractor will sign a disclosure statement specifying that they have no financial or other interest in the outcome of the Project.
    (c) The contractor shall cooperate in defense of any appeal and/or suit involving the legality or adequacy of the BLM's or CPUC's compliance with NEPA or CEQA with regard to this EIS.
    (d) The contractors will be responsible for all stenographic, clerical, graphics, layout, printing, and like work.
    (f) The contractor shall produce an internal administrative Draft EIS for review by the BLM and CPUC prior to publication of the Draft EIS. The administrative draft shall include all text, maps, appendices, tables, charts, and other materials that will be incorporated in the Draft EIS for publication. As determined by both the BLM and CPUC, the contractor shall provide a reasonable number of copies to each party to meet internal review needs.
    (g) The Draft EIS will include evaluation of potential routes, alternative designs, and impacts. The Draft and Final EIS will apply whichever NEPA and CEQA requirement is more stringent in the California portion of the analysis. The Draft and Final EIS will describe any inconsistencies between Federal plans or laws as they pertain to the proposed action and describe the extent to which the BLM would reconcile the proposed action with the plan or law.
    (h) Subject to Parties' comments during the environmental analysis and responses to the administrative Draft and Final EIS, the contractor shall have primary responsibility for writing and rewriting all sections, parts, and chapters of the EIS.
    (i) The CPUC is a third-party beneficiary to the MOU that DCR Transmission and the BLM with the right to enforce contract provisions affecting its interests.

12. Provide oversight to the consultant in filing the Draft and Final EIS with the U.S. Environmental Protection Agency (US EPA).

13. Reserve the right to prepare, at its option, selected sections of the Administrative Draft and/or Final EIS; as appropriate, the BLM will provide such prepared material in a time and manner consistent;

14. Be responsible for consulting with the United States Fish and Wildlife Service for a Section 7 Consultation and the California State Historic Preservation Officer for a Section 106 Consultation regarding the proposed federal action; at the discretion of the BLM, the consultant shall furnish such data or information required to accomplish such consultation; the BLM shall include CPUC staff in these meetings and discussions, as required; act as the lead for Native American consultation;

15. As required, the BLM will be responsible for consulting with the California Department of Fish and Wildlife;

16. Should the decision be made to authorize the Project, delegate to the CPUC field inspection responsibility along with BLM's and the proponent's consultant for ensuring implementation of the mitigation and monitoring activities adopted in the Record of Decision for the substation and transmission line interconnection portion of the project and provide CPUC and its representatives access to the ROW area and project land (without further authorization), as requested by CPUC, for this purpose; and,

17. To the extent that CEQA or NEPA guidelines may preclude, or are potentially inconsistent with, construction of the proposed Project that is the subject of this MOU, the BLM will identify such potential inconsistencies at the beginning of the EIS process, and shall collaborate with the CPUC and the contractor to ensure that sufficient information is collected during the course of the environmental assessment process to allow the BLM to begin an EIS for the Project to remove such inconsistencies and allow the Project to be carried forward.

D. CPUC SHALL:

1. As the cooperating State agency, be responsible to ensure that the EIS is in compliance with all requirements of CEQA and shall be responsible for the scope and content of the EIS that relates to all necessary aspects of CEQA.

2. Should the level of detail in the administrative draft EIS be found insufficient in meeting CEQA standards or CPUC Orders, the CPUC will inform the BLM of this insufficiency and allow them to rectify the document. If at the end of the EIS process the insufficiency remains, the BLM will continue the EIS development, and the CPUC will create an Environmental Impact Report or

BLM Agreement No. _____
Cooperator's No. _____

Mitigated Negative Declaration (whichever is required) separately, hiring its own consultants.

E. IT IS MUTUALLY AGREED AND UNDERSTOOD BY ALL PARTIES THAT:

1. Schedule of Deadlines. The BLM intends to make a decision on the Final EIS by the fourth quarter of 2017. Both Parties will attempt to meet this timeframe. Attached to this MOU is a draft detailed schedule, which the Parties intend to serve as a template for the actual schedule of deadlines that they intend to adhere to in completing the environmental review that is the subject of this MOU. The parties agree to modify and reach final agreement on the details of this draft schedule, which will include specific dates establishing the deadlines for expected deliverables from the BLM/BLM's contractor, as well as deadlines for the BLM and the CPUC to respond to all materials provided by the BLM/BLM's contractor, *within one month.* Once the details of this schedule are agreed to, the Parties shall undertake their best efforts to comply with *all* deadlines set forth in said schedule.

2. Contractor Selection. Stantec has been mutually chosen by BLM and DCR Transmission as BLM's 3rd party contractor who will prepare the NEPA document as directed by the BLM.

3. Agency Project Representatives. For the purpose of coordinating the responsibilities of the Parties for the preparation of the EIS on the Project, the persons listed below are the designated Agency Project Representatives of the Parties. Actual delivery of written notice to the following representatives, or such substitute representatives as the respective Parties may hereinafter designate, shall constitute notice to that organization. The principal contacts for this instrument are:

BLM National Project Manager	CPUC Cooperator Project Representative
Joe Incardine	Eric Chiang
Bureau of Land Management Lands & Minerals c/o Lane Cowger	California Public Utilities Commission
One North Central Ave., Suite 800	505 Van Ness Ave, 4th Floor
Phoenix, AZ 85004	San Francisco, CA 94102
Phone: 801-560-7135	Phone: 415-703-1956
FAX: 602-417-9452	FAX: 415-703-2200
E-Mail: jincardi@blm.gov	E-Mail: eric.chiang@cpuc.ca.gov

4. Regular Coordination between Parties. The successful preparation of the EIS requires complete and full communication between all Parties involved. It is the duty of the Agency Project Representatives to ensure close coordination throughout the document preparation and review process. Accordingly:
   (a) BLM will lead regular monthly conference calls with the Cooperating Agencies to insure that communications occur on the Project.
   (b) Additionally, the Agency Project Representatives shall keep each other advised of the developments affecting the preparation of the Draft EIS. Toward this end, and to ensure close consultation and coordination, the Agency Project Representatives shall conduct conference calls as necessary, and shall meet face-to-face as deemed necessary.
   (c) In the event that either Agency Project Representative is unable to participate in any such regularly scheduled conference call or meeting, an alternate shall be delegated to represent that Agency Project Representative's party in said call or meeting.
   (d) The BLM also recognizes the need for the CPUC to work directly with BLM's contractors with regard to the Project and CEQA requirements. The CPUC will keep the BLM informed of these discussions (via email notification) and will involve the BLM when appropriate.
   (e) Consistent with existing laws and regulations, the Parties agree to share all relevant information.
   (f) Any and all media releases and/or public mail-outs shall be made with the joint approval and at the direction of the BLM and the CPUC.

5. Scope and Content of the EIS. The BLM shall schedule and conduct scoping meetings at the beginning of the process, according to NEPA. These meetings will be held to determine the areas of public and agency concerns pertaining to the proposed Project, and guide the Parties in scoping the EIS. The BLM in coordination with the CPUC as a cooperating agency shall determine the final scope of the EIS. The Agency Project Representatives shall determine (with approval, if necessary, from the signatories to this MOU or their delegates):
   (a) the scope and content of the EIS for the Project is to ensure that the requirements of the various federal and state statutes (i.e. - NEPA, CEQA, CPUC Orders and policies) are met and that the statutory findings required of the BLM and CPUC for their respective decision on the Project can be made;
   (b) whether the work performed by the consultant is satisfactory, and if not, how best to correct the deficiencies in the work; and
   (c) the division of responsibilities among the lead agency and cooperating agencies.

6. CPUC may request revision of the administrative draft with further agency review.

7. Consultation with Other Agencies. The BLM and CPUC reserve the right to consult directly, without notice or report, with other Federal, State, and local officials regarding their areas of specific responsibility outlined in Section C and D above during the preparation of the EIS to ensure objectivity and compliance with NEPA and CEQA. The Parties will immediately notify each other and the necessary contractors if matters discussed at any such consultation will require significant changes in the development of the EIS or require significant costs pursuant to this Memorandum of Understanding.

8. Privileged and Confidential Information. The BLM and the contractor will, upon request, provide CPUC with procedures and underlying data used in developing submitted sections of the Draft and/or Final EIS including, but not limited to, final reports, subcontractor reports, and interviews with concerned private and public parties, whether or not such information is contained in the working papers or the Draft or Final EIS. The Parties intend that information that is otherwise protected from disclosure under the attorney-client privilege, work-product privilege, and deliberative process privilege and/or any other applicable privilege may be exchanged without waiving or compromising such privileges or doctrines. The Parties agree that privileged information received from the other party shall be treated and maintained as confidential to the extent allowed by federal and state laws, regulations and policies. Parties agree to label as "Confidential" documents that they believe are privileged and should not be disclosed. Neither Party will disclose privileged information received from the other Party, regardless of whether it is labeled "Confidential," without first notifying other Party. The BLM will obtain information that they maintain as confidential directly from BLM.

9. Freedom of Information Act. Any information furnished to the BLM under this Memorandum of Understanding is subject to the Freedom of Information Act (5 U.S.C. 552). The BLM acknowledges that the Cooperator is subject to the California Public Records Act. However, the Cooperator agrees not to release these materials to individuals or entities other than the Parties to this MOU and their contractors, without prior consultation with the BLM. The BLM may withhold from the Cooperator those documents that would otherwise be available for public release under the California Public Records Act if those documents are otherwise exempt from disclosure under a specific provision of FOIA.

10. Effective Dates. This MOU is executed as of the date of the last signature and is effective through, or the date on which all mitigation measures required in connection with approval of the Project have been fully implemented, whichever date is earlier, at which time it will expire unless extended.

11. Modification. Modifications to this MOU shall be made by mutual consent of the Parties, by the issuance of a written instrument, signed and dated by all Parties.

12. Termination. Either of the Parties, in writing, may terminate this MOU in whole, or in part, at any time before the date of expiration upon 30 days written notice to the other party. During any such 30-day waiting period, the Parties will actively attempt to resolve any disagreement between them. In the event of termination of this MOU, both the BLM and CPUC shall have access to all documentation, reports, analyses, and data developed by the contractor.

13. Rights and Responsibilities of Parties. This MOU sets forth the Parties' rights and responsibilities for preparing the EIS, and for subsequent activities related to the document. This MOU in no way restricts the BLM or the CPUC from participating in similar activities with other public or private agencies, organizations, and individuals. This MOU does not authorize the transfer of funds between parties. Each Party is responsible for its own acts and omissions in connection with activities undertaken pursuant to this MOU.

THE PARTIES HERERTO have executed this instrument

John MacDonald
BLM Yuma Field Office Manager

April 11, 2016
date

Edward Randolph
Energy Division Director
California Public Utilities Commission

4/5/16
date

The authority and format of this instrument has been reviewed and approved for signature.

Appendix 1C Supplemental California Public Utilities Commission Information

Table of Contents

List of Tables

1.0 INTRODUCTION

DCR Transmission, LLC (DCRT) filed a right-of-way (ROW) application (SF-299) with the Bureau of Land Management (BLM) on September 14, 2015 to construct, operate, maintain, and decommission an electric transmission project in western Arizona and eastern California. The proposed Ten West Link (TWL) Transmission Line Project (the Project) would consist of a 500 kilovolt (kV) transmission line traversing approximately 114 miles within California and Arizona, 16.75 miles of which are located in California.

On April 11, 2016, the BLM and California Public Utilities Commission (CPUC) entered into a Memorandum of Understanding (MOU; Appendix 1B) whereby the BLM will serve as the Lead Agency under the National Environmental Policy Act (NEPA), coordinating with the CPUC, acting as a cooperating State agency. As the NEPA Lead Agency, the BLM will oversee the preparation of an Environmental Impact Statement (EIS). Consistent with the MOU, the CPUC may rely on the EIS and its appendices to make subsequent discretionary decisions pursuant to California Environmental Quality Act (CEQA) Guidelines (Section 15221). As NEPA and CEQA provide different requirements, this appendix is intended to focus on CEQA requirements but is not and should not be considered a separate and distinct CEQA document (i.e. Mitigated Negative Declaration or an Environmental Impact Report) as the CPUC has not deemed DRCT's application complete and initiated formal environmental evaluation under CEQA (Section 15060(b)). As specified in the MOU, if the level of detail included in the EIS and its appendices fails to meet the CPUC's environmental review standards, the CPUC reserves the right to initiate its own formal environmental review pursuant to the CEQA Guidelines.

On October 12, 2016, DCRT filed an application for a Certificate of Public Convenience and Necessity (CPCN; A. 16-10-12) with the CPUC. The CPUC is still in the process of reviewing DCRT's CPCN application, which contains a request to waive the requirement under Rule 2.4 and General Order 131-D that DCRT provide a Proponents Environmental Assessment (PEA) as part of their application, as the Draft EIS will provide the CPUC with information typically included in a PEA. The CPUC has yet to rule on DCRT's waiver request, nor have they been provided with a draft EIS; therefore, the CPUC does not have a complete application that would allow them to initiate an independent environmental review pursuant CEQA or participate in a joint environmental review pursuant to Section 15222 of the CEQA Guidelines.

The BLM is preparing an EIS to satisfy their NEPA requirements and for use by other Federal agencies, as applicable. In cooperation with the CPUC, as outlined in the MOU, the BLM has produced this appendix to bolster the environmental impact discussion found in the Ten West Link EIS to clearly address environmental issues that are unique to CEQA. To do so, this analysis relies on:

- The baseline environmental information found in Chapter 3 of the EIS and the Ten West Link Technical Environmental Study (TES) (BLM 2018),
- The resource-specific environmental impact analysis found in Chapter 4 of the EIS and TES,
- The applicant's technical reports, and

- CPUC's comments on the Administrative Draft EIS, including this appendix, which address the environmental impact criteria found in Appendix G of the CEQA Guidelines.

As stated in the MOU, "CPUC Will: (1) As the cooperating State agency, be responsible to ensure that the EIS is in compliance with all requirements of CEQA and will be responsible for the scope and content of the EIS that relates to all necessary aspects of CEQA." This appendix incorporates the environmental analysis conducted in the EIS by reference, while providing supplemental analysis needed to address issues that may be unique to CEQA. This includes describing those environmental effects resulting from Project implementation identified in Chapter 4, Environmental Analysis that may be considered significant and that cannot be mitigated to a less than significant level under CEQA. The analysis also identifies cumulative impacts, the potential to foster economic or population growth either directly or indirectly in the Project study area and surrounding environment, and an environmentally superior alternative.

Should the CPUC decide to issue a CPCN based on environmental analysis presented in the EIS, pursuant to Section 15221 of the CEQA Guidelines, the MOU provides for the CPUC's continued involvement during the Project's construction and operation phases. This involvement includes, but is not limited to, enforcement of mitigation measures presented in the Mitigation Monitoring and Reporting Program (MMRP; Section 7).

1.1 CEQA SIGNIFICANCE DETERMINATION

One of the major structural differences between environmental analysis under CEQA and the NEPA analysis found in the EIS is the use of significance criteria during the environmental impact review. The significance criteria used for this analysis of environmental impacts are based on Appendix G of the CEQA Guidelines, as well and input from Cooperating Agencies, such as the CPUC. The criteria serve as a benchmark for determining if the Project would result in significant impacts when evaluated against the baseline conditions established in the EIS and TES. According to the CEQA Guidelines (Section 15382), a "'significant effect on the environment' means a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project." The impact analysis for each environmental factor evaluated in Section 2.0 outlines the significance criteria that will be evaluated, provides an analysis of each factor posed in the form of a question, and concludes with a statement that clearly outlines if significant impacts would occur under a given criterion.

1.2 MITIGATION MEASURES

The function of mitigation measures under CEQA differs from the function of mitigation measures in the EIS. For instance, in the EIS, mitigation can be applied to any potentially adverse effect, where feasible, regardless of the severity or duration of the effect. Under CEQA, mitigation measures are applied to reduce potentially significant environmental impacts to less than significant levels (Section 15126.4 (a) 1). Under CEQA, a mitigation measure must be a specific, enforceable, feasible action that can be shown to reduce significant impacts (Section15126.4 (a) 2). The effectiveness of the measure should be demonstrable and capable of being monitored with specific performance standards. Unlike NEPA, mitigation measures under CEQA are only applied to avoid or reduce impacts that would otherwise be significant. If impacts would be less than significant or there would be no impact, mitigation measures are not applied or needed (Section15126.4 (a) 3).

Project-related environmental impacts can also be reduced or avoided through design features, Applicant-Committed Environmental Protection Measures (APMs), and BLM stipulated Best Management Practices (BMPs) that are required by current design standards and guidelines or are already part of ordinary operating procedures. DCRT has included APMs as part of the Proposed Action and all Action Alternatives as described in the EIS, and applicable BLM BMPs have also been identified; such measures are described in Appendix 2A of the EIS. A number of these measures were identified or developed based on Conservation and Management Actions (CMAs) from the California Desert Conservation Area (CDCA) Plan. The CMAs that are applicable to the Project are listed in Appendix 2C of the EIS, where they are cross-referenced with the APMs and BMPs that address them. The CMAs are also incorporated into this analysis.

These design features, APMs, and BMPs are a component of the Project Description when analyzing potential impacts resulting from the construction and operation of the Project. Because design features, APMs, and BMPs are assumed to be part of the Project, they are fully disclosed and included as part of the Project Description in Chapter 2 of the EIS. Since the design features, APMs, and BMPs are considered to be components of the Project Description, this analysis focuses on disclosing potential impacts that would result from the Project as a whole with the design features, APMs, and BMPs incorporated in the Project.

When a potentially significant impact would result with incorporation of design features, APMs, and BMPs, mitigation measures are identified and are required to reduce the impacts of a project to a level below significance, as outlined above. A summary of Mitigation Measures is included in Section 6 of this appendix.

1.3 ALTERNATIVES

This analysis provides an environmental review of alternatives to the Project, based on the reasonable range of alternatives discussed in the EIS, refined by the significant impacts identified below. The alternatives discussion in this analysis focuses on reducing or avoiding potentially significant impacts that would result from the Project through implementation of an alternative. Additionally, this analysis compares the environmental advantages and disadvantages of the Project with those of the alternatives, and identifies an Environmentally Superior Alternative, pursuant to CEQA (Section 15126.6).

In addition to the No Action Alternative required under NEPA, the California Public Utilities Code Section 1002.3 requires that the CPUC consider cost-effective alternatives to transmission facilities, referred to as “no wires” alternatives, when evaluating project applications for a Certificate of Public Convenience and Necessity. Alternatives that meet the CPUC’s “no wires” mandate include some combination of programs such as Demand Response and Energy Efficiency; generation and storage and are only described and considered in this appendix and not in the EIS.

A comparison of environmental impacts, by alternative, is provided in impact summary tables in Chapter 2 and Appendix 2 of the EIS and described by resource in Chapter 4 and Appendix 4 of the EIS. The Alternatives Section (Section 4) of this appendix summarizes impact determinations, as outlined in the CEQA Guidelines, by resource for, both the Project and its action alternatives.

2.0 ENVIRONMENTAL ANALYSIS

This section contains an evaluation of each environmental factor outlined in Appendix G of the CEQA Guidelines. The following impact analysis is largely based on the Environmental Setting and Regulatory Overview sections found in Chapter 3 of the EIS and the TES and incorporates background material from the EIS and TES by reference, as appropriate.

Potentially significant impacts associated with the Project, identified as the Proposed Action in the EIS are identified after an evaluation of the Project within incorporation of design features, APMs, and BMPs as outlined in the EIS, while mitigation measures outlined in the EIS are applied to avoid or reduce potentially significant impacts. Where significant impacts cannot be avoided or reduced by application of APMs and mitigation measures outlined in the EIS, CEQA-specific mitigation measures are identified based on input from the cooperating agencies. Mitigation measures that are unique to this appendix are captured in a Mitigation Monitoring and Reporting Program (MMRP), and other measures are incorporated by reference.

2.1 AESTHETICS

This section describes the impacts to aesthetic resources that could potentially occur during construction, operation, and decommissioning of the Project in terms of CEQA significance thresholds disclosed below in Section 2.1.4. As disclosed in Section 4.11 of the TES (BLM 2018), impacts from construction and operation of the Project would result in less than significant impacts to visual and aesthetic impacts with Mitigation Measures MM VIS-01, MM VIS-02, MM VIS-03, MM VIS-04, and MM VIS-06, as well as the APMs and BMPs listed below. Additionally, this section responds to issues raised during the public scoping process, which are presented in Appendix 1 of the EIS.

2.1.1 Thresholds and Methodology

The Project's effects are compared to thresholds of significance to determine whether the Project would result in a significant change to aesthetics represented by the Thresholds of Significance as established by CEQA guidelines (Section 15065, 15126, and Appendix G). The analysis relies on existing conditions and proposed activities described in the TES, specifically: identification of important visual resources in the vicinity of the portion of the Project within California based on review of applicable planning documents; existing views toward the Project site from representative views, selected in part based on review of applicable planning documents and identification of sensitive visual receptors; and photo-simulations of selected views showing the Project.

2.1.2 Applicant Proposed Measures and BLM Best Management Practices

APMs have been identified and would be implemented by the project applicant. In addition, the BLM would require implementation of BMPs, which are intended to further minimize Project impacts. Project APMs and BMPs are described in EIS Appendix 2A. Of these, the following would apply to the portion of the Project located within California and have therefore been incorporated into the Project for evaluation of significant impact to aesthetics under CEQA. Within the California portion of the Project, "visually sensitive areas" refer to areas adjacent to scenic

roadways, designated or eligible. Interstate 10 and State Route 95 within the Palo Verde Valley have been identified by Riverside County for potential future nomination as scenic highways (Riverside County 2015a). The APMs and BMPs related to aesthetics referring to visually sensitive areas are referring to lands adjacent to these roadways.

- **APM AES-01: Vegetation Removal and Grading.** During Project construction activities, grading and the amount of existing vegetation cleared from the route would be kept to the minimum required for access by project construction as much as practicably possible. This approach is further described in the BIO-14. Grading would occur as minimally as practicable and would follow the existing land contours as much as possible.
- **APM AES-02: Work Area Reclamation.** On completion of the Project, all construction material and debris from the permanent easement and temporary staging areas would be removed and the areas restored. All work areas, and areas around new transmission structures, would be re-graded to previous land contours and re-vegetated to and restored them to an appearance that would blend into the overall landscape context. This approach is further described in the BIO-15 to as close to pre-construction conditions as feasible.
- **BMP AES-02: Work Area Reclamation.** Work area reclamation would include pulling and tensioning sites; all disturbed work areas associated with the project.
- **BMP AES-04: Visual Contrast.** Color treatment of transmission structures would be applied in all areas deemed necessary by the BLM. The BLM would select/approve the color treatment to be applied under AES-04. Color treatment would be applied to Project components, such as the Series Compensation Station (SCS) and fencing. All conductor would be non-specular, and all structures, whether color treated or not, would have a dull, non-reflective surface.
- **APM AES-05: Location.** Collocate the transmission line as close as possible to existing transmission lines of similar size and design (while maintaining the required 250-foot setback) to minimize the overall visual impact of the project on the surrounding areas. Keeping the proposed transmission line within the same general corridor as existing transmission lines would reduce the spread of visual impacts from areas previously not affected. Collocating with existing transmission lines would also reduce the need to construct new access roads and their associated visual impacts. (Captures BLM BMP for Reducing Visual Impacts of REFs 6.2.10 – Collocate Linear Features in Existing ROWs or Corridors.)
- **APM AES-06: Siting and Laydown Areas.** The Project will avoid Siting Staging and Laydown Areas in visually sensitive areas to the extent practicable. Staging areas would be located close to transportation access points and would be sited to take advantage of previously disturbed areas to the extent practicable. Staging areas would be located close to transportation access points and would be sited to take advantage of previously disturbed areas to the extent practicable.
- **BMP AES-06: Siting and Laydown Areas.** Additionally, AES-6 would apply to all Project work areas. Also, work areas would be located to minimize impacts, including but not limited to biological and visual.

- **BMP AES-07: Avoid Siting Linear Features in the Centers of Valley Bottoms and on Ridgetops.** The eye follows strong natural lines in the landscape, and these lines and associated landforms can "focus" views on particular landscape features. For this reason, linear facilities associated with renewable energy projects, such as transmission line ROWs, should be sited to avoid running across the centers of valley bottoms, and to avoid ridgetop bisection (i.e., routing the ROWs perpendicular to and over ridgelines).
- **BMP AES-08: Avoid Skylining.** "Skylining" of transmission/communication towers and other structures should be avoided. Transmission/communication towers and other structures should not be placed on ridgelines, summits, or other locations where they would be silhouetted against the sky. Skylining draws visual attention to the project elements and can greatly increase visual contrast. Siting should take advantage of opportunities to use topography as a backdrop for views of facilities and structures to avoid skylining. Roads may be less visible if located along ridgetops, but if they are located on the ridge face they can be highly visible because of increased cut, fill, and side cast material.
- **BMP AES-09: Site Linear Facilities along Natural Lines within the Landscape.** Siting of facilities, especially linear facilities (e.g., transmission lines, pipelines, roads), should take advantage of natural lines within the landscape (e.g., natural breaks in the landscape topography, the edges of clearings, or transitions in vegetation). Siting of facilities on steep slopes should be avoided. Siting linear facilities along naturally occurring lines in the landscape can reduce apparent contrast through repetition of the line element or through combination of multiple line elements into a single line element. Facilities sited on steep slopes are often more visible (particularly if either the project or viewer is elevated); they may also be more susceptible to soil erosion, which could also contribute to negative visual impacts.
- **BMP AES-10: Use Monopole, Guyed, and Lattice Electric Transmission Towers Appropriately.** Consideration should be given to the appropriate choice of monopoles versus guyed or lattice towers for a given landscape setting. Lattice or guyed towers are less visually obtrusive on the rural landscape than monopoles, especially when placed half a mile or more from Key Observation Points (KOPs) and against a landscape backdrop. When transmission towers are placed within a half mile or less from KOPs, then monopoles would occupy a smaller field of view than lattice towers. Monopoles are often more appropriate within built or partially built environments, while lattice or guyed towers tend to be more appropriate for less-developed rural landscapes, where the latticework would be more transparent against natural background textures and colors. Where transmission facilities are to be collocated in ROWs or corridors, and the existing ROW or corridor has either lattice towers only, guyed towers only, or monopoles only, the same tower type should be selected for new transmission facilities within the ROW/corridor.
- **BMP AES-11: Use Air Transport to Erect Transmission Towers.** In areas of the highest visual sensitivity, air transport capability should be used to mobilize equipment and materials for clearing, grading, and erecting transmission towers. The use of air transport capability preserves the natural landscape conditions between tower locations and may reduce the need for construction roads.
- **BMP AES-12: Reclamation to Reduce Visual Impacts.** The Reclamation Plan for the Project would include measures designed to reduce long-term impacts to visual resources.

- **BMP AES-13: Shifts in Alignment to Reduce Visual Impacts.** The specific location of the Project within the study area would be determined based on micrositing of Project components and new disturbance associated with access and work areas to reduce, minimize, or eliminate visual impacts.
- **APM AES-15: Lighting.** Limited lighting would be used during night construction to ensure safe working conditions while limiting the overall lighted area. To the extent practicable, lighting would be directed in a downward position to minimize impacts to night sky.

2.1.3 Conservation and Management Actions

The CDCA Plan, as amended, contains CMAs, which include a specific set of avoidance, minimization, and compensation measures. The applicability of those measures to the Project was determined using a CMA checklist (EIS Appendix 2C). The CMAs applicable to the Project and related to aesthetics are listed below and Project compliance with CDCA CMAs is addressed in the analysis portion of this section.

- **CMA LUPA-VRM-1.** Manage Visual Resources in accordance with the VRM classes shown on Figure 9.
- **CMA LUPA-VRM-2.** Ensure that activities within each of the VRM Class polygons meets the VRM objectives described above, as measured through a visual contrast rating process.
- **CMA LUPA-VRM-3.** Ensure that transmission facilities are designed and located to meet the VRM Class objectives for the area in which they are located. New transmission lines routed through designated corridors where they do not meet VRM Class Objectives will require RMP amendments to establish a conforming VRM Objective. All reasonable effort must be made to reduce visual contrast of these facilities in order to meet the VRM Class before pursing RMP amendments. This includes changes in routing, using lattice towers (vs. monopole), color treating facilities using an approved color from the BLM Environmental Color Chart CC-001 (dated June 2008, as updated on April 2014, or the most recent version) (vs. galvanized) on towers and support facilities, and employing other BMPs to reduce contrast. Such efforts will be retained even if an RMP amendment is determined to be needed. Visual Resource BMPs that reduce adverse visual contrast will be applied in VRM Class conforming situations. For a reference of BMPs for reducing visual impacts see the "Best Management Practices for Reducing Visual Impacts of Renewable Energy Facilities on BLM-Administered Lands", available at http://www.blm.gov/style/medialib/blm/wo/MINERALS__REALTY__AND_RESOURCE_PROTECTION_/energy/renewable_references.Par.1568.File.dat/RenewableEnergyVisualImpacts_BMPs.pdf, or the most recent version of the document or BMPs for VRM, as determined by BLM.
- **CMA DFA-VPL-VRM-1.** Encourage development in a planned fashion within DFAs (e.g., similar to the planned unit development concept used for urban design—i.e., in-fill vs. scattered development, use of common road networks, Generator Tie Lines etc., use of similar support facility designs materials and colors etc.) to avoid industrial sprawl.

- **CMA DFA-VPL-VRM-2.** Development in DFAs and VPLs are required to incorporate visual design standards and include the best available, most recent BMPs, as determined by BLM (e.g. Solar, Wind, West Wide Energy Corridor, and Geothermal PEISs, the "*Best Management Practices for Reducing Visual Impacts of Renewable Energy Facilities on BLM-Administered Lands*", and other programmatic BMP documents).
- **CMA DFA-VPL_VRM-3.** Required Visual Resource BMPs. All development within the DFAs and VPLs will abide by the BMPs addressed in the most recent version of the document "Reducing Visual Impacts of Renewable Energy Facilities on BLM-Administered Lands", or its replacement, including, but not limited to the following:
    - **Transmission:**
        - Color-treat monopoles Shadow Gray per the BLM Environmental Color Chart CC001 unless a more effective color choice is selected by the local Field Office VRM specialist.
        - Lattice towers and conductors will have non-specular qualities.
        - Lattice Towers will be located a minimum of 3/4-mile away from Key Observation Points such as roads, scenic overlooks, trails, campgrounds, navigable rivers, and other areas people tend to congregate and located against a landscape backdrop when topography allows.
- **DFA-VRM-1.** Manage all DFAs as VRM Class IV to allow for industrial scale development. Employ best management practices to reduce visual contrast of facilities.
- **DFA-VRM-2.** Regional mitigation for visual impacts is required in DFAs. Mitigation is to be based on the VRI class and the underlying visual values (scenic quality, sensitivity, and distance zone) for the activity area as it stands at the time the ROD is signed for the Desert Renewable Energy Conservation Plan (DRECP) Land Use Plan Amendment (LUPA). Compensatory mitigation may take the form of reclamation of other BLM lands to maintain (neutral) or enhance (beneficial) visual values on VRI Class II and III lands. Other considerations may include acquisition of conservation easements to protect and sustain visual quality within the viewshed of BLM lands. The following mitigation ratios will be applied in DFAs:
    - VRI Class II 1:1 ratio

2.1.4 CEQA Significance Criteria

Appendix G of CEQA Guidelines (14 CCR 15000 et seq.) provides guidance on assessing whether a project would have significant impacts on the environment. Consistent with Appendix G, the Project would result in a significant environmental impact if it would:

a. Have a substantial adverse effect on a scenic vista?

b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

c. Degrade the existing visual character or quality of the site and its surroundings?

d. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

2.1.5 Aesthetics Analysis

Impact AES-1: Would the project have a substantial adverse effect on a scenic vista?

Less-than-Significant Impact

There are no officially designated scenic vistas or overlooks in the Project area.

Scenic vistas are generally considered expansive views that afford unobstructed visibility of scenic resources or areas. Local planning documents call for the identification and conservation of skylines, view corridors, and outstanding scenic vistas within the County (Riverside County 2003), as well as the maintenance of existing views of the Mesa and Colorado River from roadways and public uses and other rights-of-way upon the valley floor whenever feasible (City of Blythe 2007a).

The Project would appear alongside the existing DPV1 transmission line in views toward the Palo Verde Mesa and Colorado River from Interstate 10 and other locations within and in the vicinity of Blythe. In proximate viewing locations, the Project would shape the skyline, appearing above distant mountains. However, it would not appear as a substantial alteration to existing conditions, in which DPV1 transmission structures are currently prominently visible. In views from the interstate or within Blythe, the Project would appear absorbed into a broader agricultural or desert setting, which contains transmission infrastructure including DPV1, Colorado Substation, and numerous other utility transmission and distribution facilities. The Project's potential effects to this existing character is addressed below. With regard to scenic vistas, the Project would have a less-than-significant impact.

Impact AES-2: Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

No Impact

According to the Caltrans Scenic Highway Mapping System for Riverside County, there are no officially designated state scenic highways in the Project area or from which the Project would be visible in long-distance views (Caltrans 2018).

The segments of Interstate 10 and State Route 95 within the Palo Verde Valley have been identified by Riverside County for potential future nomination as scenic highways (Riverside County 2015a). These roadways do not cross the Project route; Interstate 10 is approximately 2 miles north of Colorado River Substation and is further away from the majority of the Project route in Riverside County, and State Route 95 extends north from Interstate 10 just west of the Colorado River, over 4.5 miles north of the Project route. Potential effects of the Project to views from roadways to the north are addressed below. Therefore, there would be no impact to scenic resources within a state scenic highway.

Impact AES-3: Would the project substantially degrade the existing visual character or quality of the site and its surroundings?

Less-than-Significant Impact

Section 3.18.3.7 in the TES (BLM 2018) describes the Project setting within California. The area through which the Project would pass is a landscape that transitions from river bluffs in the east to an agricultural floodplain south of Blythe, and eventually to the sparsely developed desert plain within which the Colorado River Substation is located. Visually, the western terminus of the Project area is characterized by the gradual decline in areas of visual interest; while the Colorado River corridor affords varied and sometimes scenic views, the agricultural lands are fairly uniform in appearance and the desert appears homogenous by comparison. Interstate 10 and the existing DPV1 transmission line are the area's dominant linear features, visible within a broader area containing other transmission and distribution facilities generally aligned with the rectilinear road network that crosses the rural lands south and west of Blythe.

Section 4.18.4.4 in the TES (BLM 2018) describes potential visual effects of the Project outside of Blythe. Given the mostly flat terrain and low degree of development outside of Blythe and portions of the interstate corridor, the Project would generally be visible in relatively long-distance views. However, it would appear as part of a landscape dedicated, to varying degrees, to energy generation and transmission. Along with the Colorado River Substation, numerous power plants (fossil fuel and solar-powered) are visible in the Project vicinity, as are additional transmission lines. With implementation of APM AES-05, the Project would appear alongside, aligned with, and as close as possible to the existing DPV1 transmission line. The DPV1 tangent lattice style structures are present in views from throughout the Project vicinity and are dominant features in close-in views of the transmission corridor.

Implementation of BMP AES-10 would result in tower types varying appropriately. Where the Project would cross agricultural lands, beginning just west of the Colorado River, Project towers would be steel monopole structures, which are more compatible with agricultural activities than lattice style structures. West of the agricultural area and extending the rest of the way to Colorado River Substation, Project structures would be mostly tangent lattice style, similar in appearance to the existing DPV1 towers.

Development of a new transmission line, similar in scale if not completely in structure type to an adjacent, existing transmission line, would not substantially alter the existing visual character in the Project area. The DPV1 towers and conductors are prominent features in the landscape, thus establishing the presence of transmission infrastructure in views within and toward the Project area. Project structures would generally align with the existing structures, increasing the appearance of uniformity and reducing visual clutter in more long-distance views toward portions of the Project where proposed structures would not match the style of existing ones. Project towers and conductors would repeat the vertical and undulating horizontal elements in existing views toward the Project area.

Further, implementation of APMs and BMPs will ensure that the Project would be consistent with management objectives for BLM-administered lands, which include VRI Class II and III lands and a DFA. Specifically, applicable CMAs would be addressed with implementation of: APM AES-05 (transmission line collocation; avoidance of Staging and Laydown Areas in visually sensitive

areas); BMP AES-13 (micrositing to reduce, minimize or eliminate visual impacts); BMP AES-10 (appropriate use of monopoles or guyed or lattice towers, based on landscape setting); BMP AES-04 (color treatment where necessary, and dull, non-reflective finish on all structures); BMP AES-07 (avoid siting across center of a valley bottom); BMP AES-08 (avoidance of skylining); and BMP AES-12 (Reclamation Plan). In summary, the Project would appear to expand slightly the footprint of an existing transmission corridor. The new structures and conductors, aligned with existing structures and conductors at the crossing of the Colorado River and appearing generally in tandem with existing facilities as they extend across agricultural and desert landscapes, would intensify the presence of an already existing, prominently visible feature. As such, effects on the existing visual character or quality of the site and its surroundings would be less than significant. In addition to the APMs and BMPs described above, implementation of MM VIS-04 and MM VIS-06 would further reduce potential effects of the Project on existing visual character or quality.

Impact AES-4: Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

Less-than-Significant Impact

The Project would not be a new source of substantial light. Federal Aviation Administration lighting or other lighting required for air traffic safety is not required for transmission structures in the Proposed route. Any nighttime lighting associated with construction would be temporary and used in order to provide safe working conditions while limiting light spillover outside of the construction area. Implementation of Applicant-committed APM AES-15 would ensure that lighting, to the extent practicable, would be directed in a downward position to minimize impacts to night sky.

Steel transmission structures are potential sources of glare, particularly in desert environments where insularity is typically high and long-distance lines-of-sight between sources of glare and potential viewers can be unobstructed. Applicant-committed BMP AES-04 would result in the use of flat, non-reflective finish structures to minimize reflectivity and reduce visual contrast, which would reduce potential effects related to glare to less-than-significant levels.

2.1.6 Aesthetics Mitigation

The following mitigation measures are among those included in Section 4.18.6 of the TES (BLM 2018) where they are presented as being required for compliance with the Bureau of Land Management Visual Resources Management (VRM) objectives and/or to reduce impacts to visual resources. Of those mitigation measures, the following would apply to segments within California:

- **MM VIS-03**: Apply surface treatments (such as Permeon, or an approved equal) to newly exposed rock and gravel to blend with surrounding rock face and minimize visual impact of attention-attracting disturbance.
- **MM VIS-04**: Limit height of structures to what is absolutely necessary for safety and operation in order to minimize skylining and reduce the need for beacons to protect dark sky resources and maintain astronomical viewing opportunities.
- **MM VIS-06**: Use structure type to match existing structures and reduce form contrast.

2.2 AGRICULTURE

This section describes the impacts to agricultural resources associated with the construction, operation, maintenance, and decommissioning of the proposed transmission line, substations, and ancillary facilities in terms of CEQA significance thresholds disclosed below in Section 2.2.4. Additionally, this section responds to issues raised during the public scoping process, which are presented in Appendix 1 of the EIS.

As disclosed in Section 4.9 of the TES (BLM 2018), construction activities may temporarily disrupt agricultural activities and remove croplands, Natural Resource Conservation Service (NRCS)-classified farmlands, and Williamson Act farmlands from production. Similarly, operation of the Project would remove agricultural, NRCS-classified farmlands, and Williamson Act farmlands from production during the life of the Project. The impacts to prime farmlands would be the same as during construction, and would occur within, not in addition to, the construction disturbance area. These effects would be long term, but minor because the actual acreage of prime farmlands affected would be substantially less than that available in the analysis area.

2.2.1 Thresholds and Methodology

Existing conditions described in Section 3.9 TES (BLM 2018) have been evaluated with regard to their potential to be affected by Project construction, operation, maintenance, and decommissioning activities. The potential impacts associated with the Project are evaluated on a qualitative and quantitative basis through a comparison of the anticipated Project effects on agricultural activities. The evaluation of Project impacts is based on professional judgment, analysis of Riverside County's agricultural resources polices, and the significance criteria established by Appendix G of the CEQA Guidelines.

2.2.2 Applicant Proposed Measures and BLM Best Management Practices

APMs have been identified and would be implemented by the project applicant. In addition, BLM would require implementation of Best Management Practices (BMPs), which are intended to further minimize Project impacts. Project APMs and BMPs are described in EIS Appendix 2A. There are no APMs or BMPs applicable to Agricultural Resources.

2.2.3 Conservation and Management Actions

The CDCA Plan, as amended, contains CMAs, which include a specific set of avoidance, minimization, and compensation measures. The applicability of those measures to the Project was determined using a CMA checklist (EIS Appendix 2C). There are no CMAs applicable to Agricultural Resources.

2.2.4 CEQA Significance Criteria

Appendix G of CEQA Guidelines (14 CCR 15000 et seq.) provides guidance on assessing whether a project would have significant impacts on the environment. Consistent with Appendix G, the Project would have significant impacts to agriculture and forestry if it would:

a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to nonagricultural use.

b. Conflict with existing zoning for agricultural use or a Williamson Act contract.

c. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in PRC Section 12220(g)), timberland (as defined in PRC Section 4526), or timberland zoned Timberland Production (as defined in Government Code Section 51104 (g)).

d. Result in the loss of forest land or conversion of forest land to non-forest use.

e. Involve other changes in the existing environment that, due to their location or nature, could result in conversion of Farmland to nonagricultural use or conversion of forest land to non-forest use.

2.2.5 Agricultural Resources Analysis

Impact AG 1 - Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?

Less than significant – no mitigation required

As discussed in Section 3.8.3 of the TES (BLM 2018), the primary farming areas related to the Project area in California are in the Palo Verde Valley area of Riverside County. As noted in Section 3.8.3.2 of the TES, in California, there are 2,330 acres of farmland of statewide importance and 4,008.5 acres of prime farmland within the Project area.

As evaluated in Sections 4.8.4 through 4.8.8 of the TES, construction impacts to agricultural lands for all zones would be less than significant, because the actual acreage of prime farmlands affected would be substantially less than that available in the analysis area.

Section 4.8.4.1 TES states that operational impacts to prime farmlands would be less than significant as the actual acreage occupied by support structures or access roads would be a significantly smaller percentage (less than three percent) of the available farmlands. In addition, micrositing the transmission line should allow the Project to avoid crossing most fields with these features and reduce the potential for this type of disruption. If crossing a field is necessary, structures would be placed on the outside edges of the field or parallel to the rows, and diagonal field crossings would be avoided where possible.

In California, up to 10 acres of Farmland Mapping and Monitoring Program (FMMP) farmlands and lands under Williamson Act contracts could be permanently impacted by the Project. There are 4,039 acres of prime farmland, and 2,350 acres of farmland of statewide importance in the Project study area in California. The areas of temporary impact would be returned to pre-Project uses and would be available for agricultural use following construction. Staging of materials requires temporary vegetation removal and minor surface smoothing, but would not substantially change the soil conditions or quality of the site. Temporary impacts to FMMP-designated Farmland would not convert designated Farmland to a nonagricultural use because staging activities and other temporary impacts by their nature do not involve any permanent land

conversion. None of the staging areas of temporary impact are currently used for agricultural activity; therefore, impacts would be less than significant. No mitigation is required.

Operation and maintenance would permanently impact approximately 0.61 acres of Farmland of Local Importance and lands under Williamson Act contracts at the locations of new permanent structure pads. A total of 0.78 acre of designated Farmland would be permanently converted to nonagricultural use. However, most of these areas are currently located within existing ROW and are not currently in conflict with agricultural operations due to state laws regulating electrical infrastructure and easement restrictions. Transmission lines are generally viewed as a compatible use with farmlands since they don't generally require conversion of large portions of farmland. Since the Project requires the permanent conversion of less than one acre of designated farmland and transmission lines are generally considered a compatible use, the Project's potential to convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural use is considered less than significant and no mitigation is required.

Impact AG 2 - Conflict with existing zoning for agricultural use or a Williamson Act contract?

Potentially significant (operation) – less than significant with mitigation

As noted in Section 4.8.4.5 TES (BLM 2018), the majority of the Colorado River and California Zone is agricultural land. Of these agricultural lands, 2,972 acres are under Williamson Act lands and have the status of Agricultural reserves. Chapter 12.16 of the Riverside County Zoning Code provides the regulatory framework for Agricultural Preserves. Compatible uses with an Agricultural reserve include gas, electric, water and communication utility facilities, and public service facilities of like nature operated by a public agency or mutual water company (Riverside County 1988).

The Project would involve temporary and permanent impacts to land zoned or designated for agricultural activities as determined by the Riverside County Zoning Ordinance and General Plan. Construction would temporarily impact approximately 98 acres of land with the County land use designation of Agriculture and approximately 18 acres with the County land use designation of Open Space Rural. Areas of temporary impacts would be available for agricultural activities following construction. Temporary impacts to land with an agricultural land use and zoning designation would not conflict with zoning for agricultural use and impacts would be less than significant. No mitigation would be required.

The Project would permanently impact 6.2 acres of the Agriculture land use and 3.5 acres of Open Space Rural. The Project would have 21.8 acres of temporary impacts and 0.8 acres of permanent impacts to lands zoned Agriculture. While the Project is close to the City of Blythe it is outside of the City's planning boundaries and the Project would have no impact on agricultural lands within the City planning area.

Impact AG 3 - Conflict with existing zoning for, or cause rezoning of, forestland (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?

No impact

In California, the zoning designations along the Project include agriculture and rural residential. This condition precludes the possibility of conflicts with forest land zoning as a result of project implementation. The Project would not conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g)). No impacts would occur.

Impact AG 4 - Result in the loss of forestland or conversion of forestland to non-forest use?

No impact

The Project would not result in the loss of forest land or conversion of forest land to non-forest use. The Project would not be located on land zoned specifically as either forest land or timberland. The Project would be located primarily on federal lands in Arizona and agricultural lands in California. There is no commercial forestry or timber production industry within Riverside County (Riverside County 2014). This condition precludes the possibility of conversion of forest land to non-forest use. No impacts would occur.

Impact AG 5 - Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forestland to non-forest use?

Less than significant – no mitigation required

The Project is surrounded by lands zoned for agriculture. However, the Project would not introduce a non-agricultural use that is sensitive to or incompatible with agricultural operations. The proposed transmission line would not remove any barriers to development or cause changes to water supply, drainage, or other resources.

The Project has the potential to temporarily interfere with active agricultural operations during staging of materials and conductor stringing operations. Construction could temporarily impact existing operations at agricultural uses from use of the staging yard during the estimated 2-year construction period and during overhead conductor stringing, which would be a significant impact.

Operation and maintenance of the Project would not impact any existing agricultural operation because there are no agricultural operations within the permanent project area. There would be no impact.

Some of the impacted areas would revert back to agriculture upon project decommissioning. The Project would not involve other changes in the existing environment which may result in the conversion of other agricultural lands to non-agricultural uses. Therefore, less than significant impacts would occur with regard to conversion of farmlands due to other changes in the existing environment.

2.2.6 Agricultural Resources Mitigation

No mitigation measures are required.

2.3 AIR QUALITY AND CLIMATE CHANGE

This section describes the impacts to air quality associated with the construction, operation, maintenance, and decommissioning of the Project in terms of CEQA significance thresholds disclosed below in Section 2.3.4 below. As disclosed in Section 4.2 of the TES (BLM 2018), major impacts to air quality would occur from the emissions of criteria pollutants, hazardous air pollutants (HAPs), and greenhouse gases (GHGs). Additionally, this section responds to issues raised during the public scoping process, which are presented in Appendix 1 of the EIS.

As concluded in Section 4.2.4.1 of the TES, Project construction and, to a lesser extent, operation would result in some increase to ambient air pollutant concentrations, even though construction emissions would be temporary in nature. The primary indicators for determining whether or not the Project emissions would result in a significant impact to air quality are as follows:

- Estimated Project emissions exceed conformity de minimis thresholds; and/or
- The increase in ambient pollutant concentrations for a particular area as a result of the Project emissions would result in an exceedance of the National Ambient Air Quality Standards (NAAQS) for that area.

The TES determined that these significant impacts could result from:

- Fugitive dust from earth-moving associated with construction activities in support of the upgrade and new build of the transmission line, series compensation station, and ancillary facilities;
- Fugitive dust from vehicle movement on paved and unpaved roads accessing various segments of the line route;
- Engine exhaust (tailpipe emissions) from both on-road and non-road vehicles/equipment, including construction worker commuting, delivery of materials and supplies, and onsite construction activities;
- Emissions from concrete batch plants used to mix the concrete needed for structure and equipment foundations; and
- SF6 emissions from gas-insulated circuit breakers in the switchyards.

2.3.1 Thresholds and Methodology

The Mojave Desert Air Quality Management District (MDAQMD) has developed these Guidelines and has dedicated assets to reviewing projects to ensure that they will not: (1) cause or contribute to any new violation of any air quality standard; (2) increase the frequency or severity of any existing violation of any air quality standard; or (3) delay timely attainment of any air quality standard or any required interim emission reductions or other milestones of any federal attainment plan. The MDAQMD Guidelines are intended to provide background information and guidance on the preferred analysis approach as well as provide significance thresholds for evaluation under CEQA.

Pursuant to the MDAQMD Guidelines and thresholds (Table 2-1), any project is significant if it triggers or exceeds the most appropriate evaluation criteria. The MDAQMD will clarify upon request which threshold is most appropriate for a given project; in general, the emissions comparison (criteria number 1) is sufficient:

1. Generates total emissions (direct and indirect) in excess of the thresholds given in Table 2-1 below;
2. Generates a violation of any ambient air quality standard when added to the local background;
3. Does not conform with the applicable attainment or maintenance plan(s);
4. Exposes sensitive receptors to substantial pollutant concentrations, including those resulting in a cancer risk greater than or equal to 10 in a million and/or a Hazard Index (HI) (non-cancerous) greater than or equal to 1.

Table 2.3-1 MDAQMD Thresholds of Significance

POLLUTANT	SIGNIFICANCE (TONS/YEAR)	SIGNIFICANCE (LBS/DAY)
CO	100	548
NO_x	25	137
PM_{10}	15	82
$PM_{2.5}$	12	65
SO_x	25	137
VOC	25	137
CO_2e	100,000	548,000

Source: MDAQMD 2016

A significant project must incorporate mitigation sufficient to reduce its impact to a level that is not significant. A project that cannot be mitigated to a level that is not significant must incorporate all feasible mitigation. Note that the emission thresholds are given as a daily value and an annual value, so that a multi-phased project (such as project with a construction phase and a separate operational phase) with phases shorter than one year can be compared to the daily value.

2.3.2 Applicant Proposed Measures and BLM Best Management Practices

APMs have been identified and would be implemented by the project applicant. In addition, BLM would require implementation of Best Management Practices (BMPs), which are intended to further minimize Project impacts. All Project APMs and BMPs are described in EIS Appendix 2A. Of these, the following would apply to the portion of the Project located within California and have therefore been incorporated into the Project for evaluation of significant impact to air quality and greenhouse gases under CEQA.

- **APM AQ-01 Fugitive Dust (quantitatively included in the emissions estimate).** The following control measures would be implemented, as applicable, to reduce PM10 and PM2.5 emissions during construction, in conjunction with an Erosion, Dust Control, and Air Quality Plan and Fugitive Dust Control Plan for the Project.
    - Basic control measures
    - The following measures would be implemented at all construction sites:
    - Water active construction areas sufficiently to minimize fugitive dust.
    - Water for dust control would include three 2,000-gallon water trucks that would water access roads twice a day, 5 days a week, for 18 months.
    - Cover trucks hauling soil, sand, and other loose materials and require all trucks to maintain at least 6 inches of freeboard.
    - Pave, apply water, or apply nontoxic soil stabilizers on all unpaved access roads, parking areas, and staging areas at construction sites to minimize fugitive dust.
    - Enhanced control measures
    - In addition to the "basic" control measures listed above, the following control measures may be implemented at all construction sites greater than 4 acres:
    - Water, hydroseed, or apply nontoxic soil stabilizers to inactive construction areas to minimize fugitive dust.
    - Enclose, cover, water twice daily, or apply nontoxic soil binders to exposed stockpiles.
    - Limit traffic speeds on unpaved roads.
    - Install sandbags or other erosion-control measures to prevent silt runoff to public roadways.
    - Replant vegetation in disturbed areas as quickly as possible, consistent with seasonal survival considerations.
    - Optional control measures
    - Depending on the extent of dust generation, implementation of the following APMs may occur at larger construction sites, near sensitive receptors (residences or other occupied buildings, parks, or trails within 1,000 feet of earthmoving operations that are substantial; for example, more than excavation for tower foundations), or in situations which for any other reason may warrant additional emissions reductions:
    - Install wheel washers for all existing trucks or wash off the tires or tracks of all trucks and equipment leaving the site.
    - Suspend excavation and grading activity when winds (instantaneous gusts) exceed 25 miles per hour (mph).
    - Limit the area subject to excavation, grading, and other construction activity at any one time.

- **BMP AQ-01 Dust Palliatives (quantitatively included in the emissions estimate).** Dust palliatives would be applied, in lieu of water, to inactive construction areas (disturbed lands or soil stockpiles that are unused for 14 consecutive days). Dust palliatives would be chosen by the Dust Control Site Coordinator and or construction contractor. Dust palliatives would be environmentally safe; comply with federal, state, and local regulations; and would not produce a noxious odor or contaminate surface water or groundwater and, therefore, would not pose runoff concerns during rain events. Application rates for dust palliatives would follow the manufacturer's recommendations. Material Safety Data Sheets (MSDS/SDS) for any palliatives would be available on site and provided to the BLM and SDAPCD14 days prior to use.
- **APM AQ-02 Exhaust Emissions (qualitatively included in the emissions estimate).** The following measures would be implemented during construction to further minimize greenhouse gas emissions (carbon dioxide, methane, and nitrous oxide) per California AB32 and criteria air pollutants from vehicle and machinery and in conjunction with the Construction Emissions Mitigation Plan for the Project:
    - Minimize unnecessary construction vehicle idling time. The ability to limit construction vehicle idling time depends on the sequence of construction activities and when and where vehicles are needed or staged. Certain vehicles, such as large diesel-powered vehicles, have extended warm-up times that limit their availability for use following startup. Where such diesel-powered vehicles are required for repetitive construction tasks, these vehicles may require more idling time. The Project would apply a "common sense" approach to vehicle use, such that idling is reduced as far as possible below the maximum of 5 consecutive minutes required under Title 13 of California Code of Regulations (CCR) Section 2485 (13 CCR 2485). If a vehicle is not required for use immediately or continuously for construction activities or other safety-related reasons, its engine would be shut off.
    - Encourage use of natural gas- or electric-powered vehicles for light-duty trucks where feasible and available.
- **APM AQ-03 Minimize Potential Naturally Occurring Asbestos Emissions (qualitatively included in the emissions estimate).** The following measures would be implemented prior to and during construction to minimize the potential for naturally occurring asbestos emissions, in conjunction with an Asbestos Dust Mitigation Plan:
    - Prior to construction, samples of the construction area would be analyzed for the presence of asbestos, serpentinite, or ultramafic rock.
    - If asbestos, serpentinite, or ultramafic rock is determined to be present, all applicable provisions of the Airborne Toxic Control Measure (ATCM) for Construction, Grading, Quarrying, and Surface Mining Operations (17 CCR 93105) would be implemented, including the following:
    - For disturbed areas of 1 acre or less:
    - Construction vehicle speed at the work site would be limited to 15 mph or less.
    - Prior to any ground disturbance, sufficient water would be applied to the area to be disturbed to prevent visible emissions from crossing the property line.

- Areas to be graded or excavated would be kept adequately wet to prevent visible emissions from crossing the property line.
- Storage piles would be kept adequately wetted, treated with a chemical dust suppressant, or covered when material is not being added to or removed from the pile.
- Equipment would be washed down before moving from the property onto a paved public road.
- Visible track-out on the paved public road would be cleaned using wet sweeping or a high-efficiency particulate air-filter-equipped vacuum device within 24 hours.
- For disturbed areas of greater than 1 acre:
- Prepare an Asbestos Dust Mitigation Plan and obtain approval prior to construction.
- Implement and maintain the provisions of the approved Asbestos Dust Mitigation Plan from the beginning of construction through the duration of the construction activity.

- APM AQ-04 Minimize Potential Emissions of Naturally Occurring *Coccidioides immitis* Fungal Spores (qualitatively included in the emissions estimate). In addition to the APM AQ-01 measures to control general fugitive dust emissions, the following measures would be implemented prior to and during construction to create awareness of the risks and inhalation prevention procedures with respect to *Coccidioides immitis* fungal spores, which are naturally present in soils in the desert southwest, and inhalation of which can cause Valley Fever:
  - Prior to construction, and for each phase of construction, implement an Environmental Awareness Program for workers to ensure they are informed of the risks of contracting Valley Fever and the protective measures needed to minimize personal exposure to fugitive dust, as well as to minimize possible dust exposure of nearby residents and the general public.
  - Inform workers of the possible symptoms of Valley Fever and encourage them to seek medical treatment if these symptoms manifest.
- **BMP AQ-05: Air Quality Regulation and Standard Conformance.** All activities would meet the requirements of the Clean Air Act (Sections 110, 118, 160, and 176[c]) and the applicable local Air Quality Management jurisdiction(s). Fugitive dust cannot exceed local standards and requirements.

2.3.3 Conservation and Management Actions

The CDCA Plan, as amended, contains CMAs, which include a specific set of avoidance, minimization, and compensation measures. The applicability of those measures to the Project was determined using a CMA checklist (EIS Appendix 2C). The CMAs applicable to the Project and related to air quality and greenhouse gases are listed below and Project compliance with CDCA CMAs is addressed in the analysis portion of this section.

- **CMA LUPA-AIR-1**. All activities must meet the following requirements:
    - Applicable National Ambient Air Quality Standards (Section 109)
    - State Implementation Plans (Section 110)
    - Prevention of Significant Deterioration, including visibility impacts to mandatory Federal Class I Areas (Section 160 et seq.)
    - Conformity Analyses and Determinations (Section 176[c])
    - Apply best management practices on a case by case basis

- **CMA LUPA-AIR-3.** Where impacts to air quality may be significant under NEPA, requiring analysis through an Environmental Impact Statement, require documentation for activities to include a detailed discussion and analysis of Ambient Air Quality conditions (baseline or existing), National Ambient Air Quality Standards, criteria pollutant nonattainment areas, and potential air quality impacts of the Project (including cumulative and indirect impacts and greenhouse gas emissions). This content is necessary to disclose the potential impacts from temporary or cumulative degradation of air quality. The discussion will include a description and estimate of air emissions from potential construction and maintenance activities, and proposed mitigation measures to minimize net PM10 and PM2.5 emissions. The documentation will specify the emission sources by pollutant from mobile sources, stationary sources, and ground disturbance. A Construction Emissions Mitigation Plan will be developed.

- **CMA LUPA-AIR-4.** Because fugitive dust is the number one source of PM10 and PM2.5 emissions in the Mojave and Sonoran Deserts, fugitive dust impacts to air quality must be analyzed for all activities/projects requiring an Environmental Impact Statement and Environmental Assessment.

    - The NEPA air quality analysis may include modeling of the sources of PM10 and PM2.5 that occur prior to construction and/or ground disturbance from the activity/project, and show the timing, duration and transport of emissions off site. When utilized, the modeling will also identify how the generation and movement of PM10 and PM2.5 will change during and after construction and/or ground disturbance of the activity/project under all activity/project specific NEPA alternatives. The BLM air resource specialist and Authorizing Officer will determine if modeling is required as part of the NEPA analysis based on estimated types and amounts of emissions.

- **CMA LUPA-AIR-5.** A fugitive Dust Control Plan will be developed for all projects where the NEPA analysis shows an impact on air quality from fugitive dust.

2.3.4 CEQA Significance Criteria

Appendix G of CEQA Guidelines (14 CCR 15000 et seq.) provides guidance on assessing whether a project would have significant impacts on the environment. Consistent with Appendix G, the Project would have significant air quality and greenhouse gas emissions impacts if it would:

2.3.4.1 Air Quality

a. Conflict with or obstruct implementation of the applicable air quality plan?
b. Violate any air quality standard or contribute substantially to an existing or projected air quality violation?
c. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions, which exceed quantitative thresholds for ozone precursors)?
d. Expose sensitive receptors to substantial pollutant concentrations?
e. Create objectionable odors affecting a substantial number of people?

2.3.4.2 Greenhouse Gas Emissions

a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?
b. Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases.

2.3.5 Air Quality Impact Analysis

Impact AIR 1 - Conflict with or obstruct implementation of the applicable air quality plan?

Less than significant – no mitigation required

The MDAQMD is responsible for reviewing projects to ensure that they will not: (1) cause or contribute to any new violation of any air quality standard; (2) increase the frequency or severity of any existing violation of any air quality standard; or (3) delay timely attainment of any air quality standard or any required interim emission reductions or other milestones of any federal attainment plan. The MDAQMD CEQA and Air Federal Conformity Guidelines provides guidance on methodology and criteria to evaluate whether the Project would exceed significance thresholds.

The MDAQMD Guidelines state, "A project is non-conforming if it conflicts with or delays implementation of any applicable attainment or maintenance plan. A project is conforming if it complies with all applicable MDAQMD rules and regulations, complies with all proposed control measures that are not yet adopted from the applicable plan(s), and is consistent with the growth forecasts in the applicable plan(s) (or is directly included in the applicable plan)."

The Project would comply with applicable MDAQMD rules related to fugitive dust (Rule 403.2) and visible emissions (Rule 401). In addition, the MDAQMD would need to issue an air quality permit under Regulation II of their rules for any portable concrete batch plants located in Riverside County (Blythe area). Any such batch plant would need to meet the particulate matter emissions limitations of MDAQMD Rules 404 and 405. Accordingly, the Project would be in compliance with all applicable MDAQMD rules.

As discussed in Section 4.2 of the TES (BLM 2018), the Mojave Desert Planning Area Federal Particulate Matter Attainment Plan requires the preparation of a dust control plan for projects, such as this Project, that disturb more than 100 acres. Pursuant to Rule 403.2, the Applicant would be required to prepare and submit a site-specific dust control plan for the Project prior to commencing earth-moving activities. Therefore, the Project would not conflict with or obstruct implementation of the Mojave Desert Planning Area Federal Particulate Matter Attainment Plan. In addition, the Applicant has proposed implementation of APM AQ-01, which is consistent with dust control strategies recommended in the Mojave Desert Planning Area Federal Particulate Matter Attainment Plan. As such, this impact would be less than significant for potential to violate applicable Federal plans.

The emission control measures in the MDAQMD 1995 PM10 Plan and the 2004 Ozone Attainment Plan were all adopted into MDAQMD rules; the Project would be in compliance with control measures in attainment plans through compliance with applicable rules. As discussed in Section 4.15 Socioeconomics of the TES (BLM 2018), growth has been accounted for in various local and regional plans and projections and no changes to that growth would be likely to occur as a result of the Project. As such, the Project would be consistent with the growth forecasts in the applicable plans.

According to the California Ambient Air Quality Standards (CAAQS), the MDAQMD region is in nonattainment status for ozone and PM10. Therefore, if project-generated emissions of either of the ozone precursor pollutants (VOC and NOx) or PM10 exceed the MDAQMD's significance thresholds, then the Project would be considered to conflict with the attainment plan since it could contribute to an air quality violation.

As described in Section 4.2 of the TES, VOC, NOx, and PM10 emissions resulting from the Project would be below the MDAQMD's thresholds listed in Table 2.1-1 and would be consistent with the MDAQMD's air quality plans. Therefore, emissions of VOC, NOx, and PM10 associated with the construction and operation of the Project would not contribute to air quality violations and would not exceed the MDAQMD's significance thresholds. As such, this impact would be less than significant.

There would be a less than significant impact because the Project would be in conformance with the air quality plans, it would not cause or contribute to any cumulative effect related to conflicting with air quality plans.

Impact AIR 2 - Violate any air quality standard or contribute substantially to an existing or projected air quality violation?

Less than significant – no mitigation required

The MDAQMD recommends that ambient air quality modeling be conducted when project emissions exceed their significance thresholds (Table 4.2-4 in the TES). If the emissions do not exceed the thresholds it is assumed that there would not be a violation of the CAAQS.

As shown in Table 4.2-4 of the TES, the Project's criteria pollutant emissions would not exceed the MDAQMD annual or daily significance thresholds for CO, NOx, PM10, PM2.5, SOx, and VOC, thus no ambient air quality modeling is required. Because the Project's emissions do not exceed the MDAQMD thresholds, it can be concluded that the Project would not result in or

contribute to short-term exceedances of ozone, CO, PM10, and PM2.5 CAAQS. Therefore, the Project would not violate or contribute to violation of any air quality standards and impacts would be less than significant.

Impact AIR 3 - Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions, which exceed quantitative thresholds for ozone precursors)?

Less than significant – no mitigation required

If an area is in nonattainment for a criteria pollutant, then the background concentration of that pollutant has historically exceeded the ambient air quality standard. It follows that if a project exceeds the regional threshold for that nonattainment pollutant, then it would result in a cumulatively considerable net increase of that pollutant and result in a significant cumulative impact. The State of California has designated the Riverside County portion of the Project Area as being in nonattainment with CAAQS for ozone and PM10, and either in attainment or unclassified for all other pollutants regulated under CAAQS.

Short-term construction-related emissions would not exceed the MDAQMD significance thresholds for any VOC, NOx, and PM10 (Table 4.2-4 of the TES), therefore VOC, NOx, and PM10 emissions would not result in a significant cumulative impact relative to potential exceedances of CAAQS for ozone and PM10. Similarly, CO emissions would also not exceed the MDAQMD significance thresholds and Mojave Desert Air Basin (MDAB) is in attainment for CO CAAQS. As discussed in the TES, the NAAQS standards would not be violated and would be in attainment. Therefore, there would be a less than significant impact.

Long-term operation-related emissions are substantially less than the construction-related emissions (see Air Quality and Climate Change Baseline Technical Report). Since the construction related emissions do not exceed MDAQMD threshold it follows that the long-term emissions would also not exceed the MDAQMD's significance thresholds. The Project's long-term emissions would likewise not be cumulatively considerable. Therefore, the Project would have a less than significant impact.

Impact AIR 4 - Expose sensitive receptors to substantial pollutant concentrations?

Less than significant – no mitigation required

2.3.5.1 Construction VOC, NO_x, and PM_{10}

As discussed in Impact AIR-2, emissions during construction would not exceed the MDAQMD significance thresholds and would not be expected to result in concentrations that would exceed ambient standards or contribute substantially to an existing exceedance of an ambient air quality standard. Impacts to sensitive receptors would be less than significant.

2.3.5.2 Construction Toxic Air Contaminants

The construction of the project would emit toxics air contaminants (TAC) emissions principally in the form of diesel particulate matter (DPM as PM10 exhaust). DPM has been identified by the CARB as a carcinogenic substance. The DPM emissions would result from the operation of the various pieces of off-road construction equipment. Short-term emissions of DPM generated from construction would be limited to the 17-month construction period and would be dispersed throughout the length of the transmission line. In addition, on-site long-term emissions that would be associated with operation and maintenance would be negligible. Therefore, emissions would not be concentrated near any existing residences. Given the limited duration of exposure and the spatial distribution of emissions, there would be little health risk to the nearby residences from exposure to Project-related DPM emissions. Therefore, the impact would be less than significant.

2.3.5.3 Valley Fever

Project-related construction (and, to a far lesser extent, operation) fugitive-dust emissions could include emissions of spores from the fungus Coccidioides amities, which lives in the soil of arid areas in the southwestern United States that could be emitted in substantial concentrations if fugitive-dust emissions are not limited. Therefore, the Project is designed to be constructed in a way that reduces fugitive-dust emissions. Which, in turn, would also reduce potential emissions of the fungal spores that could be present in each area. The inclusion of measures APM AQ-01 and APM AQ-04 have been incorporated into the Project design to control fugitive-dust emissions and provide workers with an Environmental Awareness Program to ensure the workers are informed of the risks of contracting Valley Fever and the protective measures needed to minimize personal exposure to fugitive dust associated with Project construction. Since the Project incorporates APMs and construction practices would control the emission of any potential for substantial pollutant concentrations, the impact would be less than significant.

Impact AIR 5 - Create objectionable odors affecting a substantial number of people?

Less than significant – no mitigation required

The Project is not expected to generate any objectionable odors. There would be some potential for detectable odors from vehicle exhausts, both diesel and gasoline, from both on-road and non-road construction equipment used on the Project. Any such odors would be similar to, but less prevalent than, odors experienced in busy urban areas from both on-road and nonroad vehicles and thus would not be significant. Additionally, populated areas along the Project are limited to the area surrounding the community of Blythe, where construction would take place for a short period of time further limiting the potential for a substantial number of people to be exposed to objectionable odors created from project-specific vehicle exhaust. Therefore, the impact would be less than significant.

2.3.6 Greenhouse Gas Emissions Impact Analysis

Impact GHG 1 -Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Less than significant – no mitigation required

The Project would not generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment. The primary source of GHG emissions is from CO2. Emissions of methane and N2O would be a fraction of the CO2 emissions. As shown in Table 4.2-4 of the TES, the maximum annual GHG emissions that would be associated with construction of the Project would be up to 10,699 tons of carbon dioxide equivalents (CO2e) [9,706 metric tons of carbon dioxide equivalent (MTCO2e)]. The California portion is approximately 17.1 miles in length, thus total Project emissions are multiplied by 17.1/117.1 except for the batch plants. The total emissions within California would be 1,880 tons of CO2e (1,706 MTCO2e) and the total annual long-term GHG emissions that would be associated with operation and maintenance would be 758.1 tons of CO2e (688 MTCO2e). Even doubling these emissions estimates to account for methane and N2O, these emissions levels would still be well below the MDAQMD's annual tons of CO2e CEQA significance threshold of 100,000 tons of CO2e (MDAQMD 2016). Therefore, GHG emissions associated with the Project would result in a less-than-significant impact on the environment.

Impact GHG 2 - Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases.

Less than significant – no mitigation required

The Project has been evaluated relative to its potential to conflict with the Riverside County Climate Action Plan (RCCAP) and GHG reduction goals set forth in AB 32, including the applicable Recommended Actions identified by CARB in its Scoping Plan.

2.3.6.1 Riverside County Climate Action Plan

With respect to GHG emissions, the RCCAP sets goals and policies to drive virtually all activities of county government and residents and businesses toward reduction of these emissions (Riverside County 2015). The RCCAP contains ambitious targets to reduce countywide emissions from all sectors by 2020 by slightly more than 50 percent below the 2020 business-as-usual estimates. The 2020 emission goal in the RCCAP is 5,960,998 metric tons of CO2e, representing a 15 percent reduction from 2008 levels. The RCCAP does not explicitly address construction-related equipment exhaust GHG emissions that would be the primary source of GHGs for the Project. However, any increase in GHG construction emissions may be offset to the extent the Project allows for the displacement of fossil fuel energy generation with renewable energy sources through the provision of new transmission infrastructure to interconnect future renewable energy resources in both Arizona and California. As such, there may be a beneficial contribution to anthropogenic climate change.

2.3.6.2 AB 32 – Climate Change Scoping Plan

Emission reductions in California alone will not be able to stabilize the concentration of GHGs in the earth's atmosphere. However, California's actions have set an example and continue to drive progress towards a reduction in GHGs elsewhere. If other states and countries were to follow California's emission reduction targets, this could avoid medium or higher ranges of global temperature increases that would lead to the most severe consequences of climate change.

The CARB Governing Board approved a Climate Change Scoping Plan in December 2008. The Scoping Plan outlines the State's strategy to achieve the 2020 GHG emissions limit. The Scoping Plan "proposes a comprehensive set of actions designed to reduce overall GHG emissions in California, improve our environment, reduce our dependence on oil, diversify our energy sources, save energy, create new jobs, and enhance public health" (CARB 2008). The measures in the Scoping Plan were all in place by 2012. The First Update of the CARB Scoping Plan adopted in May 2014 (CARB 2014) includes no new measures or targets that would require additional consistency analysis. The Second Update of the CARB Scoping Plan was approved in December 2017. The Project's consistency with applicable strategies in the Scoping Plan is assessed in Table 2.3-2.

Table 2.3-2 Consistency with Applicable Scoping Plan Reduction Measures

SCOPING PLAN REDUCTION MEASURE	PROJECT APPLICABILITY/CONSISTENCY DISCUSSION
California Light-Duty Vehicle. Greenhouse Gas Standards. Implement adopted standards and planned second phase of the program. Align zero-emission vehicle, alternative and renewable fuel and vehicle technology programs with long-term climate change goals.	**Consistent.** This is a statewide measure that cannot be implemented by a project applicant or lead agency. However, when this measure is initiated, the standards would be applicable to the light-duty vehicles that would access the project site during construction and operation. The Project would not conflict or obstruct this program.
Renewable Portfolio Standard. Achieve 33 percent renewable energy mix statewide. Renewable energy sources include (but are not limited to) wind, solar, geothermal, small hydroelectric, biomass, anaerobic digestion, and landfill gas.	**Consistent.** One of the purposes of the Project is to develop new transmission infrastructure to interconnect future renewable energy resources in both Arizona and California. This would help California achieve the RPS Standard.
Low Carbon Fuel Standard. Develop and adopt the Low Carbon Fuel Standard.	**Consistent.** This is a statewide measure that cannot be implemented by a project applicant or lead agency. When this measure is initiated, the standard would be applicable to the fuel used by vehicles that would access the Project site during construction and operation. The Project would not conflict or obstruct this program.
Vehicle Efficiency Measures. Implement light-duty vehicle efficiency measures.	**Consistent**. When this measure is initiated, the standards would be applicable to the light-duty vehicles that would access the Project site. The Project would not conflict or obstruct this program.
Medium/Heavy-Duty Vehicles. Adopt medium and heavy-duty vehicle efficiency measures.	**Consistent.** This is a statewide measure that cannot be implemented by a project applicant or lead agency. When this measure is initiated, the standards would be applicable to the vehicles that access the Project site during construction or operation. The Project would not conflict with or obstruct this program.

SCOPING PLAN REDUCTION MEASURE	PROJECT APPLICABILITY/CONSISTENCY DISCUSSION
High Global Warming Potential Gases. Adopt measures to reduce high global warming potential gases.	**Consistent.** Scoping Plan Measure H-6: High Global Warming Potential Gas Reductions from Stationary Sources – SF6 Leak Reduction and Recycling in Electrical Applications. This measure would reduce emissions of SF6 within the electric utility sector and at particle accelerators by requiring the use of best achievable control technology for the detection and repair of leaks and the recycling of SF6. On June 17, 2011, the approved Final Regulation Order associated with Scoping Plan Measure H-6 for reducing SF6 emissions from gas insulated switchgear became effective. The regulation establishes maximum annual SF6 emission rates for gas insulated switchgear, starting in 2011 at 10 percent of the owners' total equipment capacity. The required emission rates will steadily decline by 1 percent per year until 2020, at which time the maximum annual SF6 emission rate would be set at 1 percent. The regulation also requires gas insulated switchgear owners to annually report their SF6 emissions and emission rate to CARB. The Project would include installation of SF6-containing circuit breakers that would have a fugitive emissions leak rate of less than 1 percent per year per engineering specifications (HDR 2017b). This would ensure that there would be little potential for the Project to conflict with compliance of this regulation and there would be no impact.
Recycling and Waste. Reduce methane emissions at landfills. Increase waste diversion, composting, and commercial recycling. Move toward zero-waste.	**Consistent.** The Project would include the recycling of construction waste at approved disposal facilities.

Source of CARB Scoping Plan Reduction Measure: California Air Resources Board 2008.
Source of Project Consistency or Applicability: Stantec Consulting Services, Inc.

Because the Project would cause no impacts related to a conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions, it could not cause or contribute to any cumulative effect in this regard.

2.3.7 Air Quality and Climate Change Mitigation

No mitigation measures are required.

2.4 BIOLOGICAL RESOURCES

This section describes the impacts to biological resources associated with the construction, operation, and maintenance of the proposed transmission line, substations, and ancillary facilities in terms of CEQA significance thresholds disclosed below in Section 2.4.4. Impacts to biological resources are discussed in terms of impacts on vegetation communities, wildlife species, special status species of plants and animals, special habitat management areas, and noxious weeds. Impacts to wildlife and special status species are discussed in terms of impacts on the species and their habitats.

2.4.1 Thresholds and Methodology

Existing conditions described in Section 3.5 of the TES (BLM 2018) have been evaluated with regard to their potential to be affected by project construction, operation, maintenance, and decommissioning activities. Additionally, this section responds to issues raised during the public scoping process, which are presented in Appendix 1 of the EIS. The potential impacts associated with the project are evaluated on a qualitative and quantitative basis through a comparison of the anticipated project effects on biological resources. The evaluation of Project impacts is based on the significance criteria established by Appendix G of the CEQA Guidelines (refer to section 2.4.4 below for additional information), and additional criteria including:

- Long-term loss of wetland or riparian vegetation, or sensitive natural community caused by degradation of water quality, diversion of water sources, or erosion and sedimentation from altered drainage patterns;
- Introduction or increased spread of noxious weeds;
- Loss of individuals or habitat of a plant or animal species that would result in the elimination of a local population of that species;
- Loss of individuals or habitat of a plant or animal species that would result in that species being listed or proposed for listing as endangered or threatened under the federal or state ESA, or being added to an agency list of sensitive species;
- Any activity that would result in “take” under ESA, MBTA, or the BGEPA;
- Adverse modification of designated critical habitat or jeopardy to a species listed under the ESA;
- Pollution of waters that could cause adverse effects on wildlife;
- Long-term interference with the movement of native resident or migratory species, disruption in the function of wildlife movement corridors, or impeding the use of wildlife nursery sites or water sources;
- Impacts to special designated management areas (e.g., wilderness area, habitat management area, ACEC, wildlife refuge) that compromise the intent of that designation;
- Modification of habitat of a special status species of plant or animal used for any purpose (e.g., breeding, rearing, foraging, dispersal) that would result in population level impacts

(as opposed to impacts to individuals), a reduction in the potential viability of the population, or a loss in the range of occurrence of the species;

- Interference with nesting or breeding periods of any species;
- Reduction in the range of occurrence of any special status species;
- Conflict with state or local statutes, policies, or ordinances protecting biological resources, such as native plant provisions; and
- Conflict with the provisions of a National Wildlife Refuge (NWR), Habitat Conservation Plan, Candidate Conservation Agreement, Natural Communities Conservation Plan, or other approved local, regional, or State conservation program.

2.4.2 Applicant Proposed Measures and BLM Best Management Practices

APMs have been identified and would be implemented by the project applicant. In addition, BLM would require implementation of Best Management Practices (BMPs), which are intended to further minimize Project impacts. Project APMs and BMPs are described in EIS Appendix 2A. Of these, the following would apply to the portion of the Project located within California and have therefore been incorporated into the Project for evaluation of significant impact to Biological Resources under CEQA.

- **APM BIO-1: Worker Environmental Awareness Program.** Before starting any work, including mowing, staging, installing stormwater control structures, implementing other BMPs, removing trees, construction, and restoration, all employees and contractors performing activities and new construction would receive training on environmental requirements that apply to their job duties and work. If additional crewmembers arrive later in the job, they would be required to complete the training before beginning work. Training would include a discussion of the avoidance and minimization measures being implemented and would include information on the Federal and state Endangered Species Acts and the consequences of not complying with these Acts. An educational brochure would be provided to construction crews working on the Project. This brochure would include color photographs of special status species as well as a discussion of avoidance and minimization measures.
- **BMP BIO-1: Worker Environmental Awareness Program.** The worker education program would provide interpretation for non-English speaking workers.
- **APM BIO-2: Biological Monitoring and Pre-construction Survey.** A qualified biological monitor would be present on the Project site during all work activities within habitat of special status animal species. The qualified biologist would conduct a pre-construction survey of those areas immediately before work activities begin and would locate and fence off any present individuals of special status plant species.
- **BMP BIO-02: Biological Monitoring and Pre-construction Survey.** Multiple biological monitors would be provided so any work site within habitat of special status species is monitored concurrently if needed.
- **APM BIO-3: Approved Work Areas.** To the extent practicable, stockpiling of material would be allowed only within the established work area. Vehicles and equipment would

be parked on pavement, existing roads, and previously disturbed areas within identified work areas or access roads.

- **BMP BIO-03: Approved Work Areas.** The BLM would approve areas to be used for stockpiling, vehicle parking, or other construction support activity that would occur outside established work areas.
- **APM BIO-4: Environmentally Sensitive Areas and Fencing.** Environmentally sensitive areas, such as the riparian areas, xeroriparian washes, and other habitat of special status species, would be identified in the field. Barrier fences or stakes would be installed at the edge of the easement or around the sensitive area to minimize the possibility of inadvertently encroaching into sensitive habitat.
- **APM BIO-5: Additional Prohibitions.** Trash dumping, firearms, open fires, and pets would be prohibited at all work locations and access roads. Smoking would be prohibited along the Project alignment.
- **APM BIO-6: Trash Handling.** All food scraps, wrappers, food containers, cans, bottles, and other trash from the work area would be disposed of in closed trash containers.
- **APM BIO-7: Monofilament Plastic.** No monofilament plastic would be used for erosion control (for example, matting, fiber roll, wattles, silt fencing backing). Appropriate materials include burlap, coconut fiber, or other materials as identified in the general and site-specific SWPPP.
- **APM BIO-8: Refueling.** Vehicular and equipment refueling should not occur within 100 feet of a wetland or drainage unless secondary containment is constructed, for example, a berm and lined refueling area. Proper spill prevention and cleanup equipment would be maintained in all refueling areas in accordance with the Spill Prevention, Control, and Countermeasures Plan (SPCC) for the Project.
- **APM BIO-9: Escape Ramps.** All excavated steep-walled holes or trenches more than 1-foot-deep would be covered at the end of each working day with plywood or similar materials or would be provided with one or more escape ramps constructed of earth fill or wooden planks. Each trench or hole would be inspected for wildlife at the beginning of each work day and before such holes or trenches are filled. Wildlife found trapped in trenches or holes would be relocated to suitable habitat outside the work area. If possible, pipes and culverts greater than 3 inches in diameter would be stored on dunnage to prevent wildlife from taking refuge in them, to the extent feasible.
- **APM BIO-10: Erosion and Dust Control.** The BMPs included in the SWPPP would be implemented during construction to minimize impacts associated with erosion. Watering for dust control during construction would also be used as described previously (AQ-01). Watering shall not result in prolonged ponding of surface water that could attract wildlife to the work area. Minimal or no vegetation clearing and/or soil disturbance would be conducted for site access and construction in areas with suitable topography (i.e., overland driving/overland access).
- **APM BIO-11: Vegetation Management Plan.** The Vegetation Management Plan (EIS Appendix 2B) would be approved by the BLM and implemented. That Plan describes the surveys, permitting, fee payments, and plant protection to be conducted in areas where

Project design would not eliminate the need for vegetation control for the project to be in compliance with NERC requirements. Vegetation would be trimmed or otherwise controlled for safe operation of the transmission line and would be designed to minimize impacts on special status species to the extent practicable. The Plan also would describe how vegetation would be salvaged, as needed, in order to comply with the applicable Arizona Native Plant Law and California regulations.

- **BMP BIO-11: Vegetation Management Plan.** In addition to the description of the Vegetation Management Plan in the corresponding APM BIO-11, the plan would also:

    - Meet BLM guidelines for mapping and surveying of cacti, yuccas, and succulents.
    - Include a wire zone/border zone/effective border zone approach to vegetation maintenance as described in Ballard et al. 2007.
    - Identify tall vegetation species by geographic reach and growth rates, from relevant scientific literature (such as Dresner 2003), to be used to determine maximum allowable vegetation heights in the context of wire zone/border zone/effective border zone concepts, to accommodate identified growth periods (e.g., ten years) based on the specific vegetation community. Species examples include, but are not limited to, saguaro cactus, ironwood, palo verde, cottonwood, Gooding willow.

- **APM BIO-12: Invasive Species Control.** A Noxious Weed Control Plan (EIS Appendix 2B) that addresses specific requirements in CMA LUPA-BIO-11 would be developed, approved by the BLM, and implemented prior to initiation of ground disturbing activities. That Plan would identify noxious and invasive species to be addressed in the Project Area, describe measures to conduct pre-construction weed surveys, reduce the potential introduction or spread of noxious weeds and invasive species during construction, and monitor and control weeds during operation of the transmission line. It would be designed to minimize impacts on special status species to the extent practicable. Coordination with resource agencies regarding invasive plant species would be conducted before construction. BMPs would include use of weed-free straw, fill, and other materials; requirements for washing vehicles and equipment arriving on site; proper maintenance of vehicle inspection and wash stations; requirements for managing infested soils and materials; requirements and practices for the application of herbicides; and other requirements in applicable BLM Weed Management Plans.

- **APM BIO-13: Riparian Habitat Avoidance.** Riparian areas and xeroriparian drainages that occur within the easement would be denoted as environmentally sensitive areas and would be avoided during construction to the extent practicable. Existing topography would be restored to pre-Project conditions to the extent possible.

- **APM BIO-14: Minimizing Vegetation Clearing.** In areas with suitable topography, minimal or no vegetation clearing and soil disturbance would be conducted for site access and construction (i.e. overland driving/overland access). Overland driving/overland access would be used in areas that support the necessary construction equipment. Upgrading of existing access roads and construction of new access roads would be implemented as necessary for the safe construction activities.

- **APM BIO-15: Reclamation and Restoration.** A Habitat Restoration and Monitoring Plan would be developed, approved by BLM, and implemented for construction and operation

of the project. Revegetate all sites disturbed during construction that would not be required for operation of the transmission line, and restore disturbed areas to the extent practicable, given the arid desert environment. The Plan would describe in detail methods for surveying and characterizing vegetation in disturbed areas before construction; topsoil salvage and management, erosion control, post-construction recontouring and site preparation, seeding and planting, and post-construction watering, monitoring, and remediation. It would be designed to reduce impacts on special status species to the extent practicable.

- **BMP BIO-15: Reclamation and Restoration.** As a part of the Habitat Restoration and Monitoring Plan, the soil horizons would be stored separately for the areas where the success of restoration could be crucial for rare plant species.
- **APM BIO 16: Treatment of Saguaro Cactus.** Measures would be implemented to minimize the number of saguaro cacti that must be relocated for the safe construction and operation of the transmission line. In accordance with the Vegetation Management Plan (EIS Appendix 2B), a survey of saguaros within the ROW would be conducted before construction and where possible, the transmission line would be designed to minimize the number of saguaros affected by adjusting tower locations and conductor height. The Plan would address plant salvaging, storing, and replanting requirements and methods, only those saguaro that are within 50-feet of the outermost conductors and could be tall enough to pose a hazard would be removed if they cannot be avoided through Project design. When possible, saguaro that must be removed would be relocated as directed by the BLM and state agency protocols. Monitoring and management of saguaros during operations would occur as described in the Vegetation Management Plan.
- **APM BIO-17: Limit Off-road Vehicle Travel.** Vehicular travel would be limited to established roads to the maximum extent practicable.
- **BMP BIO-19: Colorado River.** In the vicinity of the Colorado River, existing structure spacing and conductor heights would be matched to the greatest extent practical to reduce the potential for bird collisions with the power line. The transmission line would span the Colorado River and the minimum number of structures possible would be located within the undeveloped floodplain. The term, "vicinity of the Colorado River" is defined to mean the river crossing, floodplain, and associated agricultural lands. In these areas, conductor bundles would be in a horizontal, parallel configuration, and match existing structure spacing and conductor heights to the greatest extent practical to reduce the potential for bird collisions with the power line. No guyed structures would be used at these locations.
- **APM BIO-20: Migratory Bird Protection During Construction.** If construction is scheduled during the nesting bird season (generally February 1 through August 31), the work area would be surveyed for birds protected under the Migratory Bird Treaty Act and California Fish and Game Code. Active nests identified during pre-construction surveys would require protective buffers or visual barriers to ensure compliance with those regulations. If the qualified biologist determines that construction activities would cause distress to nearby nesting birds, larger buffers or construction delays might be necessary to allow the birds to successfully fledge from the nest.
- **APM BIO-21: Reduction of Avian Collisions and Electrocution.** Current guidelines and methodologies (APLIC 2006, 2012) would be used in the design of the proposed

transmission facilities to minimize the potential for raptors and other birds to collide with the transmission line and be electrocuted. For example, aerial marker balls or other visibility markers would be placed at and near the crossing of the Colorado River to increase the visibility of the transmission line to birds using that movement corridor. These measures would be implemented in conjunction with an Avian Protection Plan for the Project.

- **BMP BIO-21: Reduction of Avian Collision.** Aerial marker balls or other visibility markers would be placed on overhead ground wires (not conductors) at crossing of the Colorado River and floodplain to increase visibility to birds using that movement corridor and marking any other static wires to improve visibility and reduce collisions. Deterrents would be added to reduce nesting and perching by ravens and other predatory birds. The Avian Protection Plan would include requirements for monitoring the effectiveness of anti-electrocution design.
- **APM BIO-23: Mojave Desert Tortoise Protection (California).** A qualified-biologist would be present during all ground-disturbing and other construction activities in non-cultivated areas in California, in order to survey areas before they are disturbed, monitor construction sites for the presence of desert tortoises, and move tortoises from harm's way in accordance with USFWS protocols. Burrows near construction sites would be clearly delineated. Road, footing, and work area alignments would be modified to the extent possible to avoid adversely affecting any tortoise burrows. Where burrows would be unavoidably destroyed, they would be excavated carefully using hand tools under the supervision of a field biologist with demonstrated prior experience with this species. Other measures, as required by the USFWS in any applicable Biological Opinion, would also be implemented.
- **BMP BIO-23: Mojave Desert Tortoise Protection (California).** A designated biologist would inspect construction pipes, culverts, or similar structures: (a) with a diameter greater than 3 inches, (b) stored for one or more nights, (c) less than 8 inches aboveground and (d) within desert tortoise habitat (such as, outside the long-term fenced area), before the materials are moved, buried, or capped. As an alternative, such materials shall be capped before storing outside the fenced area or placing on pipe racks. Pipes stored within the long-term fenced area after completing desert tortoise clearance surveys would not require inspection.
- **BMP BIO-24: Sensitive Plant Surveys.** A survey would be conducted during the appropriate time of year of the selected route to identify special status plant species and imperiled or sensitive vegetation alliances. Where possible, and as required by the BLM, special status species and vegetation alliances would be avoided during construction. This survey would be restricted to non-cultivated land.
- **BMP BIO-25: Sensitive Animal Surveys.** A survey would be conducted of the selected route prior to construction of all work areas to identify special status animal species, including Mojave desert tortoises, burrowing owls, and Mojave fringe-toed lizards. Where possible, and as required by the BLM, special status species and vegetation alliances would be avoided during construction.

- **APM BIO-27: Bighorn Sheep Lambing Areas.** Construction activities would be limited from January 1 to March 31 in active bighorn sheep lambing areas identified by BLM and AGFD.
- **BMP BIO-28: Raven Management Plan.** The Raven Management Plan would be implemented for all activities to address food and water subsidies and roosting and nesting sites specific to the Common raven. These include identification of monitoring reporting procedures and requirements; strategies for refuse management; as well as design strategies and passive repellant methods to avoid providing perches, nesting sites, and roosting sites for Common ravens. Compensatory mitigation would be provided that contributes to LUPA-wide raven management.
- **BMP BIO-29: Bird and Bat Conservation Strategy.** The Bird and Bat Conservation Strategy would provide guidance on conservation measures applicable to bird and bat species present in the Project Area, including a nesting bird management plan and a nest management plan.
- **BMP BIO-30: Burrowing Owl Nesting Management Plan.** Plan would include management direction consistent with LUPA-BIO-IFS-12, LUPA-BIO-IFS-13, and LUPA-BIO-IFS-14.
- **BMP BIO-31: Treatment of Harwood's eriastrum.**

    1. Pre-construction surveys would be required for non-agricultural areas in California.
    2. Avoid Harwood's eriastrum individuals through micrositing facilities to the maximum extent practical.
    3. Within suitable habitat for Harwood's eriastrum, use overland travel (drive and crush) in lieu of road construction to pad sites to the maximum extent practical.
    4. On non-agricultural Public Lands in California, an authorized botanist would be on site for all construction activities involving surface disturbance or overland travel.
    5. Within suitable habitat for Harwood's eriastrum, keep equipment to the minimum necessary to accomplish the necessary work.
    6. On public lands in California, avoid establishing features that would interfere with the movement of sand to the maximum extent practical.
    7. Laydown and temporary use sites would not be located within suitable habitat for Harwood's eriastrum.
    8. On public lands in California, use existing roads or routes to the maximum extent practical.
    9. Develop and implement an Invasive Species Management Plan (specific to the rare plant habitat) that California State Director would approve prior to a notice to proceed for work on public lands in California.
    10. No surface disturbance or overland travel would occur within occupied habitat for Harwood's eriastrum from 15 February through the 31 July. This stipulation does not apply to verified, unoccupied habitat.
    11. No take of Harwood's eriastrum individuals would be allowed without California State Director approval.
    12. Prepare a Harwood's eriastrum Linear ROW Protection Plan.

13. Project impacts to suitable habitat combined with current impacts shall be limited (capped) to a maximum of 1 percent of Harwood's eriastrum habitat across all BLM lands included within the DRECP.

- **BMP BIO-32: Seasonal Restriction Dates.** Species-specific seasonal restriction dates would be observed.
- **BMP BIO-33: Construction Lighting.** All long-term nighttime lighting would be directed away from riparian and wetland vegetation, occupied habitat, and suitable habitat areas for sensitive species. Long-term nighttime lighting, if required, would be directed and shielded downward to avoid interference with the navigation of night-migrating birds and to minimize the attraction of insects as well as insectivorous birds and bats to project infrastructure. Long-term nighttime lighting would avoid the use of constant-burn lighting.
- **BMP BIO-34: Prevention of Puddles During Dust Abatement.** The application of water and/or other palliatives for dust abatement in construction areas and during Project operations and maintenance would be done with the minimum amount of water necessary to meet safety and air quality standards and in a manner that prevents the formation of puddles, which could attract wildlife and wildlife predators.
- **BMP BIO-35: Presence of Wildlife in Construction Materials or Equipment.** All construction materials would be visually checked for the presence of wildlife prior to their movement or use. Any wildlife encountered during the course of these inspections would be allowed to leave the construction area unharmed.
- **BMP BIO-36: Feeding or Harassment of Wildlife.** The intentional feeding or harassment of wildlife on site is prohibited.
- **BMP BIO-37: Native Plant Collection.** The collection of native plants on site is prohibited without required permits and tags.
- **BMP BIO-38: Use of State of the Art Technology.** Use state-of-the-art, as approved by BLM, construction and installation techniques, appropriate for the specific activity/project and site, that minimize new site disturbance, soil erosion and deposition, soil compaction, disturbance to topography, and removal of vegetation.
- **BMP BIO-39: Bird- and Bat-Friendly Fencing.** When fencing is necessary, use bird and bat compatible design standards.
- **BMP BIO-40: Project Activity Siting Near Bat Maternity Roosts.** Activities would not be sited within 500 feet of any occupied maternity roost or presumed occupied maternity roost
- **BMP BIO-41: Succulent Management.** Management of cactus, yucca, and other succulents would adhere to current up-to-date BLM policy. All activities would follow applicable BLM state and national regulations and policies for salvage and transplant of cactus, yucca, and other succulents. Pre-construction surveys of disturbance zones would include preparation of maps delineating special vegetation features. BLM may consider disposal of succulents through public sale, as per current up-to-date state and national policy.

- **BMP BIO-42: Dead and Downed Wood.** Promote appropriate levels of dead and downed wood on the ground, outside of campground areas, to provide wildlife habitat, seed beds for vegetation establishment, and reduce soil erosion, as determined appropriate on an activity-specific basis.
- **BMP BIO-43: Collection of Plant Material.** Allow for the collection of plant material consistent with the maintenance of natural ecosystem processes.
- **BMP BIO-44: Mojave Desert Tortoise Protection.**
    - All culverts for access roads or other barriers would be designed to allow unrestricted access by desert tortoises and would be large enough that desert tortoises are unlikely to use them as shelter sites (e.g., 36 inches in diameter or larger). Desert tortoise exclusion fencing may be utilized to direct tortoise use of culverts and other passages.
    - Biological monitoring would occur with any geotechnical boring or geotechnical boring vehicle movement to ensure no desert tortoises are killed or burrows are crushed.
    - A designated biologist would accompany any geotechnical testing equipment to ensure no tortoises are killed and no burrows are crushed.
    - The ground would be inspected under vehicles for the presence of desert tortoise any time a vehicle or construction equipment is parked in desert tortoise habitat. If a desert tortoise is seen, it may move on its own. If it does not move within 15 minutes, a designated biologist may remove and relocate the animal to a safe location.
    - Vehicular traffic would not exceed 15 miles per hour within the areas not cleared by protocol level surveys where desert tortoise may be impacted.
- **BMP BIO-45: Protection from Loss and Harassment of Golden Eagles.** Provide protection from loss and harassment of active golden eagle nests through activities identified LUPA-BIO-IFS-24 through -31.
- **BMP BIO-46: Compensation for Loss of Desert Riparian Woodland.** The loss of desert riparian woodland would be compensated at a ratio of 5:1 Compensation acreage requirements may be fulfilled through non-acquisition (i.e., restoration and enhancement), land acquisition (i.e., preserve), or a combination of these options, depending on the activity specifics and BLM approval/authorization.
- **BMP BIO-47: Riparian Functioning Condition.** BLM would manage all riparian areas to be maintained at, or brought to, proper functioning condition.
- **BMP BIO-48: Flight Diverters.** Flight diverters would be installed on all transmission activities spanning or within 1,000 feet of stream and wash channels, canals, ponds, and any other natural or artificial body of water. The type of flight diverter selected would be subject to approval by BLM, in coordination with USFWS and CDFW as appropriate.
- **BMP BIO-49: Fringe-toed Lizard Linear ROW Protection Plan.** A Fringe-toed Lizard Linear ROW Protection Plan would be prepared that identifies specific conservation measures to minimize Project-related impacts to sand dunes and sand transport areas, to

map suitable habitat within construction zones, and methods to achieve clearance surveys within suitable habitat so animals are not killed by construction activities.

- **BMP BIO-50 Engineering Controls.** Appropriate engineering controls would be used to minimize impacts on dry wash, dry wash woodland, and chenopod scrub, including downstream occurrences, resulting from surface water runoff, erosion, sedimentation, altered hydrology, accidental spills, or fugitive dust deposition to these habitats. Appropriate buffers and engineering controls would be determined through agency consultation.
- **BMP BIO-51: Conductor Clearance.** To minimize vegetation trimming, micrositing and design considerations (including tower height) would be applied so the catenary formed by the conductors (the bottom of the sag) avoids saguaros and is not directly over wash vegetation, to the extent practicable.
- **BMP BIO-52: California Riparian Habitat and Rare Plant Alliance Avoidance.** In California, as part of micrositing towers, a 200-foot setback from the outer perimeter of Coloradan semi-desert wash woodland/scrub vegetation community would be applied. Pre-construction surveys of disturbance zones would include preparation of maps delineating special vegetation features. Minor incursions would be allowed to balance minimizing vegetation trimming (see BIO-51) while maintaining an appropriate setback, as determined based on site-specific conditions. No structure would be placed within, and no new access roads would pass through, these washes to the extent practicable.
- **BMP BIO-53: Protection of Dune Vegetation.** Project facilities would be sited to avoid dune vegetation. Unavoidable impacts to dune vegetation would be limited and access roads that would be sited to minimize unavoidable impacts. Access road would be unpaved, and access roads would be designed and constructed to be at grade with the ground surface to avoid inhibiting sand transport.
- **BMP BIO-54: Protection of Sand Transport.** Within Aeolian corridors that transport sand to dune formations and vegetation types downwind all activities would be designed and operated to facilitate the flow of sand across activity sites, and avoid the trapping or diverting of sand from the Aeolian corridor. Structures would take into account the direction of sand flow and, to the extent feasible, build and align structures to allow sand to flow through the site unimpeded. Fences would be designed to allow sand to flow through and not be trapped.
- **BMP BIO-55: Access within Focus and BLM special Status Species Suitable Habitat.** Construction of new roads and/or routes would be avoided within Focus and BLM Special Status Species suitable habitat within identified linkages for those Focus and BLM Special Status Species, unless the new road and/or route is beneficial to minimize net impacts to natural or ecological resources of concern. These areas would have a goal of “no net gain” of project roads and/or routes.
- **BMP BIO-56: Sonoran Pronghorn.** Measures, as required by the USFWS in any applicable Biological Opinion, would be implemented.
- **BMP VEG-01: Removal of Vegetation.** Any removal of vegetation resources would be conducted in accordance with BLM IB 2012-097.

- **BMP VEG-02: Avoid Vegetation Removal.** Minimize natural vegetation removal through implementation of crush and drive or cut or mow vegetation rather than removing entirely.

2.4.3 Conservation and Management Actions

The CDCA Plan, as amended, contains CMAs, which include a specific set of avoidance, minimization, and compensation measures. The applicability of those measures to the Project was determined using a CMA checklist (EIS Appendix 2C). The CMAs applicable to the BLM lands portion of the Project located within the CDCA and related to Biological Resources are listed below and Project compliance with CDCA CMAs is addressed in the analysis portion of this section.

CMA DFA-BIO-IFS-1. Conduct surveys as applicable in the DFAs as shown in Table 21 of the DRECP.

CMA DFA-BIO-IFS-2. Implement setbacks shown below in Table 22 of the DRECP as applicable in the DFAs.

CMA DFA-VPL-BIO-DUNE-1. Activities in DFAs and VPLs, including transmission substations, will be sited to avoid dune vegetation (i.e., North American Warm Desert Dune and Sand Flats). Unavoidable impacts (see "unavoidable impacts to resources" in the Glossary of Terms, EIS Appendix 6) to dune vegetation will be limited to transmission projects, except transmission substations, and access roads that will be sited to minimize unavoidable impacts.

- For unavoidable impacts (see "unavoidable impacts to resources" in the Glossary of Terms, EIS Appendix 6) to dune vegetation, the following will be required:
    - Access roads will be unpaved.
    - Access roads will be designed and constructed to be at grade with the ground surface to avoid inhibiting sand transportation.

CMA LUPA-BIO-1. Conduct a habitat assessment (see Glossary of Terms, EIS Appendix 6) of Focus and BLM Special Status Species' suitable habitat for all activities and identify and/or delineate the DRECP vegetation types, rare alliances, and special features (e.g., Aeolian sand transport resources, Joshua tree, microphyll woodlands, carbon sequestration characteristics, seeps, climate refugia) present using the most current information, data sources, and tools (e.g., DRECP land cover mapping, aerial photos, DRECP species models, and reconnaissance site visits) to identify suitable habitat (see Glossary of Terms, EIS Appendix 6) for Focus and BLM Special Status Species. If required by the relevant species-specific CMAs, conduct any subsequent protocol or adequate presence/absence surveys to identify species occupancy status and a more detailed mapping of suitable habitat to inform siting and design considerations. If required by relevant species-specific CMAs, conduct analysis of percentage of impacts to suitable habitat and modeled suitable habitat.

- BLM will not require protocol surveys in sites determined by the designated biologist to be unviable for occupancy of the species, or if baseline studies inferred absence during the current or previous active season.

- Utilize the most recent and applicable assessment protocols and guidance documents for vegetation types and jurisdictional waters and wetlands that have been approved by BLM, and the appropriate responsible regulatory agencies, as applicable.

CMA LUPA-BIO-2. Designated biologist(s) (see Glossary of Terms, EIS Appendix 6), will conduct, and oversee where appropriate, activity-specific required biological monitoring during pre-construction, construction, and decommissioning to ensure that avoidance and minimization measures are appropriately implemented and are effective. The appropriate required monitoring will be determined during the environmental analysis and BLM approval process. The designated biologist(s) will submit monitoring reports directly to BLM.

CMA LUPA-BIO-3. Resource setbacks (see Glossary of Terms, EIS Appendix 6) have been identified to avoid and minimize the adverse effects to specific biological resources. Setbacks are not considered additive and are measured as specified in the applicable CMA. Allowable minor incursions (see Glossary of Terms, EIS Appendix 6), as per specific CMAs do not affect the following setback measurement descriptions. Generally, setbacks (which range in distances for different biological resources) for the appropriate resources are measured from:

- The edge of each of the DRECP desert vegetation types, including but not limited to those in the riparian or wetland vegetation groups (as defined by alliances within the vegetation type descriptions and mapped based on the vegetation type habitat assessments described in LUPA-BIO-1).
- The edge of the vegetation extent for specified Focus and BLM sensitive plant species.
- The edge of suitable habitat or active nest substrates for the appropriate Focus and BLM Special Status Species.

CMA LUPA-BIO-4. For activities that may impact Focus and BLM Special Status Species, implement required species-specific seasonal restrictions on pre- construction, construction, operations, and decommissioning activities. Species-specific seasonal restriction dates are described in the applicable CMAs. Alternatively, to avoid a seasonal restriction associated with visual disturbance, installation of a visual barrier may be evaluated on a case-by-case basis that will result in the breeding, nesting, lambing, fawning, or roosting species not being affected by visual disturbance from construction activities subject to seasonal restriction. The proposed installation and use of a visual barrier to avoid a species seasonal restriction will be analyzed in the activity/project specific environmental analysis.

CMA LUPA-BIO-5. All activities, as determined appropriate on an activity-by-activity basis, will implement a worker education program that meets the approval of the BLM. The program will be carried out during all phases of the project (site mobilization, ground disturbance, grading, construction, operation, closure/decommissioning or project abandonment, and restoration/reclamation activities). The worker education program will provide interpretation for non-English speaking workers and provide the same instruction for new workers prior to their working on site. As appropriate based on the activity, the program will contain information about:

- Site-specific biological and nonbiological resources.

- Information on the legal protection for protected resources and penalties for violation of federal and state laws and administrative sanctions for failure to comply with LUPA CMA requirements intended to protect site-specific biological and nonbiological resources.
- The required LUPA and project-specific measures for avoiding and minimizing effects during all project phases, including but not limited to resource setbacks, trash, speed limits, etc.
- Reporting requirements and measures to follow if protected resources are encountered, including potential work stoppage and requirements for notification of the designated biologist.
- Measures that personnel can take to promote the conservation of biological and non-biological resources.

CMA LUPA-BIO-6. Subsidized predator standards, approved by BLM, in coordination with the USFWS and CDFW, will be implemented during all appropriate phases of activities, including but not limited to renewable energy activities, to manage predator food subsidies, water subsidies, and breeding sites including the following:

- Common raven management actions will be implemented for all activities to address food and water subsidies and roosting and nesting sites specific to the Common raven. These include identification of monitoring reporting procedures and requirements; strategies for refuse management; as well as design strategies and passive repellant methods to avoid providing perches, nesting sites, and roosting sites for Common ravens.
- The application of water and/or other palliatives for dust abatement in construction areas and during project operations and maintenance will be done with the minimum amount of water necessary to meet safety and air quality standards and in a manner that prevents the formation of puddles, which could attract wildlife and wildlife predators.
- Following the most recent national policy and guidance, BLM will take actions to not introduce, dispose of, or release any non- native species into areas of native habitat, suitable habitat, and natural or artificial waterways/water bodies containing native species.

All activity work areas will be kept free of trash and debris. Particular attention will be paid to "micro-trash" (including such small items as screws, nuts, washers, nails, coins, rags, small electrical components, small pieces of plastic, glass or wire, and any debris or trash that is colorful or shiny) and organic waste that may subsidize predators. All trash will be covered, kept in closed containers, or otherwise removed from the project site at the end of each day or at regular intervals prior to periods when workers are not present at the site.

- In addition to implementing the measures above on activity sites, each activity will provide compensatory mitigation that contributes to LUPA-wide raven management.

CMA LUPA-BIO-7. Where DRECP vegetation types or Focus or BLM Special Status Species habitats may be affected by ground- disturbance and/or vegetation removal during pre-construction, construction, operations, and decommissioning related activities but are not converted by long-term (i.e., more than two years of disturbance, see Glossary of Terms, EIS Appendix 6) ground disturbance, restore these areas following the standards, approved by BLM

authorized officer, following the most recent BLM policies and procedures for the vegetation community or species habitat disturbance/impacts as appropriate, summarized below:

- Implement site-specific habitat restoration actions for the areas affected including specifying and using:
    - The appropriate seed (e.g., certified weed- free, native, and locally and genetically appropriate seed)
    - Appropriate soils (e.g., topsoil of the same original type on site or that was previously stored by soil type after being salvaged during excavation and construction activities)
    - Equipment
    - Timing (e.g., appropriate season, sufficient rainfall)
    - Location
    - Success criteria
    - Monitoring measures
    - Contingency measures, relevant for restoration, which includes seeding that follows BLM policy when on BLM administered lands.

- Salvage and relocate cactus, nolina, and yucca from the site prior to disturbance using BLM protocols. To the maximum extent practicable for short-term disturbed areas (see Glossary of Terms, EIS Appendix 6), the cactus and yucca will be re-planted back to the original site.

- Restore and reclaim short-term (i.e. 2 years or less, see Glossary of Terms, EIS Appendix 6) disturbed areas, including pipelines, transmission projects, staging areas, and short-term construction-related roads immediately or during the most biologically appropriate season as determined in the activity/project specific environmental analysis and decision, following completion of construction activities to reduce the amount of habitat converted at any one time and promote recovery to natural habitats and vegetation as well as climate refugia and ecosystem services such carbon storage.

CMA LUPA-BIO-8. All activities that are required to close and decommission the site (e.g., renewable energy activities) will specify and implement project-specific closure and decommissioning actions that meet the approval of BLM, and that at a minimum address the following:

- Specifying and implementing the methods, timing (e.g., criteria for triggering closure and decommissioning actions), and criteria for success (including quantifiable and measurable criteria).

- Recontouring of areas that were substantially altered from their original contour or gradient and installing erosion control measures in disturbed areas where potential for erosion exists.

- Restoring vegetation as well as soil profiles and functions that will support and maintain native plant communities, associated carbon sequestration and nutrient cycling processes, and native wildlife species.

- Vegetation restoration actions will identify and use native vegetation composition, native seed composition, and the diversity to values commensurate with the natural ecological setting and climate projections.

CMA LUPA-BIO-9. Implement the following general LUPA CMA for water and wetland dependent resources:

- Implement construction site standard practices to prevent toxic chemicals, hazardous materials, and other fluids from entering vegetation type streams, washes, and tributary networks through water runoff, erosion, and sediment transport by, at a minimum, implementing the following:
    - On project sites, vehicles and other equipment will be maintained in proper working condition and only stored in designated containment areas where runoff is collected or controlled and that are located outside of streams, washes, and distributary networks to minimize accidental fluids and hazardous materials spills.
    - Hazardous material leaks, spills, or releases will be immediately cleaned and equipment will be repaired upon identification. Removal and disposal of spill and related clean-up materials will occur at an approved off-site landfill.
    - Maintenance and operations vehicles will carry the appropriate equipment and materials to isolate, clean up, and repair any hazardous material leaks, spills, or releases.

- Activity-specific drainage, erosion, and sedimentation control actions, which meet the approval of BLM and the applicable regulatory agencies, will be carried out during all appropriate phases of the approved project. These actions, as needed, will address measures to ensure the proper protection of water quality, site-specific stormwater and sediment retention, and design of the project to minimize site disturbance, including the following:
    - Identify site-specific surface water runoff patterns and implement measures to prevent excessive and unnatural soil deposition and erosion.
    - Implement measures to maintain natural drainages and to maintain hydrologic function in the event drainages are disturbed.
    - Reduce the amount of area covered by impervious surfaces through use of permeable pavement or other pervious surfaces. Direct runoff from impervious surfaces into retention basins.
    - Stabilize disturbed areas following grading in the manner appropriate to the soil type so that wind or water erosion is minimized.
    - Minimize irrigation runoff by using low or no irrigation native vegetation landscaping for landscaped retention basins.
    - Conduct regular inspections and maintenance of long-term erosion control measures to ensure long-term effectiveness.

CMA LUPA-BIO-10. Consistent with BLM state and national policies and guidance, integrated weed management actions will be carried out during all phases of activities, as appropriate, and at a minimum will include the following:

- Thoroughly clean the tires and undercarriage of vehicles entering or reentering the project site to remove potential weeds.

- Store project vehicles on site in designated areas to minimize the need for multiple washings whenever vehicles re-enter the project site.
- Properly maintain vehicle wash and inspection stations to minimize the introduction of invasive weeds or subsidy of invasive weeds.
- Closely monitor the types of materials brought onto the site to avoid the introduction of invasive weeds and non-native species.
- Reestablish native vegetation quickly on disturbed sites.
- Monitor and quickly implement control measures to ensure early detection and eradication of weed invasions to avoid the spread of invasive weeds and non-native species on site and to adjacent off-site areas.
- Use certified weed-free mulch, straw, hay bales, or equivalent fabricated materials for installing sediment barriers.

CMA LUPA-BIO-11. Implement the following CMAs for controlling nuisance animals and invasive species:

- No fumigant, treated bait, or other means of poisoning nuisance animals including rodenticides will be used in areas where Focus and BLM Special Status Species are known or suspected to occur.
- Manage the use of widely spread herbicides and do not apply herbicides effective against dicotyledonous plants within 1,000 feet from the edge of a 100-year floodplain, stream and wash channels, and riparian vegetation or to soils less than 25 feet from the edge of drains. Exceptions will be made when targeting the base and roots of invasive riparian species such as tamarisk and *Arundo donax* (giant reed). Manage herbicides consistent with the most current national and California BLM policies.
- Minimize herbicide, pesticide, and insecticide treatment in areas that have a high risk for groundwater contamination.
- Clean and dispose of pesticide containers and equipment following professional standards. Avoid use of pesticides and cleaning containers and equipment in or near surface or subsurface water.
- When near surface or subsurface water, restrict pesticide use to those products labeled safe for use in/near water and safe for aquatic species of animals and plants.

CMA LUPA-BIO-12. For activities that may impact Focus or BLM Special Status Species, implement the following LUPA CMA for noise:

- To the extent feasible and determined necessary by BLM to protect Focus and BLM sensitive wildlife species, locate stationary noise sources that exceed background ambient noise levels away from known or likely locations of and BLM sensitive wildlife species and their suitable habitat.
- Implement engineering controls on stationary equipment, buildings, and work areas including sound-insulation and noise enclosures to reduce the average noise level, if the activity will contribute to noise levels above existing background ambient levels.

- Use noise controls on standard construction equipment including mufflers to reduce noise

CMA LUPA-BIO-13. Implement the following CMA for project siting and design:

- To the maximum extent practicable site and design projects to avoid impacts to vegetation types, unique plant assemblages, climate refugia as well as occupied habitat and suitable habitat for Focus and BLM Special Status Species (see "avoid to the maximum extent practicable" in Glossary of Terms, EIS Appendix 6).
- The siting of projects along the edges (i.e. general linkage border) of the biological linkages identified in Appendix D of the CDCA Plan, as amended (Figures D-1 and D-2) will be configured (1) to maximize the retention of microphyll woodlands and their constituent vegetation type and inclusion of other physical and biological features conducive to Focus and BLM Special Status Species' dispersal, and (2) informed by existing available information on modeled focus and BLM Special Status Species habitat and element occurrence data, mapped delineations of vegetation types, and based on available empirical data, including radio telemetry, wildlife tracking sign, and road-kill information. Additionally, projects will be sited and designed to maintain the function of F Special Status Species connectivity and their associated habitats in the following linkage and connectivity areas:
    - Within a 5-mile-wide linkage across Interstate 10 centered on Wiley's Well Road to connect the Mule and McCoy mountains (the majority of this linkage is within the Chuckwalla ACEC and Mule-McCoy Linkage ACEC). CMA LUPA-BIO-14
- Delineate the boundaries of areas to be disturbed using temporary construction fencing and flagging prior to construction and confine disturbances, project vehicles, and equipment to the delineated project areas to protect vegetation types and focus and BLM Special Status Species.
- Long-term nighttime lighting on project features will be limited to the minimum necessary for project security, safety, and compliance with Federal Aviation Administration requirements and will avoid the use of constant-burn lighting.
- All long-term nighttime lighting will be directed away from riparian and wetland vegetation, occupied habitat, and suitable habitat areas for Focus and BLM Special Status Species. Long- term nighttime lighting will be directed and shielded downward to avoid interference with the navigation of night-migrating birds and to minimize the attraction of insects as well as insectivorous birds and bats to project infrastructure.
- To the maximum extent practicable (see Glossary of Terms, EIS Appendix 6), restrict construction activity to existing roads, routes, and utility corridors to minimize the number and length/size of new roads, routes, disturbance, laydown, and borrow areas.
- To the maximum extent practicable (see Glossary of Terms, EIS Appendix 6), confine vehicular traffic to designated open routes of travel to and from the project site, and prohibit, within project boundaries, cross- country vehicle and equipment use outside of approved designated work areas to prevent unnecessary ground and vegetation disturbance.
- To the maximum extent practicable (see Glossary of Terms, EIS Appendix 6), construction of new roads and/or routes will be avoided within Focus and BLM Special Status Species

suitable habitat within identified linkages for those Focus and BLM Special Status Species, unless the new road and/or route is beneficial to minimize net impacts to natural or ecological resources of concern. These areas will have a goal of "no net gain" of project roads and/or routes

- Use nontoxic road sealants and soil stabilizing agents.

CMA LUPA-BIO-15. Use state-of-the-art, as approved by BLM, construction and installation techniques, appropriate for the specific activity/project and site, that minimize new site disturbance, soil erosion and deposition, soil compaction, disturbance to topography, and removal of vegetation.

CMA LUPA-BIO-16. For activities that may impact Focus and BLM sensitive birds, protected by the ESA and/or Migratory Bird Treaty Act of 1918, and bat species, implement appropriate measures as per the most up-to-date BLM state and national policy and guidance, and data on birds and bats, including but not limited to activity specific plans and actions. The goal of the activity - specific bird and bat actions is to avoid and minimize direct mortality of birds and bats from the construction, operation, maintenance, and decommissioning of the specific activities.

Activity-specific measures to avoid and minimize impacts may include, but are not limited to:

- Siting and designing activities will avoid high bird and bat movement areas that separate birds and bats from their common nesting and roosting sites, feeding areas, or lakes and rivers.
- For activities that impact bird and bat Focus and BLM Special Status Species, during project siting and design, conducting monitoring of bird and bat presence as well as bird and bat use of the project site using the most current survey methods and best procedures available at the time.
- Reusing or co-locating new transmission facilities and other ancillary facilities with existing facilities and disturbed areas to reduce habitat destruction and avoid additional collision risks.
- Reducing bird and bat collision hazards by utilizing techniques such as unguyed monopole towers or tubular towers. Where the use of guywires is unavoidable, demarcate guywires using the best available methods to minimize avian species strikes.
- When fencing is necessary, use bird and bat compatible design standards.
- Using lighting that does not attract birds and bats or their prey to project sites including using non-steady burning lights (red, dual red and white strobe, strobe- like flashing lights) to meet Federal Aviation Administration requirements, using motion or heat sensors and switches to reduce the time when lights are illuminated, using appropriate shielding to reduce horizontal or skyward illumination, and avoiding the use of high-intensity lights (e.g., sodium vapor, quartz, and halogen).
- Implementing a robust monitoring program to regularly check for wildlife carcasses, document the cause of mortality, and promptly remove the carcasses.
- Incorporating a bird and bat use and mortality monitoring program during operations using current protocols and best procedures available at time of monitoring.

CMA LUPA-BIO-17. For activities that may result in mortality to Focus and BLM Special–Status bird and bat species, a Bird and Bat Conservation Strategy (BBCS) will be prepared with the goal of assessing operational impacts to bird and bat species and incorporating methods to reduce documented mortality. The BBCS actions for impacts to birds and bats during these activities will be determined by the activity-specific bird and bat operational actions. The strategy shall be approved by BLM in coordination with USFWS, and CDFW as appropriate, and may include, but is not limited to:

- Incorporating a bird and bat use and mortality monitoring program during operations using current protocols and best procedures available at time of monitoring.
- Activity-specific operational avoidance and minimization actions that reduce the level of mortality on the populations of bird and bat species, such as:
    - Evaluation and installation of the best available bird and bat detection and deterrent technologies available at the time of construction.

The following provides the DRECP vegetation type and Focus and BLM Special Status Species biological CMAs to be implemented throughout the LUPA Decision Area.

Riparian and Wetland Vegetation Types and Associated Species (RIPWET)

Riparian Vegetation Types

- Sonoran-Coloradan Semi-Desert Wash Woodland/Scrub

Riparian and Wetland Bird Focus Species

- Southwestern Willow Flycatcher
- Western Yellow-billed Cuckoo
- Yuma Ridgway's Rail

CMA LUPA-BIO-BAT-1. Activities, except wind projects, will not be sited within 500 feet of any occupied maternity roost or presumed occupied maternity roost as described below. Refer to CMA DFA-VPL-BIO-BAT-1 for distances within DFAs and VPLs.

CMA LUPA-BIO-COMP-1. Impacts to biological resources, identified and analyzed in the activity specific environmental document, from activities in the LUPA Decision Area will be compensated using the standard biological resources compensation ratio, except for the biological resources and specific geographic locations listed as compensation ratio exceptions, specifics in CMAs LUPA-BIO-COMP-2 through -4, and previously listed CMAs. Compensation acreage requirements may be fulfilled through non-acquisition (i.e., restoration and enhancement), land acquisition (i.e., preserve), or a combination of these options, depending on the activity specifics and BLM approval/authorization.

Refer to CMA LUPA-COMP-1 and 2 for the timing requirements for initiation or completion of compensation.

CMA LUPA-BIO-COMP-2. Birds and Bats – The compensation for the mortality impacts to bird and bat Focus and BLM Special Status Species from activities will be determined based on

monitoring of bird and bat mortality and a fee re-assessed every 5 years to fund compensatory mitigation. The initial compensation fee for bird and bat mortality impacts will be based on pre-project monitoring of bird use and estimated bird and bat species mortality from the activity. The approach to calculating the operational bird and bat compensation is based on the total replacement cost for a given resource, a Resource Equivalency Analysis. This involves measuring the relative loss to a population (debt) resulting from an activity and the productivity gain (credit) to a population from the implementation of compensatory mitigation actions. The measurement of these debts and gains (using the same "bird years" metric as described in Appendix D of the DRECP) is used to estimate the necessary compensation fee.

Each activity, as determined appropriate by BLM in coordination with USFWS, and CDFW as applicable, will include a monitoring strategy to provide activity-specific information on mortality effects on birds and bats in order to determine the amount and type of compensation required to offset the effects of the activity, as described above and in detail in Appendix D of the DRECP. Compensation will be satisfied by restoring, protecting, or otherwise improving habitat such that the carrying capacity or productivity is increased to offset the impacts resulting from the activity. Compensation may also be satisfied by non-restoration actions that reduce mortality risks to birds and bats (e.g., increased predator control and protection of roosting sites from human disturbance). Compensation will be consistent with the most up to date DOI mitigation policy.

CMA LUPA-BIO-DUNE-1. Because DRECP sand dune vegetation types and Aeolian sand transport corridors are, by definition, shifting resources, activities that potentially occur within or bordering the sand dune DRECP vegetation types and/or Aeolian sand transport corridors must conduct studies to verify the location [refer to Appendix D, Figure D-7 of the DRECP] and extent of the sand resource(s) for the activity-specific environmental analysis to determine:

- Whether the proposed activity(s) occur within a sand dune or an Aeolian sand transport corridor
- If the activity(s) is subject to dune/Aeolian sand transport corridor CMAs
- If the activity(s) needs to be reconfigured to satisfy applicable avoidance requirements

CMA LUPA-BIO-DUNE-2. Activities that potentially affect the amount of sand entering or transported within Aeolian sand transport corridors will be designed and operated to:

- Maintain the quality and function of Aeolian transport corridors and sand deposition zones, unless related to maintenance of existing [at the time of the DRECP LUPA ROD] facilities/operations/activities
- Avoid a reduction in sand-bearing sediments within the Aeolian system
- Minimize mortality to DUNE associated Focus and BLM Special Status Species

CMA LUPA-BIO-DUNE-3. Any facilities or activities that alter site hydrology (e.g., sediment barrier) will be designed to maintain continued sediment transport and deposition in the Aeolian corridor in a way that maintains the Aeolian sorting and transport to downwind deposition zones. Site designs for maintaining this transport function must be approved by BLM in coordination with USFWS and CDFW as appropriate.

CMA LUPA-BIO-DUNE-4. Dune formations and other sand accumulations (i.e., sand ramps, sand sheets) with suitable habitat characteristics for the Mojave fringe-toed lizard (i.e., unconsolidated blow-sand) will be mapped according to mapping standards established by the BLM National Operations Center.

For minor incursions (see "minor incursion" in the Glossary of Terms, EIS Appendix 6) into sand dunes and sand transport areas the activity will be sited in the mapped zone with the least impacts to sand dunes and sand transport and Mojave fringe-toed lizards.

CMA LUPA-BIO-DUNE-5. If suitable habitat characteristics are identified during the habitat assessment, clearance surveys (see Glossary of Terms, EIS Appendix 6) for Mojave fringe-toed lizard will be performed in suitable habitat areas.

The following CMAs will be implemented for bat Focus and BLM Special Status Species, including but not limited to those listed below:

- California Leaf-nosed Bat
- Pallid Bat
- Townsend's Big-eared Bat

CMA LUPA-BIO-IFS-3. All culverts for access roads or other barriers will be designed to allow unrestricted access by desert tortoises and will be large enough that desert tortoises are unlikely to use them as shelter sites (e.g., 36 inches in diameter or larger). Desert tortoise exclusion fencing may be utilized to direct tortoise use of culverts and other passages.

CMA LUPA-BIO-IFS-5. Following the clearance surveys (see Glossary of Terms, EIS Appendix 6) within sites that are fenced with long-term desert tortoise exclusion fencing a designated biologist (see Glossary of Terms, EIS Appendix 6) will monitor initial clearing and grading activities to ensure that desert tortoises missed during the initial clearance survey are moved from harm's way.

- A designated biologist will inspect construction pipes, culverts, or similar structures: (a) with a diameter greater than 3 inches, (b) stored for one or more nights, (c) less than 8 inches aboveground and (d) within desert tortoise habitat (such as, outside the long-term fenced area), before the materials are moved, buried, or capped.
- As an alternative, such materials shall be capped before storing outside the fenced area or placing on pipe racks. Pipes stored within the long-term fenced area after completing desert tortoise clearance surveys will not require inspection.

CMA LUPA-BIO-IFS-6. When working in areas where protocol or clearance surveys are required (Appendix D of the DRECP), biological monitoring will occur with any geotechnical boring or geotechnical boring vehicle movement to ensure no desert tortoises are killed or burrows are crushed.

CMA LUPA-BIO-IFS-7. A designated biologist (see Glossary of Terms, EIS Appendix 6) will accompany any geotechnical testing equipment to ensure no tortoises are killed and no burrows are crushed.

CMA LUPA-BIO-IFS-8. Inspect the ground under the vehicle for the presence of desert tortoise any time a vehicle or construction equipment is parked in desert tortoise habitat outside of areas fenced with desert tortoise exclusion fencing. If a desert tortoise is seen, it may move on its own. If it does not move within 15 minutes, a designated biologist may remove and relocate the animal to a safe location.

CMA LUPA-BIO-IFS-9. Vehicular traffic will not exceed 15 miles per hour within the areas not cleared by protocol level surveys where desert tortoise may be impacted.

CMA LUPA-BIO-IFS-11. If Bendire's thrasher is present, conduct appropriate activity-specific biological monitoring (see Glossary of Terms, EIS Appendix 6) to ensure that Bendire's thrasher individuals are not directly affected by operations (i.e., mortality or injury, direct impacts on nest, eggs, or fledglings).

CMA LUPA-BIO-IFS-12. If burrowing owls are present, a designated biologist (see Glossary of Terms, EIS Appendix 6) will conduct appropriate activity-specific biological monitoring (see Glossary of Terms, EIS Appendix 6) to ensure avoidance of occupied burrows and establishment of the 656 feet (200 meter) setback to sufficiently minimize disturbance during the nesting period on all activity sites, when practical.

CMA LUPA-BIO-IFS-13. If burrows cannot be avoided on-site, passive burrow exclusion by a designated biologist (see Glossary of Terms, EIS Appendix 6) through the use of one-way doors will occur according to the specifications in Appendix D of the DRECP or the most up-to-date agency BLM or CDFW specifications. Before exclusion, there must be verification that burrows are empty as specified in Appendix D of the DRECP or the most up-to-date BLM or CDFW protocols. Confirmation that the burrow is not currently supporting nesting or fledgling activities is required prior to any burrow exclusions or excavations.

CMA LUPA-BIO-IFS-14. Activity-specific active translocation of burrowing owls may be considered, in coordination with CDFW.

CMA LUPA-BIO-IFS-24. Provide protection from loss and harassment of active golden eagle nests through the following actions:

- Activities that may impact nesting golden eagles, will not be sited or constructed within 1-mile of any active or alternative golden eagle nest within an active golden eagle territory, as determined by BLM in coordination with USFWS as appropriate.

CMA LUPA-BIO-IFS-25. Cumulative loss of golden eagle foraging habitat within a 1- to 4-mile radius around active or alternative golden eagle nests (as identified or defined in the most recent USFWS guidance and/or policy) will be limited to less than 20%. See CONS-BIO-IFS-5 for the requirement in Conservation Lands.

CMA LUPA-BIO-IFS-26. For activities that impact golden eagles, applicants will conduct a risk assessment per the applicable USFWS guidance (e.g. the Eagle Conservation Plan Guidance) using best available information as well as the data collected in the pre-project golden eagle surveys.

CMA LUPA-BIO-IFS-27. If a permit for golden eagle take is determined to be necessary, an application will be submitted to the USFWS in order to pursue a take permit.

CMA LUPA-BIO-PLANT-1. Conduct properly timed protocol surveys in accordance with the BLM's most current (at time of activity) survey protocols for plant Focus and BLM Special Status Species.

CMA LUPA-BIO-PLANT-2. Implement an avoidance setback of 0.25 mile for all Focus and BLM Special Status Species occurrences. Setbacks will be placed strategically adjacent to occurrences to protect ecological processes necessary to support the plant Species (Appendix Q, Baseline Biology Report, in the Proposed LUPA and Final EIS [2015], or the most recent data and modeling).

CMA LUPA-BIO-PLANT-3. Impacts to suitable habitat for Focus and BLM Special Status plant species should be avoided to the extent feasible and are limited [capped] to a maximum of 1% of their suitable habitat throughout the entire LUPA Decision Area. The baseline condition for measuring suitable habitat is the DRECP modeled suitable habitat for these species utilized in the EIS analysis (2014 and 2015), or the most recent suitable habitat modeling.

CMA LUPA-BIO-RIPWET-1. The riparian and wetland DRECP vegetation types and other features listed in Table 17 will be avoided to the maximum extent practicable, except for allowable minor incursions (see Glossary of Terms for "avoidance to the maximum extent practicable" and "minor incursion," EIS Appendix 6) with the specified setbacks.

For minor incursion (see "minor incursion" in the Glossary of Terms, EIS Appendix 6) to the DRECP riparian vegetation types, wetland vegetation types, or encroachments on the setbacks listed in Table 17, the hydrologic function of the avoided riparian or wetland communities will be maintained.

- Minor incursions in the riparian and wetland vegetation types or other features including the setbacks listed in Table 17 will occur outside of the avian nesting season, February 1 through August 31 or otherwise determined by BLM, USFWS and CDFW if the minor incursion(s) is likely to result in impacts to nesting birds.

CMA LUPA-BIO-RIPWET-3. For activities that occur within 0.25 mile of a riparian or wetland DRECP vegetation type and may impact BLM Special Status riparian and wetland bird species, conduct a pre-construction/activity nesting bird survey for BLM Special Status riparian and wetland birds according to agency-approved protocols.

- Based on the results of the nesting bird survey above, setback activities that are likely to impact BLM Special Status riparian and wetland bird species, including but not limited to pre-construction, construction and decommissioning, 0.25 mile from active nests Special Status during the breeding season (February 1 through August 31 or otherwise determined by BLM, USFWS and CDFW). For activities in areas covered by this provision that occur during the breeding season and that last longer than one week, nesting bird surveys may need to be repeated, as determined by BLM, in coordination with USFWS and CDFW, as appropriate. No pre-activity nesting bird surveys are necessary for activities occurring outside of the breeding season.

CMA LUPA-BIO-SVF-1. For activity-specific NEPA analysis, a map delineating potential sites and habitat assessment of the following special vegetation features is required: Yucca clones,

creosote rings, Saguaro cacti, Joshua tree woodland, microphyll woodland, Crucifixion thorn stands. BLM guidelines for mapping/surveying cacti, yuccas, and succulents shall be followed.

CMA LUPA-BIO-SVF-6. Microphyll woodland: impacts to microphyll woodland (see Glossary of Terms, EIS Appendix 6) will be avoided, except for minor incursions (see Glossary of Terms, EIS Appendix 6).

CMA LUPA-BIO-VEG-1. Management of cactus, yucca, and other succulents will adhere to current up-to-date BLM policy.

CMA LUPA-BIO-VEG-2. Promote appropriate levels of dead and downed wood on the ground, outside of campground areas, to provide wildlife habitat, seed beds for vegetation establishment, and reduce soil erosion, as determined appropriate on an activity-specific basis.

CMA LUPA-BIO-VEG-3. Allow for the collection of plant material consistent with the maintenance of natural ecosystem processes.

CMA LUPA-BIO-VEG-5. All activities will follow applicable BLM state and national regulations and policies for salvage and transplant of cactus, yucca, other succulents, and BLM Sensitive plants.

CMA LUPA-BIO-VEG-6. BLM may consider disposal of succulents through public sale, as per current up-to-date state and national policy.

CMA LUPA-SW-13. BLM will manage all riparian areas to be maintained at, or brought to, proper functioning condition.

CMA LUPA-SW-16. The 100-year floodplain boundaries for any surface water feature in the vicinity of the project will be identified. If maps are not available from the Federal Emergency Management Agency (FEMA), these boundaries will be determined via hydrologic modeling and analysis as part of the environmental review process. Construction within, or alteration of, 100-year floodplains will be avoided where possible, and permitted only when all required permits from other agencies are obtained.

CMA LUPA-TRANS-BIO-1. Where feasible and appropriate for resource protection, site transmission activities along roads or other previously disturbed areas to minimize new surface disturbance, reduce perching opportunities for the Common raven, and minimize collision risks for birds and bats.

CMA LUPA-TRANS-BIO-2. Flight diverters will be installed on all transmission activities spanning or within 1,000 feet of stream and wash channels, canals, ponds, and any other natural or artificial body of water. The type of flight diverter selected will be subject to approval by BLM, in coordination with USFWS and CDFW as appropriate, and will be based on the best available scientific and commercial data regarding the prevention of bird collisions with transmission and guy wires.

CMA LUPA-TRANS-BIO-3. When siting transmission activities, the alignment should avoid, to the maximum extent practicable, being located across canyons or on ridgelines. Site and design sufficient distance between transmission lines to prevent electrocution of condors.

CMA LUPA-TRANS-BIO-4. Siting of transmission activities will be prioritized within designated utility corridors, where possible, and designed to avoid, where possible, and otherwise minimize and offset impacts to sand transport processes in Aeolian corridors, rare vegetation alliances and Focus and BLM Special Status Species. Transmission substations will be sited to avoid Aeolian corridors, rare vegetation alliances, and sand-dependent Focus and BLM Special Status Species habitats.

CMA DFS-VPL-BIO-FIRE-1. Implement the following standard practice for fire prevention/protection:

- Implement site-specific fire prevention/protection actions particular to the construction and operation of renewable energy and transmission project that include procedures for reducing fires while minimizing the necessary amount of vegetation clearing, fuel modification, and other construction-related activities. At a minimum these actions will include designating site fire coordinators, providing adequate fire suppression equipment (including in vehicles), and establishing emergency response information relevant to the construction site.

2.4.4 CEQA Significance Criteria

Appendix G of CEQA Guidelines (14 CCR 15000 et seq.) provides guidance on assessing whether a project would have significant impacts on the environment. Consistent with Appendix G, the Project would have significant hazards and hazardous materials impacts if it would:

a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?
b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?
c. Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?
d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?
e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?
f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

2.4.5 Biological Resources Impact Analysis

Impact BIO 1 - Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in

local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

Potentially Significant – Less than Significant with Mitigation

2.4.5.1 Plants

Federal and State-Listed Plant Species

No plant species currently listed as threatened or endangered, or proposed for listing, under the FESA or CESA would be expected within the California portion of the Project Area.

Other Special Status Plant Species

Based on searches of the CDFW's Biogeographic Information and Observation System and Natural Diversity Database (CDFW 2016a), a review of the CNPS's online inventory (CNPS 2016), and 2016/2017 surveys of the Proposed Action route (HDR 2016a, Transcon Environmental 2017), sixteen (16) special status and/or rare plant species (TES Table 3.5-6) have been found or could be present in the Project Area. A total of 12 species are present or have at least a moderate potential to occur including Abrams' spurge (*Euphorbia abramsiana* [CRPR 2B.2]), desert unicorn plant (*Proboscidea althaeifolia* [CRPR 4.3]), dwarf germander (*Teucrium cubense* ssp. *depressum* [CRPR 2B.2]), flat-seeded spurge (*Euphorbia platysperma* [CRPR 1B.2 and BLM Sensitive]), glandular ditaxis (*Ditaxis claryana* [CRPR 2B.2]), gravel milkvetch (*Astragalus sabulonum* [CRPR 2B.2]), Harwood's eriastrum (*Eriastrum harwoodii* [CRPR 1B.2 and BLM Sensitive]), Harwood's milkvetch (*Astragalus insularis var. harwoodii* [CRPR 2B.2]), ribbed cryptantha (*Cryptantha costata* [CRPR 4.3]), saguaro (*Carnegiea gigantea* [CRPR 2B.2]), Utah vine milkweed (*Funastrum utahense* [CRPR 4.2]), and winged cryptantha (*Cryptantha holopt*era [CRPR 4.3]). None of these species are classified as endangered, threatened, or rare by the California Fish and Game Commission (CDFW 2016b). Other special status plant species that are not expected or have a low potential to occur include pink fairy-duster (*Calliandra eriophylla* [CRPR 2B.3]), Las Animas colubrine (*Colubrina californica* [CRPR 2B.3]), California ditaxis (*Ditaxis serrata* var. *californica* [CRPR 3.2]), and bitter hymenoxys (*Hymenoxys odorata* [CRPR 2B.1]).

If present, direct impacts to listed or special status plant species could occur from construction activities that remove vegetation, grade soils, or cause sedimentation, including tower/pole site preparation, and the construction, grading, and creation of access roads. Indirect impacts could include the disruption of native seed banks through soil alterations, the accumulation of fugitive dust, increased erosion and sediment transport, and the colonization of non-native, invasive plant species. Operational impacts could include trampling or crushing due to use of new access roads, increased erosion, and the colonization and spread of noxious weeds. Impacts to listed and/or CRPR 1 and 2 species (should they be present), would be considered significant without mitigation.

The most effective mechanism for reducing impacts to State or federally-listed plant species is to avoid or minimize on-site impacts. Therefore, the key mitigation strategy is to require surveys and avoid populations of rare listed and special status plants, where detected. If the plants cannot be avoided, then mitigation through the acquisition and protection of listed plant populations on private lands would be needed. This strategy would also necessitate botanical surveys of proposed

mitigation lands to be acquired. Other options are the protection of on-site populations provided they are protected through a conservation easement and the preparation and implementation of a habitat management plan to ensure long-term conservation of these species. [CPUC 2016]

Impacts to CRPR 1 and 2 species would be considered significant without mitigation. Under Section 15380 of the CEQA guidelines, a species may be considered endangered, rare or threatened, if it can be shown to meet the criteria for State or federal listing. "CEQA Section 15380 provides that a plant or animal species may be treated as 'rare or endangered' even if not on one of the official lists if, for example, it is likely to become endangered in the foreseeable future." [CPUC 2016]

All of the CRPR plants known or with the potential to occur in the Project Area are also included in the CDFW Special Vascular Plants List and are tracked by CDFW's CNDDB. The CNPS Inventory has been a broadly recognized and accepted source of science-based information on the rarity, endangerment, and distribution of California special status plants since its first edition in 1974. By CNPS's standards, the plants ranked as CRPR 1A, 1B and 2 meet the definitions of Sections 2062 and 2067 (CESA) of the California Fish and Game Code and are eligible for state listing (CNPS 2010). The CPUC considers those plants ranked as CRPR 1 or 2 to meet CEQA's Section 15380 criteria, and adverse effects to these species are generally considered "significant" except where substantial data may show otherwise. [CPUC 2016]

For the purposes of this analysis, it is assumed that a total of approximately 153.07 acres of natural vegetation communities that could support special status plants would be impacted as a result of the Project's implementation. The following special status plant species would be assumed impacted by the Project: Abrams' spurge, bitter hymenoxys, dwarf germander, flat-seeded spurge, glandular ditaxis, gravel milkvetch, Harwood's eriastrum, Harwood's milkvetch, Las Animas colubrine, pink fairy-duster, and saguaro. As outlined in APM BIO-12, APM BIO-15, APM BIO-16, BMP BIO-24, BMP BIO-31, BMP BIO-51, BMP BIO-53, and BMP BIO-55, the Project will be designed to avoid impacts to special status plant species. Pre-construction surveys and monitoring will be conducted to avoid impacts by determining the location of succulents (BMP BIO-41), Harwood's eriastrum (BMP BIO-31), and other special status plant species (APM/BMP BIO-2, BMP BIO-52, and MM BIO-CEQA-2) within the vicinity of work areas. Other measures that would be implemented to avoid and minimize impacts during construction include implementation of a worker environmental awareness program (APM/BMP BIO-1 and MM BIO-CEQA-1), limiting activities to established work areas (APM/BMP BIO-3), establishing environmentally sensitive areas (APM BIO-4), minimizing vegetation clearing (APM BIO-14), limiting off-road vehicular travel (APM BIO-17), seasonal restrictions (BMP BIO-32), prohibiting native plant collection without a permit (BMP BIO-37), succulent management (BMP BIO-41), promote dead and downed wood (BMP BIO-42), protection of dune vegetation (BMP BIO-53), limit vegetation removal (BMP VEG-1 and BMP VEG-2), and implement biological resources best management practices (MM BIO-CEQA-3). Individuals and/or plant populations that cannot be avoided will be transplanted (where suitable/applicable) according the Vegetation Management Plan (APM BIO-11) and the Special Status Plant Transplantation and Compensation Plan (MM BIO-CEQA-5). A Noxious Weed Control Plan would be prepared and implemented to address potential impacts associated with the colonization and spread of noxious weeds (APM BIO-12). All disturbed habitat will include restoration with similar species compositions to those present prior to construction at a ratio of 1:1; the Project's Habitat Restoration, Mitigation, and Monitoring

Plan (HRMMP) described under APM/BMP BIO-15 and MM BIO-CEQA-4 will outline the planting/seeding methodologies, qualitative/quantitative monitoring requirements, success criteria, and reporting procedures. It is assumed that project-related impacts would result in the loss of more than 10% of the on-site population of special status plant species with a CRPR of 1 or 2. As a result, compensation for permanent impacts to potential special status plant species habitat will include off-site creation, enhancement, and/or preservation or participation in an established mitigation bank program at a minimum 3:1 replacement ratio according to the Special Status Plant Transplantation and Compensation Plan (MM BIO-CEQA-5).

2.4.5.2 Wildlife

Federal and State-Listed Species

Species that are classified as threatened, endangered, or proposed and protected under the Federal ESA that could be present in the Project Area were identified by querying the USFWS's Information for Planning and Conservation database (USFWS 2016a), reviewing BLM RMPs and related documents, and evaluating published and unpublished information about the listed species. Three threatened and endangered species were identified that are known to be present or have at least a moderate potential to occur in or near the California portion of the Project Area, including Mohave desert tortoise (*Gopherus agassizii*, threatened), razorback sucker (*Xyrauchen texanus*, endangered), and Yuma Ridgway's rail (*Rallus obsoletus yumanensis*, endangered). Species protected under the Federal ESA are classified as special status species by the BLM. Six other listed and proposed species are present in the region but are very rare or absent and marginal habitat exists within the California portion of the Project Area: California least tern (*Sterna antillarum browni*, endangered), northern Mexican gartersnake (*Thamnophis eques megalops*, threatened), roundtail chub (*Gila robusta*, proposed threatened), southwestern willow flycatcher (*Empidonax traillii extimus*, endangered), western yellow-billed cuckoo (*Coccyzus americanus occidentalis*, threatened), and bonytail chub (*Gila elegans*, endangered).

Special status wildlife species listed under the California Endangered Species Act (CESA) that could be present in or near the Project Area (TES Table 3.5-18) were identified by searching the CDFW's Biogeographic Information and Observation System and Natural Diversity Database (CDFW 2016a), reviewing BLM land use plans (BLM 2002c, 2015, 2016), and reviewing analyses of other projects that have occurred in the area (BLM 2012, 2014; BLM and Riverside County Planning Department 2015; BLM & CPUC 2006; CPUC 2011).

Five wildlife species classified as threatened, endangered, or candidates by the CESA are known to be present or have at least a moderate potential to occur in the California portion of the Project Area, including greater sandhill crane (*Grus canadensis tabida*, threatened), Mohave desert tortoise (threatened), razorback sucker (endangered), Swainson's hawk (*Buteo swainsoni*, threatened), and Yuma Ridgway's rail (threatened). Six other CESA listed species are present in the region, but are very rare or absent and marginal habitat exists within the California portion of the Project Area: Arizona Bell's vireo (*Vireo bellii arizonae*, endangered), elf owl (*Micrathene whitneyi*, endangered), Gila woodpecker (*Melanerpes uropygialis*, endangered), gilded flicker (*Colaptes chrysoides*, endangered), southwestern willow flycatcher (endangered), and western yellow-billed cuckoo (endangered).

Greater sandhill crane

Direct impacts from the Project to greater sandhill crane include loss of individuals as a result of encounters with construction vehicles and equipment on access roads, staging areas, and work areas; ground disturbance and vegetation removal; and general disturbance due to increased human activity. Construction of the Project could result in permanent and temporary impacts to habitat for the species. For the purposes of this analysis, it is assumed that a total of 14.28 miles of the proposed alignment could support greater sandhill crane and would be impacted as a result of the Project's implementation (TES Table 3.5-20). Indirect impacts could include alterations to existing topographical and hydrological conditions, increased erosion and sediment transport, compaction of soils, fugitive dust, increased noise levels from construction activities, and the introduction and establishment of noxious, invasive plant species. Operational impacts include mortalities from construction vehicles and equipment on access roads during routine maintenance and inspection activities, increased human presence, and the spread of noxious, invasive plant species due to use of new or improved access roads. These impacts would be considered significant without mitigation.

Several APMs and BMPs would be implemented to avoid impacts to greater sandhill crane. The Project will be designed to avoid impacts to individuals and/or their habitats, including the greater sandhill crane, unless absolutely necessary (APM BIO-12, APM BIO-15, BMP BIO-51, and MM BIO-55). Pre-construction surveys and monitoring will be conducted to avoid impacts by determining the location of special status species (APM/BMP BIO-2, APM BIO-20, BMP BIO-25, and MM BIO-CEQA-2) within the vicinity of work areas. Additionally, focused protocol survey for riparian-dependent birds (MM BIO-CEQA-9) and additional avoidance measures would be implemented as outlined in BMP BIO-25, MM BIO-CEQA-6, and MM BIO-CEQA-7 (Nesting Bird Management Plan). Other measures that would be implemented to avoid and minimize impacts during construction include implementation of a worker environmental awareness program (APM/BMP BIO-1 and MM BIO-CEQA-1), limiting activities to established work areas (APM/BMP BIO-3), establishing environmentally sensitive areas (APM BIO-4), establishing prohibited activities along the Project alignment (APM BIO-5 through APM BIO-8), installing escape ramps (APM BIO-9), erosion and dust control (APM BIO-10), minimizing vegetation clearing (APM BIO-14), limiting off-road vehicular travel (APM BIO-17), reduce bird collisions and other protections (BMP BIO-19 through APM/BMP BIO-21, and BMP BIO-48), implement a bird and bat conservation strategy (BMP BIO-29), seasonal restrictions (BMP BIO-32), manage construction lighting, water, and materials to benefit wildlife (BMP BIO-33 through BMP BIO-36), use bird and bat-friendly fencing (BMP BIO-39), promote dead and downed wood (BMP BIO-42), limit vegetation removal (BMP VEG-1 and BMP VEG-2), and implement biological resources best management practices (MM BIO-CEQA-3). Compensation for temporary impacts to greater sandhill crane habitat will include on-site habitat restoration with similar species compositions to those present prior to construction at a minimum ratio of 1:1 (MM BIO-CEQA-4). Permanent impacts to greater sandhill crane habitat would be compensated at a ratio of 3:1, which may be fulfilled through non-acquisition (i.e., restoration and enhancement), land acquisition (i.e., preserve), or a combination of these options, depending on the activity specifics and BLM approval/authorization. The Vegetation Management Plan (APM BIO-11) and the HRMMP (APM/BMP BIO-15 and MM BIO-CEQA-4) will outline the planting/seeding methodologies, qualitative/quantitative monitoring requirements, success criteria, and reporting procedures. Further, a Noxious Weed Control Plan would be prepared and implemented to address potential impacts associated with the colonization and spread of noxious weeds (APM BIO-12). Additional mitigation may be required by each agency during the regulatory permitting process.

Mitigation for impacts to listed species habitat shall consider and overlap with compensation for special status plants, sensitive vegetation communities, and jurisdictional waters and wetlands.

Mohave desert tortoise

Direct impacts from the Project to Mohave desert tortoise include loss of individuals as a result of encounters with construction vehicles and equipment on access roads, staging areas, and work areas (crushed in burrows or overland areas during vegetation removal); ground disturbance and vegetation removal; and general disturbance due to increased human activity. Common ravens are known to perch and nest on transmission structures. Ravens are opportunistic predators of various wildlife species, including juvenile desert tortoises. Improving existing roads and grading new roads into remote areas can lead to increased recreational access to remote areas and increase the potential for encounters (including illegal collection) between people and tortoises. Construction of the Project could also result in permanent and temporary impacts to habitat for the species. For the purposes of this analysis, it is assumed that a total of 8.16 miles of the proposed alignment could support desert tortoise and would be impacted as a result of the Project's implementation (TES Table 3.5-20). Indirect impacts could include alterations to existing topographical and hydrological conditions, increased erosion and sediment transport, compaction of soils, fugitive dust, increased noise levels from construction activities, and the introduction and establishment of noxious, invasive plant species. Operational impacts include mortalities from construction vehicles and equipment on access roads during routine maintenance and inspection activities, increased human presence, and the spread of noxious, invasive plant species due to use of new or improved access roads. These impacts would be considered significant without mitigation.

Several APMs and BMPs would be implemented to avoid impacts to desert tortoise. The Project will be designed to avoid impacts to individuals and/or their habitats, including the desert tortoise, unless absolutely necessary (APM BIO-12, APM BIO-15, BMP BIO-51, BMP BIO-52, and MM BIO-55). Pre-construction surveys and monitoring will be conducted to avoid impacts by determining the location of desert tortoise and other special status species within the vicinity of work areas (APM/BMP BIO-2, APM/BMP BIO-23, APM BIO-25, MM BIO-CEQA-2, and MM BIO-CEQA-10). Other measures that would be implemented to avoid and minimize impacts during construction include implementation of a worker environmental awareness program (APM/BMP BIO-1 and MM BIO-CEQA-1), limiting activities to established work areas (APM/BMP BIO-3), establishing environmentally sensitive areas (APM BIO-4), establishing prohibited activities along the Project alignment (APM BIO-5 through APM BIO-8), installing escape ramps (APM BIO-9), erosion and dust control (APM BIO-10), minimizing vegetation clearing (APM BIO-14), limiting off-road vehicular travel (APM BIO-17), preparation and implementation of a Raven Management Plan (BMP BIO-28), seasonal restrictions (BMP BIO-32), manage construction lighting, water, and materials to benefit wildlife (BMP BIO-33 through BMP BIO-36), promote dead and downed wood (BMP BIO-42), other desert tortoise protections (BMP BIO-44), limit vegetation removal (BMP VEG-1 and BMP VEG-2), and implement biological resources best management practices (MM BIO-CEQA-3). Compensation for temporary impacts to desert tortoise potential/modeled habitat will include on-site habitat restoration at a minimum 1:1 ratio. Compensation for permanent impacts to desert tortoise potential/modeled habitat will include a) off-site creation, enhancement, and/or preservation, and/or b) participation in an established mitigation bank program at a minimum 3:1 ratio (MM BIO-CEQA-10). The Vegetation Management Plan (APM BIO-11) and the HRMMP (APM/BMP

BIO-15 and MM BIO-CEQA-4) will outline the planting/seeding methodologies, qualitative/quantitative monitoring requirements, success criteria, and reporting procedures. Further, a Noxious Weed Control Plan would be prepared and implemented to address potential impacts associated with the colonization and spread of noxious weeds (APM BIO-12). Additional mitigation may be required by each agency during the regulatory permitting process. Mitigation for impacts to listed species habitat shall consider and overlap with compensation for special status plants, sensitive vegetation communities, and jurisdictional waters and wetlands.

Razorback sucker

This species has been documented within the mainstem of the Colorado River and nearby backwaters in and near the Project Area. The proposed Project would span potential aquatic habitat (and USFWS-designated critical habitat) for this species. Project-related impacts to razorback sucker would be limited to indirect impacts associated with construction activities, such as the accumulation of trash. For the purposes of this analysis, it is assumed that a total of 1.15 miles of the proposed alignment could support razorback sucker and would be avoided during the Project's implementation (TES Table 3.5-20). These impacts would not be considered significant.

Regardless, several APMs and BMPs would be implemented to avoid impacts to razorback sucker including design considerations to span habitat (APM BIO-12, APM BIO-15, BMP BIO-19, BMP BIO-51, and MM BIO-55). Other measures that would be implemented to avoid and minimize impacts during construction include implementation of a worker environmental awareness program (APM/BMP BIO-1 and MM BIO-CEQA-1), limiting activities to established work areas (APM/BMP BIO-3), establishing environmentally sensitive areas (APM BIO-4), establishing prohibited activities along the Project alignment (APM BIO-5 through APM BIO-8), erosion and dust control (APM BIO-10), riparian habitat avoidance (APM BIO-13), ensuring riparian functioning conditions (BMP BIO-47 and BMP BIO-50), conduct biological construction monitoring (MM BIO-CEQA-2), implement biological resources best management practices (MM BIO-CEQA-3), and avoid/compensate for impacts to jurisdictional habitats (MM BIO-CEQA-13). Additional mitigation may be required by each agency during the regulatory permitting process. Mitigation for impacts to listed species habitat shall consider and overlap with compensation for special status plants, sensitive vegetation communities, and jurisdictional waters and wetlands.

Swainson's hawk

Swainson's hawks were observed 1 to 10 miles northwest of the Blythe airport during surveys for a proposed solar plant (BLM 2012b, Appendix C). However, this species is not expected to nest within or near the Project Area. Project-related impacts to Swainson's hawk, if present, would be limited to loss of individuals as a result of collisions with transmission lines and loss of foraging habitat. Due to the temporary nature of the impacts and the availability of foraging habitat in adjacent areas the loss of foraging habitat for wildlife resulting from the construction of the Project would be considered less than significant.

Regardless, several APMs and BMPs would be implemented to avoid and minimize impacts to Swainson's hawk during construction including implementation of a worker environmental awareness program (APM/BMP BIO-1 and MM BIO-CEQA-1), limiting activities to established work areas (APM/BMP BIO-3), establishing environmentally sensitive areas (APM BIO-4), establishing prohibited activities along the Project alignment (APM BIO-5 through APM BIO-8),

erosion and dust control (APM BIO-10), minimizing vegetation clearing (APM BIO-14), limiting off-road vehicular travel (APM BIO-17), reduce bird collisions and other protections (BMP BIO-19 through APM/BMP BIO-21, and BMP BIO-48), implement a bird and bat conservation strategy (BMP BIO-29), seasonal restrictions (BMP BIO-32), manage construction lighting, water, and materials to benefit wildlife (BMP BIO-33 through BMP BIO-36), use bird and bat-friendly fencing (BMP BIO-39), promote dead and downed wood (BMP BIO-42), limit vegetation removal (BMP VEG-1 and BMP VEG-2), and implement biological resources best management practices (MM BIO-CEQA-3). Pre-construction surveys and monitoring will be conducted to avoid impacts by determining the location of special status species (APM/BMP BIO-2, APM BIO-20, BMP BIO-25, MM BIO-CEQA-2, and MM BIO-CEQA-6) within the vicinity of work areas. Additional avoidance measures would be implemented as outlined in Nesting Bird Management Plan (MM BIO-CEQA-7). The Vegetation Management Plan (APM BIO-11) and the HRMMP (APM/BMP BIO-15 and MM BIO-CEQA-4) will outline the planting/seeding methodologies, qualitative/quantitative monitoring requirements, success criteria, and reporting procedures. Further, a Noxious Weed Control Plan would be prepared and implemented to address potential impacts associated with the colonization and spread of noxious weeds (APM BIO-12). Additional mitigation may be required by each agency during the regulatory permitting process. Mitigation for impacts to listed species habitat shall consider and overlap with compensation for special status plants, sensitive vegetation communities, and jurisdictional waters and wetlands.

Yuma Ridgway's rail

Direct impacts from the Project to Yuma Ridgway's rail include loss of individuals as a result of encounters with construction vehicles and equipment on access roads, staging areas, and work areas; ground disturbance and vegetation removal; and general disturbance due to increased human activity. Construction of the Project could result in permanent and temporary impacts to habitat for the species. For the purposes of this analysis, it is assumed that a total of 1.15 miles of the proposed alignment could Yuma Ridgway's rail and would be impacted as a result of the Project's implementation (TES Table 3.5-20). Indirect impacts could include alterations to existing topographical and hydrological conditions, increased erosion and sediment transport, compaction of soils, fugitive dust, increased noise levels from construction activities, and the introduction and establishment of noxious, invasive plant species. Operational impacts include mortalities from construction vehicles and equipment on access roads during routine maintenance and inspection activities, increased human presence, and the spread of noxious, invasive plant species due to use of new or improved access roads. These impacts would be considered significant without mitigation.

Several APMs and BMPs would be implemented to avoid impacts to Yuma Ridgway's rail. The Project will be designed to avoid impacts to individuals and/or their habitats, including the Yuma Ridgway's rail, unless absolutely necessary (APM BIO-12, APM BIO-15, BMP BIO-51, and MM BIO-55). Pre-construction surveys and monitoring will be conducted to avoid impacts by determining the location of special status species (APM/BMP BIO-2, APM BIO-20, BMP BIO-25, and MM BIO-CEQA-2) within the vicinity of work areas. Additionally, focused protocol survey for riparian-dependent birds (MM BIO-CEQA-9) and additional avoidance measures would be implemented as outlined in BMP BIO-25, MM BIO-CEQA-6, and MM BIO-CEQA-7 (Nesting Bird Management Plan). Other measures that would be implemented to avoid and minimize impacts during construction include implementation of a worker environmental

awareness program (APM/BMP BIO-1 and MM BIO-CEQA-1), limiting activities to established work areas (APM/BMP BIO-3), establishing environmentally sensitive areas (APM BIO-4), establishing prohibited activities along the Project alignment (APM BIO-5 through APM BIO-8), installing escape ramps (APM BIO-9), erosion and dust control (APM BIO-10), minimizing vegetation clearing (APM BIO-14), limiting off-road vehicular travel (APM BIO-17), reduce bird collisions and other protections (BMP BIO-19 through APM/BMP BIO-21, and BMP BIO-48), implement a bird and bat conservation strategy (BMP BIO-29), seasonal restrictions (BMP BIO-32), manage construction lighting, water, and materials to benefit wildlife (BMP BIO-33 through BMP BIO-36), use bird and bat-friendly fencing (BMP BIO-39), promote dead and downed wood (BMP BIO-42), limit vegetation removal (BMP VEG-1 and BMP VEG-2), and implement biological resources best management practices (MM BIO-CEQA-3). Compensation for temporary impacts to potential habitat will include on-site habitat creation or enhancement with similar species compositions to those present prior to construction at a ratio of 1:1. Compensation for permanent impacts to habitat will include a) off-site creation, enhancement, and/or preservation, and/or b) participation in an established mitigation bank program at a minimum 3:1 ratio. The Vegetation Management Plan (APM BIO-11) and the HRMMP (APM/BMP BIO-15 and MM BIO-CEQA-4) will outline the planting/seeding methodologies, qualitative/quantitative monitoring requirements, success criteria, and reporting procedures. Further, a Noxious Weed Control Plan would be prepared and implemented to address potential impacts associated with the colonization and spread of noxious weeds (APM BIO-12). Additional mitigation may be required by each agency during the regulatory permitting process. Mitigation for impacts to listed species habitat shall consider and overlap with compensation for special status plants, sensitive vegetation communities, and jurisdictional waters and wetlands.

Other Special Status Wildlife Species

Another 32 special status wildlife species (California Species of Special Concern, California Fully Protected, or BLM Sensitive) are present or could occur within the California portion of the Project area. A total of 14 special status wildlife species are present or have at least a moderate potential to occur, including American badger (*Taxidea taxus*), burrowing owl (*Athene cunicularia*), California black rail (*Laterallus jamaicensis coturniculus*), Couch's spadefoot (*Scaphiopus couchii*), Le Conte's thrasher (*Toxostoma lecontei*), loggerhead shrike (*Lanius ludovicianus*), Mojave fringe toed lizard (*Mojave fringe-toed lizard*), mountain plover (*Charadrius montanus*), northern harrier (*Circus cyaneus*), Townsend's big-eared bat (*Corynorhinus townsendii*), vermilion flycatcher (*Pyrocephalus rubinus*), western yellow bat (*Lasiurus xanthinus*), yellow-headed blackbird (*Xanthocephalus xanthocephalus*), and Yuma myotis (*Myotis yumanensis*). Other special status plant species that are not expected or have a low potential to occur include Arizona myotis (*Myotis occultus*), Bendire's thrasher (*Toxostoma bendirei*), California leaf-nosed bat (*Macrotus californicus*), cave myotis (*Myotis velifer*), Colorado River cotton rat (*Sigmodon arizonae plenus*), crissal thrasher (*Toxostoma crissale*), desert bighorn sheep (*Ovis canadensis nelson*), golden eagle (*Aquila chrysa*etos), long-eared owl (*Asio otus*), pallid bat (*Antrozous pallidus*), pocketed free-tailed bat (*Nyctinomops femorosaccus*), short-eared owl (*Asio flammeus*), Sonoran mud turtle (*Kinosternon sonor*iense), Sonoran pronghorn (*Antilocapra americana sonoriensis*), Sonora yellow warbler (*Setophaga petechia sonorana*), summer tanager (*Piranga rubra*), yellow-breasted chat (*Icteria virens*), and Yuma mountain lion (*Felis concolor brownii*). These species will not be analyzed further. Refer to TES Table 3.5-19 for a complete list of these species.

Amphibians and Reptiles

Direct impacts to Couch's spadefoot toad and Mojave fringe-toed lizard include loss of individuals as a result of encounters with construction vehicles and equipment on access roads, staging areas, and work areas (crushed in burrows or overland areas during vegetation removal); ground disturbance and vegetation removal; and general disturbance due to increased human activity. Construction of the Project could also result in permanent and temporary impacts to habitat for the species. For the purposes of this analysis, it is assumed that a total of 16.78 miles of the proposed alignment could support Couch's spadefoot toad and 8.16 miles could support Mojave fringe-toed lizard and would be impacted as a result of the Project's implementation (TES Table 3.5-20). Indirect impacts could include alterations to existing topographical and hydrological conditions, increased erosion and sediment transport, compaction of soils, fugitive dust, increased noise levels from construction activities, and the introduction and establishment of noxious, invasive plant species. Operational impacts include mortalities from construction vehicles and equipment on access roads during routine maintenance and inspection activities, increased human presence, and the spread of noxious, invasive plant species due to use of new or improved access roads. These impacts would be considered significant without mitigation.

Several APMs and BMPs would be implemented to avoid impacts to Couch's spadefoot toad and Mojave fringe-toed lizard. The Project will be designed to avoid impacts to individuals and/or their habitats unless absolutely necessary (APM BIO-12, APM BIO-15, BMP BIO-51, BMP BIO-52, and MM BIO-55). Pre-construction surveys and monitoring will be conducted to avoid impacts by determining the location of special status species within the vicinity of work areas (APM/BMP BIO-2, APM BIO-25, MM BIO-CEQA-2, and MM BIO-CEQA-10). Other measures that would be implemented to avoid and minimize impacts during construction include implementation of a worker environmental awareness program (APM/BMP BIO-1 and MM BIO-CEQA-1), limiting activities to established work areas (APM/BMP BIO-3), establishing environmentally sensitive areas (APM BIO-4), establishing prohibited activities along the Project alignment (APM BIO-5 through APM BIO-8), installing escape ramps (APM BIO-9), erosion and dust control (APM BIO-10), minimizing vegetation clearing (APM BIO-14), limiting off-road vehicular travel (APM BIO-17), seasonal restrictions (BMP BIO-32), manage construction lighting, water, and materials to benefit wildlife (BMP BIO-33 through BMP BIO-36), promote dead and downed wood (BMP BIO-42), prepare and implement a Mojave Fringe-toed Lizard Linear ROW Protection Plan (BMP BIO-49), protection of dune vegetation and sand transport processes (BMP BIO-53 and BMP BIO-54), limit vegetation removal (BMP VEG-1 and BMP VEG-2), and implement biological resources best management practices (MM BIO-CEQA-3). Compensation for temporary impacts to potential/modeled Couch's spadefoot toad and Mojave fringe-toed lizard habitat will include on-site habitat restoration or enhancement with similar species compositions to those present prior to construction at a minimum ratio of 1:1 (MM BIO-CEQA-10). Compensation for permanent impacts to potential/modeled habitat will include a) off-site creation, enhancement, and/or preservation, and/or b) participation in an established mitigation bank program at a minimum 2:1 ratio (MM BIO-CEQA-10). The Vegetation Management Plan (APM BIO-11) and the HRMMP (APM/BMP BIO-15 and MM BIO-CEQA-4) will outline the planting/seeding methodologies, qualitative/quantitative monitoring requirements, success criteria, and reporting procedures. Further, a Noxious Weed Control Plan would be prepared and implemented to address potential impacts associated with the colonization and spread of noxious weeds (APM BIO-12). Additional mitigation may be required by each agency during the regulatory permitting process. Mitigation

for impacts to listed species habitat shall consider and overlap with compensation for special status plants, sensitive vegetation communities, and jurisdictional waters and wetlands.

Birds

Direct impacts to burrowing owl, California black rail, Le Conte's thrasher, loggerhead shrike, mountain plover, northern harrier, vermilion flycatcher, and yellow-headed blackbird include loss of individuals as a result of collisions with construction vehicles and equipment on access roads, staging areas, and work areas; ground disturbance and vegetation removal; and general disturbance due to increased human activity. Construction of the Project could also result in permanent and temporary impacts to habitat for these species. For the purposes of this analysis, it is assumed that a total of 153.07 acres of natural habitat that could support these species would be impacted as a result of the Project's implementation (TES Table 3.5-20). Indirect impacts to these special status birds include increased noise levels from heavy equipment, human disturbance, exposure to fugitive dust, the spread of noxious weeds, and disruption of breeding or foraging activity due to routine inspection and maintenance activities. Weed abatement through herbicide application or mechanized tools could also affect bird nesting

Construction during the breeding season could result in the displacement of breeding birds and the abandonment of active nests. The increased noise levels resulting from the construction of the Project would likely temporarily alter and/or preclude the breeding activities for many common and sensitive bird species known to occur along the Project route. Some species of birds however will likely nest in and adjacent to the Project during construction and maintenance activities. Depending on the species, birds may actively nest on the ground close to equipment or even on idle construction equipment. In other arid ecosystems in southern California, birds have been documented nesting on vehicles, foundations, construction trailers, and other equipment left overnight or during a long weekend. In areas where construction may be phased birds may quickly utilize these features as nest sites. Many of the birds that would be likely to use these types of nesting substrates are common species such as ravens, house finches, and doves. [CPUC 2016)

When possible, construction and maintenance activities would occur outside of the recognized breeding season (generally February – September [as early as January for some raptors]). However, if construction activities would occur during the breeding season, it is possible that these activities would exclude some species of birds that are less tolerant of anthropogenic disturbance. If birds elect to nest in areas within close proximity to on-going construction activities during the breeding season the qualified avian biologist (refer to MM-BIO-CEQA-6 [Conduct pre-construction surveys for nesting and breeding birds and implement avoidance measures] below) will implement a standard avoidance buffer (300 feet [500 feet for raptors]) around the nest and no activities will be allowed within the buffer(s) until the young have fledged from the nest or the nest fails. The prescribed buffers may be adjusted by the qualified avian biologist based on existing conditions around the nest, planned construction activities, tolerance of the species, and other pertinent factors. With the exception of a few non-native birds such as European starling (*Sturnus vulgaris*) and house sparrow (*Passer domesticus*), the loss of active bird nests or young is regulated by the Federal Migratory Bird Treaty Act (MBTA) and Fish and Game Code Section 3503 and would be considered a significant and adverse impact without mitigation.

Several APMs and BMPs would be implemented to avoid impacts to special status bird species. The Project will be designed to avoid impacts to individuals and/or their habitats, unless absolutely

necessary (APM BIO-12, APM BIO-15, BMP BIO-51, and MM BIO-55). In particular, APM BIO-13 requires that riparian areas and xeroriparian drainages that occur within the easement would be denoted as environmentally sensitive areas and would be avoided during construction to the extent practicable. This will avoid and/or minimize impacts to riparian-dependent species. Pre-construction surveys and monitoring will be conducted to avoid impacts by determining the location of special status species (APM/BMP BIO-2, APM BIO-20, BMP BIO-25, and MM BIO-CEQA-2) within the vicinity of work areas. Additionally, focused protocol survey for riparian-dependent birds (MM BIO-CEQA-9) and additional avoidance measures would be implemented as outlined in BMP BIO-25, MM BIO-CEQA-6, and MM BIO-CEQA-7 (Nesting Bird Management Plan). Other measures that would be implemented to avoid and minimize impacts during construction include implementation of a worker environmental awareness program (APM/BMP BIO-1 and MM BIO-CEQA-1), limiting activities to established work areas (APM/BMP BIO-3), establishing environmentally sensitive areas (APM BIO-4), establishing prohibited activities along the Project alignment (APM BIO-5 through APM BIO-8), installing escape ramps (APM BIO-9), erosion and dust control (APM BIO-10), minimizing vegetation clearing (APM BIO-14), limiting off-road vehicular travel (APM BIO-17), reduce bird collisions and other protections (BMP BIO-19 through APM/BMP BIO-21, and BMP BIO-48), implement a bird and bat conservation strategy (BMP BIO-29), prepare and implement a Burrowing Owl Nesting Management Plan (BMP BIO-30), seasonal restrictions (BMP BIO-32), manage construction lighting, water, and materials to benefit wildlife (BMP BIO-33 through BMP BIO-36), use bird and bat-friendly fencing (BMP BIO-39), promote dead and downed wood (BMP BIO-42), protect active golden eagle nests (BMP BIO-45), limit vegetation removal (BMP VEG-1 and BMP VEG-2), and implement biological resources best management practices (MM BIO-CEQA-3). Compensation for temporary impacts to special status bird habitat will include on-site habitat restoration with similar species compositions to those present prior to construction at a minimum ratio of 1:1 (MM BIO-CEQA-4). Permanent impacts to special status bird habitat would be compensated at a minimum ratio of 2:1, which may be fulfilled through non-acquisition (i.e., restoration and enhancement), land acquisition (i.e., preserve), or a combination of these options, depending on the activity specifics and BLM approval/authorization (MM BIO-CEQA-12). The Vegetation Management Plan (APM BIO-11) and the HRMMP (APM/BMP BIO-15 and MM BIO-CEQA-4) will outline the planting/seeding methodologies, qualitative/quantitative monitoring requirements, success criteria, and reporting procedures. Further, a Noxious Weed Control Plan would be prepared and implemented to address potential impacts associated with the colonization and spread of noxious weeds (APM BIO-12). Additional mitigation may be required by each agency during the regulatory permitting process. Mitigation for impacts to listed species habitat shall consider and overlap with compensation for special status plants, sensitive vegetation communities, and jurisdictional waters and wetlands.

Mammals

Direct impacts to American badger, Townsend's big-eared bat, western yellow bat, and Yuma myotis include loss of individuals as a result of encounters with construction vehicles and equipment on access roads, staging areas, and work areas; ground disturbance and/or vegetation removal; and general disturbance due to increased human activity. Construction of the Project could also result in permanent and temporary impacts to foraging habitat for these species. For the purposes of this analysis, it is assumed that a total of 16.78 miles of the proposed alignment could support American badger, and 8.16 miles could support Townsend's big-eared bat, western yellow

bat, and Yuma myotis (TES Table 3.5-20). These portions of the alignment would be impacted as a result of the Project's implementation. Indirect impacts could include alterations to existing topographical and hydrological conditions, increased erosion and sediment transport, compaction of soils, fugitive dust, increased noise levels from construction activities, and the introduction and establishment of noxious, invasive plant species. Operational impacts include mortalities from construction vehicles and equipment on access roads during routine maintenance and inspection activities, increased human presence, and the spread of noxious, invasive plant species due to use of new or improved access roads. These impacts would be considered significant without mitigation.

Several APMs and BMPs would be implemented to avoid impacts to special status mammals. The Project will be designed to avoid impacts to special status species and/or their habitats unless absolutely necessary (APM BIO-13, APM BIO-15, BMP BIO-40, BMP BIO-51, BMP BIO-52, and BMP BIO-55); the majority of project-related impacts will occur within agricultural areas that provide limited suitable habitat (breeding/nesting/denning) for most special status species. In particular, BMP BIO-40 would require a 500-foot buffer around any occupied maternity roost or presumed occupied maternity roost. Additionally, APM BIO-13 requires that riparian areas and xeroriparian drainages that occur within the easement would be denoted as environmentally sensitive areas and would be avoided during construction to the extent practicable. A pre-construction survey and monitoring for special status mammal species would be implemented as outlined in APM BIO-02 and BMP BIO-25. Pre-construction surveys for roosting bats would be conducted during the maternity season (1 March to 31 July) within 300 feet of the Project's activities and active maternity roosts or hibernacula would be avoided (MM BIO-CEQA-11). If avoidance is not possible, then the species will be safely evicted per MM BIO-CEQA-11. Other measures that would be implemented to avoid and minimize impacts during construction include implementation of a worker environmental awareness program (APM/BMP BIO-1 and MM BIO-CEQA-1), limiting activities to established work areas (APM/BMP BIO-3), establishing environmentally sensitive areas (APM BIO-4), establishing prohibited activities along the Project alignment (APM BIO-5 through APM BIO-8), installing escape ramps (APM BIO-9), erosion and dust control (APM BIO-10), minimizing vegetation clearing (APM BIO-14), limiting off-road vehicular travel (APM BIO-17), seasonal restrictions (BMP BIO-32), manage construction lighting, water, and materials to benefit wildlife (BMP BIO-33 through BMP BIO-36), use bird and bat-friendly fencing (BMP BIO-39), promote dead and downed wood (BMP BIO-42), limit vegetation removal (BMP VEG-1 and BMP VEG-2), and implement biological resources best management practices (MM BIO-CEQA-3). Compensation for temporary impacts to special status mammal species habitat will include on-site habitat restoration with similar species compositions to those present prior to construction at a minimum ratio of 1:1 (MM BIO-CEQA-4). Permanent impacts to special status mammal species habitat would be compensated at a minimum ratio of 2:1, which may be fulfilled through non-acquisition (i.e., restoration and enhancement), land acquisition (i.e., preserve), or a combination of these options, depending on the activity specifics and BLM approval/authorization (MM BIO-CEQA-12). The Vegetation Management Plan (APM BIO-11) and the HRMMP (APM/BMP BIO-15 and MM BIO-CEQA-4) will outline the planting/seeding methodologies, qualitative/quantitative monitoring requirements, success criteria, and reporting procedures. Further, a Noxious Weed Control Plan would be prepared and implemented to address potential impacts associated with the colonization and spread of noxious weeds (APM BIO-12). Additional mitigation may be required by each agency during the regulatory permitting process. Mitigation for impacts to listed species habitat shall consider and

overlap with compensation for special status plants, sensitive vegetation communities, and jurisdictional waters and wetlands.

2.4.5.3 Compliance with CDCA CMAs Applicable to Special Status Plants and Wildlife

The following CMAs would be applicable to special status plants and wildlife, and would be addressed by the noted Project APMs, BMPs, and MMs.

CMA DFA-BIO-IFS-1 and CMA DFA-BIO-IFS-2 are specific to survey and setback requirements for a discrete list of wildlife species (i.e., desert tortoise). Compliance with these CMAs would be satisfied with implementation of APM-BIO-2 and MM BIO-CEQA-10 which require pre-construction surveys prior to the start of Project activities and setback buffers for specific listed and/or special status species, APM BIO-23 and BMP-23 which require protection measures specific to desert tortoise, APM BIO-20 and MMs BIO-CEQA-6, BIO-CEQA-7 and BIO-CEQA-8 which require protection for nesting birds during construction and the development of a Nesting Bird Management Plan. Compliance would also be met with BMP BIO-30 and MM BIO-CEQA-8 which require the development of a management plan and focused pre-construction surveys and avoidance measures for burrowing owl.

CMA DFA-VPL-BIO-DUNE-1 is specific to the avoidance of dune vegetation. Compliance with this CMA would be satisfied with the implementation of BMP BIO-53 which would site Project facilities to avoid dune vegetation. Unavoidable impacts to dune vegetation would be limited and access roads that would be sited to minimize unavoidable impacts. Access road would be unpaved, and access roads would be designed and constructed to be at grade with the ground surface to avoid inhibiting sand transport.

CMA LUPA-BIO-1 is specific to conducting a habitat assessment of focus and BLM Special status Species suitable habitat, delineation of the DRECP vegetation types, rare alliances, and special features. Compliance with this CMA is achieved through data contained in the Biological Resources Technical Reports (including rare plant studies), which is incorporated into Chapter 3 of the TES. Further compliance is achieved by APM BIO-24 and BMP BIO-31 which include pre-construction surveys for sensitive plants, focused surveys for Harwood's eriastrum, and protection measures for Harwood's eriastrum. Additional compliance is achieved with BMP BIO-11 which would require the development of a vegetation management plan, APM BIO-13 which requires the avoidance of riparian habitat, APM BIO-25 which requires pre-construction surveys for sensitive wildlife, and BMP BIO-49 that requires a fringe-toed lizard linear ROW Protection Plan. APM BIO-23 and BMP BIO-23 achieve compliance by establishing desert tortoise protection measures while BMP BIO-30 and MM BIO-CEQA-8 require a burrowing owl management plan, focused pre-construction survey for burrowing owl, and avoidance measures. MM BIO-CEQA- -6 would require focused pre-construction survey efforts for nesting and breeding birds and MM BIO-BIO-CEQA-9 requires protocol surveys for Arizona Bell's vireo, southwestern willow flycatcher, and willow flycatcher.

CMA LUPA-BIO-2 specifies that a designated biologist(s) conduct and oversee Project activities requiring biological monitoring during pre-construction and decommissioning. Compliance with this CMA is achieved through application of APM BIO-02, BMP BIO-02, and MM BIO-CEQA-

2 which require that qualified/designated biologists be retained to monitor construction of the Project.

CMA LUPA-BIO-3 specifically addresses setbacks for sensitive resources. Compliance with this CMA is achieved, in part, through application of APM BIO-04 and APM BIO-11 which require the development of a vegetation management plan and the fencing/field identification of sensitive resources, BMP BIO-31 which provides protection measures for Harwood's eriastrum, and BMP BIO-50 and BMP BIO-52 which require setbacks and buffers for sensitive habitat, including riparian communities.

CMA LUPA-BIO-4 is specific to activities that may impact Focus and BLM Special Status Species and establishes seasonal restrictions on Project activities. Compliance with this CMA is achieved through application of APM BIO-20, BMP BIO-31, BMP BIO-32, MM BIO-CEQA-6, and MM BIO-CEQA-7 which require seasonal nesting surveys, provide restrictions for working within occupied Harwood's eriastrum habitat, provide for species specific seasonal restriction dates, preparation of a Nesting Bird Management Plan.

CMA LUPA-BIO-5 specifies the need for a worker education program. Compliance with this CMA is achieved through application of APM BIO-1, BMP BIO-01 and MM BIO-CEQA-1 which require the development/implementation of a Worker Environmental Awareness Program.

CMA LUPA-BIO-6 is specific to the needs for subsidized predator standards, approved by the BLM, in coordination if the USFWS and CDFW. Compliance with this CMA is achieved through application of AMP BIO-05, AMP BIO-06, and BMP BIO-28 which prohibit trash dumping and fire arms, provide specifics for refuse disposal, and require the development of a Raven Management Plan. Compliance is also achieved through application of APM BIO-12 and BMP BIO-31 which require the development of a Noxious Weed Control Plan and specifics for the treatment of Harwood's eriastrum. Further compliance would be achieved by BMP AQ-01 that would require that dust palliatives be applied, in lieu of water, to inactive construction areas and BMP BIO-34 which would provide for the prevention of puddles during dust abatement.

CMA LUPA-BIO-7 and CMA LUPA-BIO-8 are specific to restoration of impacted areas from Project construction, operation, and decommissioning. Compliance with this CMA is achieved through application of APM BIO-15 and MM BIO-CEQA-4 which require the development of a Habitat Restoration, Mitigation, and Monitoring Plan.

CMA LUPA-BIO-8 specifies that all activities that are required to close and decommission the site will specify and implement project-specific closure and decommissioning actions that meet the approval of BLM. Compliance with this CMA is achieved through application of APM BIO-11, BMP BIO-11, APM BIO-15, BMP BIO-15, and MM BIO-CEQA-4 which require the development of a vegetation management plan and development of a Habitat Restoration, Mitigation, and Monitoring Plan.

CMA LUPA-BIO-9 is specific to the implementation of practices pertaining to water and wetlands dependent resources. Compliance with this CMA is achieved through application of APM BIO-08, APM BIO-07, APM BIO-10, BMP HAZ-03, and APM HAZ-01 which require that no monofilament plastic fencing be used, erosion and dust control measures be implemented, the Applicant to provide the BLM with an inventory of equipment and materials to cover each

hazardous material used at any time during the life of the Project, and that the Project would implement its hazardous substance control and emergency response procedures as needed in conjunction with a Hazardous Substance Control and Containment Plan and Emergency Response Plan for the Project.

CMA LUPA-BIO-10 specifies policies and guidance on integrated weed management actions during all phases of Project activities. Compliance with this CMA is achieved through application of APM BIO-12 which requires the development of a Noxious Weed Control Plan that is approved by the BLM.

CMA LUPA-BIO-11 is specific to control measures for nuisance animals and invasive species. Compliance with this CMA is achieved through application of APM BIO-12 and MM BIO-CEQA-4 which requires the development of a Noxious Weed Control Plan that is approved by the BLM and development of a plan to address nuisance animals.

CMA LUPA-BIO-12 specifies practices and controls related to noise effects on wildlife. Compliance with this CMA is achieved through application of BMP NO-07 which to the extent feasible, requires the location of stationary noise sources that exceed background ambient noise levels away from known or likely locations of and BLM sensitive wildlife species and their suitable habitat. Compliance is also achieved through application of APM NO-2 which requires that in areas in close proximity to sensitive receptors, quiet equipment (for example, equipment that incorporates noise control elements into the design; quiet model air-compressors or generators can be specified) would be used during construction whenever possible.

CMA LUPA-BIO-13 is specific to the implementation of specific measures related to siting and design of the Project. Compliance with this CMA is achieved through application of APM BIO-11, BMP BIO-11, APM BIO-13, and BMP BIO-31 which require the preparation of a Vegetation Management Plan, the avoidance of riparian habitat, measures specific to the protection of Harwood's eriastrum, and the avoidance of rare plant alliances. BMP BIO-52 requires serves to minimize impacts to microphyll woodlands wherever it occurs on BLM land in California. Compliance is also achieved with the implementation of APM BIO-4, APM BIO-22, and APM BIO-23 which require fencing or other field identification of environmentally sensitive areas, and protection measures specific to desert tortoise. BMP BIO-33 requires that all long-term night lighting would be directed away from riparian and wetland vegetation, occupied habitat, and suitable habitat areas for sensitive species. Compliance with this CMA is also achieved through application of APM BIO-03, BMP BIO-03, APM BIO-17, BMP BIO-53, BMP BIO-55, and BMP T&T-04 which requires the stockpiling of material only within approved work areas, limiting of vehicular traffic to establish roads, protection of dune vegetation and sand transport corridors, and the development of an Access Plan to identify all routes where new disturbance and/or cross-country travel is proposed. BMP T&T 08 would, within Project boundaries, prohibit cross- country vehicle and equipment use outside of approved designated work areas to prevent unnecessary ground and vegetation disturbance. Lastly, compliance with this CMA is also achieved through application of BMP WQ-04, APM AQ-01, and BMP AQ-01 which require palliatives be used for dust control would be non-petroleum products in addition to non-toxic, and the implementation of basic and advanced control measures to manage dust within the Project.

CMA LUPA-BIO-15 specifies that state-of-the-art construction and installation techniques be used to minimize site disturbance, soil erosion, and compaction. Compliance with this CMA is achieved

through application of BMP BIO-38 and BMP VEG-01 which require the use of state-of-the-art construction and installation techniques where appropriate and the that the removal of vegetation resources would be conducted in accordance with BLM IB 2012-097.

CMA LUPA-BIO-16 specifies activity specific measures to avoid and minimize impacts to Focus and BLM sensitive birds, ESA and Migratory Bird Treaty Act protected birds, and bats. Compliance with this CMA is achieved through application of BMP BIO-19, APM BIO-21, BMP BIO-21, BMP BIO-29, BMP BIO-30, and BMP BIO-45 which require specific measures when working near the Colorado River, measures for the reduction of avian collision and electrocution, development of a bird and bat conservation strategy, development of a burrowing owl Nesting Management Plan, and protection measures for loss of and harassment of golden eagles. Compliance is also achieved through the implementation of MM BIO-CEQA-4, MM BIO-CEQA-6, and MM BIO-CEQA-7 which requires the development of a Habitat Restoration, Mitigation and Monitoring Plan, conducting pre-construction surveys for nesting and breeding birds and the implementation of avoidance measures, and the development of a Nesting Bird Management Plan. BMP BIO-33 and BMP BIO-39 will also assist in achieving compliance by placing restrictions on construction lighting for the Project and require the use of bird and bat friendly fencing.

CMA LUPA-BIO-17 is specific to measures related to activities that may result in mortality to Focus and BLM Special–Status bird and bat species. Compliance with this CMA is achieved through application of BMP BIO-19, APM BIO-21, BMP BIO-21, BMP BIO-29, BMP BIO-30, and BMP BIO-45 which require specific measures when working near the Colorado River, measures for the reduction of avian collision and electrocution, development of a bird and bat conservation strategy, development of a burrowing owl Nesting Management Plan, and protection measures for loss of and harassment of golden eagles. Compliance is also achieved through the implementation of MM BIO-CEQA-4, MM BIO-CEQA-6, and MM BIO-CEQA-7 which requires the development of a Habitat Restoration, Mitigation and Monitoring Plan, conducting pre-construction surveys for nesting and breeding birds and the implementation of avoidance measures, and the development of a Nesting Bird Management Plan. BMP BIO-33 and BMP BIO-39 will also assist in achieving compliance by placing restrictions on construction lighting for the Project and require the use of bird and bat friendly fencing.

Compliance with this CMA is also achieved through application of BMP BIO-20, BMP BIO-46, BMP BIO-47, BMP BIO-50, BMP BIO-51, and BMP BIO-52 which require protection for migratory birds during construction, compensation for loss of desert riparian woodland, management of all riparian areas, engineering controls to minimize impacts on dry wash, dry wash woodland, and chenopod scrub, micrositing of structures to achieve adequate conductor clearance, and avoidance of riparian habitat and rare plant alliances.

CMA LUPA-BIO-BAT-1 specifies that the Project shall not be sited within 500 feet of an occupied maternity roost or presumed occupied maternity roost. Compliance with this CMA is achieved through application of BMP BIO-40 and MM BIO-CEQA-11 which require siting of Project components 500 feet from occupied maternity roost or presumed occupied maternity roosts and surveys for maternity colonies or hibernaculum for roosting bats

CMA LUPA-BIO-COMP-1 is specific to compensation requirements for impacts to biological resources. Compliance with this CMA would be achieved through implementation of BMP BIO-46, MM BIO-CEQA-5, and MM BIO-CEQA-12 which require compensation for loss of desert

riparian woodland, transplantation and/or compensation for impacts to State and federally threatened, proposed, petitioned, and Candidate plants, compensation for impacts to special status plant species, and the compensation for impacts to sensitive vegetation communities.

CMA LUPA-BIO-COMP-2 specifies requirements pertaining to compensation for the mortality impacts to bird and bat Focus and BLM Special Status Species from activities. Compliance with this CMA would be achieved through implementation of BMP BIO-46, MM BIO-CEQA-5, MM BIO-CEQA-7 and MM BIO-CEQA-12 which require compensation for loss of desert riparian woodland, compensation for impacts to State and federally threatened, proposed, petitioned, and Candidate plants, compensation for impacts to special status plant species, development of a bird and bat mortality compensatory mitigation fee, and the compensation for impacts to sensitive vegetation communities.

CMA LUPA-BIO-DUNE-1 is specific to required studies pertaining to Aeolian sand transport corridors. Compliance with this CMA is partially achieved through data contained in the Biological Resources Technical Reports, which is incorporated into Chapter 3 of the TES and analysis presented in Chapter 4 of the TES. To further achieve compliance implementation of BMP BIO-53 and BMP BIO-54 would require the protection of dune vegetation, and that all activities would be designed and operated to facilitate the flow of sand across activity sites to avoid the trapping or diverting of sand from the Aeolian corridor. Structures would take into account the direction of sand flow and, to the extent feasible, build and align structures to allow sand to flow through the site unimpeded. Fences would be designed to allow sand to flow through and not be trapped.

CMA LUPA-BIO-DUNE-2 specifies restrictions for Project activities that potentially affect the amount of sand entering or transported within Aeolian sand transport corridors. Compliance with this CMA is achieved through application of BMP BIO-54, BMP BIO-31, BMP BIO-49, and BMP BIO-53 which would require the protection of dune vegetation and sand transport, measures for the protection/treatment of Harwood's eriastrum, pre-construction surveys, avoidance of Harwood's eriastrum individuals through micrositing of facilities, and development of a Fringe-toed Lizard Linear ROW Protection Plan. In addition, APM BIO-2 and BMP BIO-2 require the presence of a biological monitor who will clear work areas prior to the start of construction activities and would relocated if necessary.

CMA LUPA-BIO-DUNE-3 specifies that facilities or activities that alter site hydrology (e.g., sediment barrier) will be designed to maintain continued sediment transport and deposition in the Aeolian corridor in a way that maintains the Aeolian sorting and transport to downwind deposition zones. Compliance with this CMA is achieved through application of BMP WQ-06, BMP WQ-07, and BMP BIO-49 which will require the avoidance of hydrologic alterations, no permanent structures would be placed in floodplains that are narrower at the ROW crossing than the typical span width of 1,200 feet (i.e., it is assumed that such floodplains could be spanned and avoided), and development of a Fringe-toed Lizard Linear ROW Protection Plan.

CMA LUPA-BIO-DUNE-4 is specific to the mapping of dune formations and other sand accumulations according to mapping standards established by the BLM National Operations Center. Compliance with this CMA is achieved through application of BMP BIO-49, BMP BIO-53, BMP BIO-54, and BMP BIO-55which would require the development of a Fringe-toed Lizard Linear ROW Protection Plan, the protection of dune vegetation and sand transport and that new

roads/routes avoid Focus and BLM Special Status Species suitable habitat within identified linkages for those Focus and BLM Special Status Species, unless the new road and/or route is beneficial to minimize net impacts to natural or ecological resources of concern. MM BIO-CEQA-3 would require that Dune formations and other sand accumulations (i.e., sand ramps, sand sheets) with suitable habitat characteristics for the Mojave fringe-toed lizard (i.e., unconsolidated blow-sand) will be mapped according to mapping standards established by the BLM National Operations Center.

CMA LUPA-BIO-DUNE-5 specifies clearance surveys for Mojave fringe-toed lizard within suitable habitat. Compliance with this CMA is achieved through application of BMP BIO-02, APM BIO-25, BMP BIO-49, MM BIO-CEQA-2, and MM BIO-CEQA-10 which require biological monitoring, pre-construction surveys, and surveys for sensitive species, the development of a Fringe-toed Lizard Linear ROW Protection Plan.

CMA LUPA-BIO-IFS-3 is specific to design of culverts to allow unrestricted access by desert tortoises. Compliance with this CMA is achieved through application of BMP BIO-44 which presents desert tortoise protection measures, including culvert design requirements.

CMA LUPA-BIO-IFS-5 specifies that sites that are fenced with long-term desert tortoise exclusion fencing are monitored by a designated biologist during initial clearing and grading activities. Compliance with this CMA is achieved through application of APM BIO-23, BMP BIO-23, BMP BIO-44, and MM BIO-CEQA-2 which require the implementation of desert tortoise protection measures and the biological monitoring during initial site clearance activities.

CMA LUPA-BIO-IFS-6 and CMA LUPA-BIO-IFS-7 are specific to the requirement for protocol or clearance surveys and monitoring for desert tortoise during geotechnical testing activities. Compliance with this CMA is achieved through application of APM BIO-02, APM BIO-23, APM BIO-25, BMP BIO-44, and MM BIO-CEQA-2 which require biological monitoring, pre-construction surveys, and desert tortoise protection measures.

CMA LUPA-BIO-IFS-8 specifies that the ground under vehicles be checked for the presence of desert tortoise any time a vehicle or construction equipment is parked in desert tortoise habitat outside of areas fenced with desert tortoise exclusion fencing. Compliance with this CMA is achieved through application of APM BIO-23 and BMP BIO-44 which provide for desert tortoise protection measures.

CMA LUPA-BIO-IFS-9 specifies that vehicular traffic will not exceed 15 miles per hour within the areas not cleared by protocol level surveys where desert tortoise may be impacted. Compliance with this CMA is achieved through application of BMP BIO-44 and MM BIO-CEQA-3 which require the implementation of desert tortoise protection measures and the implementation of biological resources BMPs.

CMA LUPA-BIO-IFS-11 specifies that if Bendire's thrasher is present, the Applicant conduct appropriate activity-specific biological monitoring (see Glossary of Terms, EIS Appendix 6) to ensure that Bendire's thrasher individuals are not directly affected by operations (i.e., mortality or injury, direct impacts on nest, eggs, or fledglings). Though Bendire's thrasher is not expected to be present in the Project area, ground disturbance during the nesting season requires surveys for, and protection of all active bird nests, including Bendire's thrasher. If nests are found protective

buffers will be applied. Compliance with this CMA would be achieved through APM BIO-20, BMP BIO-29, MM BIO-CEQA-6, and MM BIO-CEQA-7 which would require protection for migratory birds, development of a bird and bat conservation strategy, pre-construction surveys for nesting birds, and the development of a Nesting Bird Management Plan.

CMA LUPA-BIO-IFS-12 is specific to activity-specific biological monitoring to ensure avoidance of occupied burrowing owl burrows. Compliance with this CMA is achieved through application of APM BIO-02, AMP IO-25, BMP BIO-29, BMP BIO-30, MM BIO-CEQA-6, MM BIO-CEQA-7, and MM BIO-CEQA-8 which would require protection for migratory birds, development of a bird and bat conservation strategy, pre-construction surveys for nesting birds, the development of a Nesting Bird Management Plan, and focused pre-construction surveys and avoidance measures for burrowing owl.

CMA LUPA-BIO-IFS-13 specifies that if active burrowing owl burrows cannot be avoided on-site, passive burrow exclusion by a designated biologist using one-way doors. Compliance with this CMA is achieved through application of BMP BIO-30, MM BIO-CEQA-7, and MM BIO-CEQA-8 which require the development of a burrowing owl nesting management plan, development of a Nesting Bird Management Plan, and focused pre-construction surveys and avoidance measures for burrowing owl.

CMA LUPA-BIO-IFS-14 specifies that activity-specific active translocation of burrowing owls may be considered, in coordination with CDFW. Compliance with this CMA is achieved through application of BMP BIO-30, MM BIO-CEQA-7, and MM BIO-CEQA-8 which require the development of a burrowing owl nesting management plan, development of a Nesting Bird Management Plan, and focused pre-construction surveys and avoidance measures for burrowing owl.

CMA LUPA-BIO-IFS-24 is specific to the protection from loss and harassment of active golden eagle nests. Compliance with this CMA is achieved through application of BMP BIO-45 and MM BIO-CEQA-07 which provide protection measures for golden eagles and the development of a Nesting Bird Management Plan.

CMA LUPA-BIO-IFS-25, CMA LUPA-BIO-IFS-26 and CMA LUPA-BIO-IFS-27 specify hat cumulative loss of golden eagle foraging habitat within a 1- to 4-mile radius around active or alternative golden eagle nests (as identified or defined in the most recent USFWS guidance and/or policy) will be limited to less than 20%, applicants will conduct a risk assessment per the applicable USFWS guidance, and if a permit for golden eagle take is determined to be necessary, an application will be submitted to the USFWS in order to pursue a take permit. Compliance with this CMA is achieved through application of BMP BIO-45 and MM BIO-CEQA-07 which provide protection measures for golden eagles and the development of a Nesting Bird Management Plan.

CMA LUPA-BIO-PLANT-1 specifies that properly timed protocol surveys in accordance with the BLM's most current (at time of activity) survey protocols for plant Focus and BLM Special Status Species. The rare plant surveys previously conducted, in conjunction with planned pre-construction surveys will meet the BLM's survey requirements. Compliance with this CMA is also achieved by APM BIO-24which requires surveys would be conducted during the appropriate time of year of the selected route to identify special status plant species and imperiled or sensitive vegetation alliances.

CMA LUPA-BIO-PLANT-2 specifies that an avoidance setback of 0.25 mile for all Focus and BLM Special Status Species occurrences. Compliance with this CMA is achieved through application of BMP BIO-31 and MM BIO-CEQA-2 which provides for guidance on the protection/treatment of Harwood's eriastrum, the only BLM Special Status Species documented in the Project area and setbacks for all Focus and BLM Special Status Species occurrences.

CMA LUPA-BIO-PLANT-3 specifies that impacts to suitable habitat for Focus and BLM Special Status plant species should be avoided to the extent feasible and are limited (capped) to a maximum of 1% of their suitable habitat throughout the entire LUPA Decision Area. Compliance with this CMA is achieved through application of BMP BIO-31 which provides for guidance on the protection/treatment of Harwood's eriastrum, the only BLM Special Status Species documented in the Project area.

CMA LUPA-BIO-RIPWET-1 is specific to the avoidance of riparian and wetland DRECP vegetation types. Compliance with this CMA is achieved through application of AMP BIO-11, BMP BIO-11, BMP BIO-19, APM BIO-20, BMP BIO-29, BMP BIO-47, BMP BIO-50, BMP BIO-51, and BMP BIO-52 which require the development of a vegetation management plan, specific measures when working near the Colorado River, development of a bird and bat conservation strategy, management of all riparian areas, implementation of engineering controls, micrositing of structures for adequate structure clearance, and riparian habitat and rare plant alliance avoidance.

CMA LUPA-BIO-RIPWET-3 specifies the requirement for pre-construction surveys for Project activities within 0.25-mile of a riparian or wetland DRECP vegetation type. Compliance with this CMA is achieved through application of APM BIO-02, APM BIO-20, APM BIO-25, MM BIO-CEQA-2, and MM BIO-CEQA-6 which require biological monitoring, protection for migratory birds during construction, sensitive species surveys, and pre-construction nesting bird surveys.

CMA LUPA-BIO-SVF-1 specifically requires a map delineating potential sites and habitat assessment of the following special vegetation features is required: Yucca clones, creosote rings, Saguaro cacti, Joshua tree woodland, microphyll woodland, Crucifixion thorn stands. Compliance with this CMA is achieved through application of APM BIO-11 and BMP BIO-11 which requires the development of a vegetation management plan.

CMA LUPA-BIO-SVF-6 specifies that impacts to microphyll woodland will be avoided, except for minor incursions. Compliance with this CMA is achieved through application of BMP BIO-50, BMP BIO-51, and BMP BIO-52 which require the implementation of engineering controls, micrositing of structures for adequate conductor clearance, and avoidance of riparian habitats and rare plant alliances.

CMA LUPA-BIO-VEG-1 specifies that the management of cactus, yucca, and other succulents will adhere to current up-to-date BLM policy. Compliance with this CMA is achieved through application of APM BIO-11, BMP BIO-11, and BMP BIO-41 which requires the development of a vegetation management plan and succulent management.

CMA LUPA-BIO-VEG-2 specifies that appropriate levels of dead and downed wood on the ground, outside of campground areas, to provide wildlife habitat, seed beds for vegetation establishment, and reduce soil erosion, as determined appropriate on an activity-specific basis.

Compliance with this CMA is achieved through application of BMP BIO-42 which requires the placement of dead and downed wood in the Project area.

CMA LUPA-BIO-VEG-3 specifically allows for the collection of plant material consistent with the maintenance of natural ecosystem processes. Compliance with this CMA is achieved through application of BMP BIO-43 which specifies the collection of plant materials.

CMA LUPA-BIO-VEG-5 specifies that all activities will follow applicable BLM state and national regulations and policies for salvage and transplant of cactus, yucca, other succulents, and BLM Sensitive plants. Compliance with this CMA is achieved through application of BMP BIO-41 which requires succulent management within the Project area.

CMA LUPA-BIO-VEG-6 specifies that the BLM may consider disposal of succulents through public sale, as per current up-to-date state and national policy. Compliance with this CMA is achieved through application of BMP BIO-41 which requires succulent management within the Project area.

CMA LUPA-SW-13 specifies that the BLM will manage all riparian areas to be maintained at, or brought to, proper functioning condition. Compliance with this CMA is achieved through application of BMP BIO-19 and BMP BIO-47 which provides for specific measures when working in the vicinity of the Colorado River and states that the BLM will manage all riparian areas to be maintained at, or brought to, proper functioning condition.

CMA LUPA-SW-16 is specific to the identification of the 100-year floodplain boundary for any surface water feature in the vicinity of the Project. Compliance with this CMA is also achieved through application of APM BIO-19 which provides for specific measures when working in the vicinity of the Colorado River.

CMA LUPA-TRANS-BIO-1 specifies that, where feasible and appropriate for resource protection, site transmission activities along roads or other previously disturbed areas to minimize new surface disturbance, reduce perching opportunities for the Common raven, and minimize collision risks for birds and bats. Compliance with this CMA is achieved through application of APM AES-06, BMP BIO-19, BMP AES-06, BMP BIO-21, and BMP BIO-28 which require that the Project would avoid siting Staging and Laydown Areas in visually sensitive areas to the extent practicable, implement specific protection measures when working near the Colorado River, implement measures to reduce avian collisions, and develop a Raven Management Plan.

CMA LUPA-TRANS-BIO-2 specifies that flight diverters will be installed on all transmission activities spanning or within 1,000 feet of stream and wash channels, canals, ponds, and any other natural or artificial body of water. Compliance with this CMA is achieved through application of APM BIO-21 and BMP BIO-48 which require the use of current guidelines and methodologies to reduce avian collisions and electrocution and install flight diverters on all transmission activities spanning or within 1,000 feet of stream and wash channels, canals, ponds, and any other natural or artificial body of water.

CMA LUPA-TRANS-BIO-3 specifies that when siting transmission activities, the alignment should avoid, to the maximum extent practicable, being located across canyons or on ridgelines. Compliance with this CMA is achieved through application of APM BIO-21, BMP BIO-21, BMP AES-07, and BMP AES-08 which require the use of current guidelines and methodologies to

reduce avian collisions and electrocution, avoid siting linear features in the centers of valley bottoms and on ridgetops, and avoid skylining.

CMA LUPA-TRANS-BIO-4 specifies that siting of transmission activities will be prioritized within designated utility corridors, where possible, and designed to avoid, where possible, and otherwise minimize and offset impacts to sand transport processes in Aeolian corridors, rare vegetation alliances and Focus and BLM Special Status Species. Compliance with this CMA is achieved through application of APM AES-05, BMP BIO-53, and BMP BIO-54 which require that the Project would avoid siting Staging and Laydown Areas in visually sensitive areas to the extent practicable, protection of dune vegetation, and protection of sand transport.

CMA DFS-VPL-BIO-FIRE-1 is specific to the implementation of a standard practice for fire prevention/protection. Compliance with this CMA is achieved through application of AMP BIO-11, BMP BIO-11, BMP PH&S-02, and BMP HAZ-02 which require the development of a vegetation management plan, development of a Fire Prevention Plan, and implement fire avoidance and suppression measures.

Impact BIO 2 - Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?

Potentially Significant – Less than Significant with Mitigation

The majority of Project related impacts (permanent and temporary) would occur within agricultural lands. The Project does however occur within areas where rare plant alliances have been mapped. CDFW has assigned state-level rarity rankings to many vegetation alliances that are dominated by native species (CDFW 2010). The DRECP classifies vegetation alliances (an alliance is defined by one or a group of diagnostic plant species) on BLM land with a state ranking of S1, S2, or S3 (critically imperiled, imperiled, and vulnerable, respectively) as rare vegetation alliances, and provides protection measures in the LUPA. Three rare plant alliances on the Palo Verde Mesa are crossed by one or more route segments within California (TES Figure 3.5-3; TES Table 3.5-3). The *Suaeda moquinii* (bush seepweed scrub) has a rank of S3, vulnerable. The *Parkinsonia florida–Olneya tesota* (blue paloverde-ironwood woodland) Alliance and *Prosopis glandulosa* (Mesquite thickets) Alliance are included in the semi-desert wash woodland riparian vegetation type, often referred to as microphyll woodlands, and have been ranked as S3, vulnerable. These dry desert wash woodland communities and rare vegetation alliances are considered sensitive in the California BLM planning area (BLM 2015). Table 3.5-3 of the TES identifies the Project segments and distance, in miles, of intersection for rare vegetation alliances on Palo Verde Mesa. Table 2.4-1 below identifies the acreage of each community occurring within a 200-ft wide corridor where the Project occurs in California. Without a final design/project footprint this table presents the "worst case scenario" of the entire 200-foot wide corridor being impacted. Actual impacts from the project will be much less than the acreages reported in Table 2.4-1 and avoidance sensitive vegetation communities will be implemented unless absolutely necessary; avoidance and minimization measures are presented in the form of APMs, BMPs and MMs.

The only permanent water and associated riparian vegetation in the Project Area is along the Colorado River and in canals and drains adjacent to irrigated fields in California; the Project

proposes to span the Colorado River and other aquatic features. South of Blythe, the Colorado River is channelized in most places, and riparian vegetation is restricted to the

Table 2.4-1 Vegetation Communities/Land Cover Types

VEGETATION COMMUNITY	STATUS	ACREAGE IMPACTED IN PROJECT AREA*
Agriculture	n/a	252.39
Fourwing saltbush scrub (*Atriplex canescens*)	n/a	0.69
Irrigated Row and Field Crops	n/a	0.42
Creosote bush scrub (*Larrea tridentate*)	n/a	17.30
Creosote bush - white bursage scrub (*Larrea tridentata - Ambrosia dumosa*)	n/a	125.71
Open Water	n/a	1.85
Blue palo verde - ironwood woodland (*Parkinsonia florida - Olneya tesota*)	S3	7.56
Mesquite thickets (*Prosopis glandulosa*)	S3	1.36
Bush seepweed scrub (*Suaeda moquinii*)	S3	0.45
Urban	n/a	1.37
Total Acreage		409.11

* Assumes a maximum impact area of 200ft (100ft on either side of the proposed transmission line)

S3 = Vulnerable—Vulnerable in the state due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation from the state.

immediate banks of the river. However, in some places, including along proposed crossings of the river, riparian vegetation in the floodplain extends up to 0.7 mile from the river. The dominant vegetation in the riparian area within the floodplain is salt cedar (*Tamarix* spp.), honey mesquite (*Prosopis glandulosa*), screwbean mesquite (*Prosopis pubescens*), and saltbush. Stands of arrowweed (*Pluchea sericeaare*) are found along the river corridor and in association with canals and drains in the agricultural areas. There are some small stands of cottonwood (*Populus fremontii*) and willow (*Salix gooddingii*) along the section of the river south of Blythe (LCRMSCP 2004).

Riparian vegetation and associated aquatic areas, especially riparian habitat with native vegetation, have a high diversity of plants and animals. Numerous species found in the region, including many special status species, are riparian obligates. The BLM estimates that more than 400 species in the region either are directly dependent on riparian habitats or use them more than other habitats (BLM 2010, Section 3.4.2).

In an otherwise arid landscape, primary productivity in riparian habitats is high due to year-round soil moisture. High plant productivity leads to increased habitat structural diversity and high food availability for herbivorous and (in turn) predatory animals. Insect productivity is also high, among

both aquatic and terrestrial species. Insect numbers are very high during warm months and serve as a prey base for a diverse breeding bird fauna, including several special status birds. Habitat structure in riparian vegetation is also more diverse than in most regional uplands. [CPUC 2016]

Riparian woodlands tend to have multiple-layered herb, shrub and tree canopies, whereas most upland shrublands are relatively simple in structure. The varied vertical habitat structure provides a greater diversity of nesting and feeding sites for birds compared with non-riparian communities. Similarly, mammal diversity is greater in riparian communities due to high biological productivity, denning site availability, thermal cover, and water availability. [CPUC 2016]

Direct impacts associated with the Project include the removal of vegetation during construction activities, resulting in the direct reduction in the representation of plant communities. Vegetation removal and disturbance of soils could have a variety of effects on vegetation communities, ranging from changes in community structure and species composition to alteration of soil moisture or nutrient regimes. Removal of protective vegetation would also expose soil to potential wind and water erosion. This could result in further loss of soil and vegetation, as well as increased sediment input to water resources.

Clearing and grading could also result in the alteration of soil conditions, including the loss of native seed banks, and change the topography and drainage of a site such that the capability of the habitat to support native vegetation is impaired. Indirect impacts associated with the Project include fugitive dust from construction traffic that has the potential to affect photosynthetic rates and decrease plant productivity. Direct and indirect impacts to riparian or other sensitive vegetation communities (blue palo verde - ironwood woodland, mesquite thickets, and bush seepweed scrub) would be considered significant absent mitigation.

To minimize and/or avoid impacts to riparian habitat and sensitive habitat communities a suite of APMs, BLM BMPs, and MMs have been developed for the Project. The Project will be designed to avoid impacts to special status vegetation communities and other special status biological resources (APM BIO-12, APM BIO-15, APM BIO-16, BMP BIO-24, BMP BIO-31, BMP BIO-50, BMP BIO-51, BMP BIO-53, and BMP BIO-55). Pre-construction surveys of disturbance zones would include preparation of maps delineating special vegetation features (BMP BIO-52). Other measures that would be implemented to avoid and minimize impacts during construction include implementation of a worker environmental awareness program (APM/BMP BIO-1 and MM BIO-CEQA-1), limiting activities to established work areas (APM/BMP BIO-3), establishing environmentally sensitive areas (APM BIO-4), establishing prohibited activities along the Project alignment (APM BIO-5 through APM BIO-8), minimizing vegetation clearing (APM BIO-14), limiting off-road vehicular travel (APM BIO-17), seasonal restrictions (BMP BIO-32), prohibiting native plant collection without a permit (BMP BIO-37), succulent management (BMP BIO-41), promote dead and downed wood (BMP BIO-42), avoidance of California riparian habitat and rare plant alliances (BMP BIO-52), protection of dune vegetation (BMP BIO-53), limit vegetation removal (BMP VEG-1 and BMP VEG-2), and implement biological resources construction monitoring (MM BIO-CEQA-2) and best management practices (MM BIO-CEQA-3).

To further minimize and/or avoid impacts to riparian habitat and sensitive habitat communities MM-BIO-CEQA-05 and MM-BIO-CEQA-12 have been identified to further reduce potential impacts. These measures include the development of a transplantation plan, compensation for impacts to special status plant species, and compensation for permanent impacts to riparian

habitats and other sensitive vegetation communities. Refer to Section 2.4.6 below for a complete list and full description of all MMs noted above. Implementation of these APMs, BMPs, and MMs would minimize impacts to riparian habitat and sensitive habitat communities to the extent possible and would reduce impacts to a less-than-significant level.

Compensation for temporary impacts to sensitive vegetation communities (blue palo verde-ironwood woodland, mesquite thickets, and bush seepweed scrub) will include on-site habitat restoration with similar species compositions to those present prior to construction at a ratio of 1:1 (MM BIO-CEQA-12). Compensation for permanent impacts to desert riparian woodland (blue palo verde-irownwood woodland and mesquite thickets) would be compensated at a ratio of 5:1, which may be fulfilled through non-acquisition (i.e., restoration and enhancement), land acquisition (i.e., preserve), or a combination of these options, depending on the activity specifics and BLM approval/authorization (BMP BIO-46 and MM BIO-CEQA-12). The Vegetation Management Plan (APM BIO-11) and the HRMMP (APM/BMP BIO-15 and MM BIO-CEQA-4) will outline the planting/seeding methodologies, qualitative/quantitative monitoring requirements, success criteria, and reporting procedures. Further, a Noxious Weed Control Plan would be prepared and implemented to address potential impacts associated with the colonization and spread of noxious weeds (APM BIO-12).

Compliance with CDCA CMAs Applicable to Sensitive Vegetation Communities

Table 2.4-2 presents a list of CMAs applicable to sensitive vegetation communities that have already been addressed in detail above under Impact BIO-1.

Table 2.4-2 CMAs Addressed Under Impact BIO-1 Applicable to Sensitive Vegetation Communities

CMA	APPLICABLE APM, BMP, AND/OR MM
CMA DFA-VPL-BIO-DUNE-1	BMP BIO-53
CMA LUPA-BIO-1	APM BIO-24, BMP BIO-31, BMP BIO-11, APM BIO-13, APM BIO-25, BMP BIO-49, APM BIO-23, BMP BIO-23, BMP BIO-30, MM BIO-CEQA-9, MM BIO-CEQA -7, and MM BIO- CEQA-10
CMA LUPA-BIO-3.	APM BIO-04, APM BIO-11, BMP BIO-31, BMP BIO-50, and BMP BIO-52
CMA LUPA-BIO-5.	APM BIO-1, BMP BIO-01 and MM BIO-CEQA-1
CMA LUPA-BIO-7.	APM BIO-15 and MM BIO-CEQA-4
CMA LUPA-BIO-8	APM BIO-11, BMP BIO-11, APM BIO-15, BMP BIO-15, and MM BIO-CEQA-4
CMA LUPA-BIO-9	APM BIO-08, APM BIO-07, APM BIO-10, BMP HAZ-03, and APM HAZ-01
CMA LUPA-BIO-10	APM BIO-12
CMA LUPA-BIO-11	APM BIO-12 and MM BIO-CEQA-4

CMA	APPLICABLE APM, BMP, AND/OR MM
CMA LUPA-BIO-13	APM BIO-11, BMP BIO-11, APM BIO-13, BMP BIO-31, BMP BIO-52, APM BIO-4, APM BIO-22, BMP BIO-33, APM BIO-03, BMP BIO-03, APM BIO-17, BMP BIO-53, BMP BIO-55, and BMP T&T-04
CMA LUPA-BIO-15	BMP BIO-38 and BMP VEG-01
CMA LUPA-BIO-17	BMP BIO-19, APM BIO-21, BMP BIO-20, BMP BIO-21, BMP BIO-29, BMP BIO-30, BMP BIO-45, BMP BIO-46, BMP BIO-47, BMP BIO-50, BMP BIO-51, BMP BIO-52, MM BIO-CEQA-4, MM BIO-CEQA-6, and MM BIO-CEQA-7
CMA LUPA-BIO-COMP-1	BMP BIO-46, MM BIO-CEQA-5, and MM BIO-CEQA-12
CMA LUPA-BIO-DUNE-1	BRTR (refer to EIS), BMP BIO-53 and BMP BIO-54
CMA LUPA-BIO-DUNE-2	BMP BIO-54, BMP BIO-31, BMP BIO-49, and BMP BIO-53
CMA LUPA-BIO-DUNE-3	BMP WQ-06, BMP WQ-07, and BMP BIO-49
CMA LUPA-BIO-DUNE-4	BMP BIO-49 BMP BIO-53, BMP BIO-54, and BMP BIO-55
CMA LUPA-BIO-PLANT-3	BMP BIO-31
CMA LUPA-BIO-RIPWET-1.	AMP BIO-11, BMP BIO-11, BMP BIO-19, APM BIO-20, BMP BIO-29, BMP BIO-47, BMP BIO-50, BMP BIO-51, and BMP BIO-52
CMA LUPA-BIO-RIPWET-3	APM BIO-02, APM BIO-20, APM BIO-25, MM BIO-CEQA-2, and MM BIO-CEQA-6
CMA LUPA-BIO-SVF-1	APM BIO-11 and BMP BIO-11
CMA LUPA-BIO-SVF-6.	BMP BIO-50, BMP BIO-51, and BMP BIO-52
CMA LUPA-BIO-VEG-1.	APM BIO-11, BMP BIO-11, and BMP BIO-41
CMA LUPA-BIO-VEG-2	BMP BIO-42
CMA LUPA-BIO-VEG-5	BMP BIO-41
CMA LUPA-SW-13	BMP BIO-19 and BMP BIO-47
CMA LUPA-TRANS_BIO-4	APM AES-05, BMP BIO-53, and BMP BIO-54

Impact BIO 3 - Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

Potentially Significant – Less than Significant with Mitigation

The aquatic and associated wetland habitats that are crossed by the Project are the Colorado River and various canals and drains serving agricultural areas west of the Colorado River. A backwater channel east of and parallel to the mainstem river is present between potential Project crossing locations, which would be avoided by spanning the aquatic habitat.

The primary assumptions for analyzing impacts to wetlands, WOUS, and CDFW jurisdictional waters are:

- Ephemeral drainages/washes are regulated under Sections 404 and 401 of the Clean Water Act and Section 1600 of the California Department of Fish and Game Code. Linear water features crossed by the ROW would be a potential WOUS or CDFW jurisdictional water that could be impacted are identified in Section 3.19.3.1 of the TES (BLM 2018).
- Wetlands crossed by the ROW that could be impacted are identified in Section 3.19.3.1 of the TES.
- Final design and placement of the ROW and the permitting process that is required under Sections 404 and 401 of the CWA would attempt to avoid wetlands, WOUS, and CDFW jurisdictional waters, thus impacting only those where disturbance is unavoidable. For example, a WOUS, wetland, or CDFW jurisdictional water would be considered unavoidable if it is large enough or configured such that it cannot be spanned with the typical span length of 1,200 feet.

Most Project segments have potential non-wetland WOUS and CDFW jurisdictional crossings and would require Section 404/401 and Section 1600 permitting if avoidance is not possible. In addition to compliance with Section 404 of the Clean Water Act, construction in segments that cross the Colorado River would also need to comply with Section 10 of the Rivers and Harbors Act, which would ensure that any physical alterations of the associated channel, wetland, or floodplain would be mitigated to ensure continuing functioning. TES Table 3.19-4 shows the number of crossings in these segments, which make up the combined lengths in TES Table 4.19-4.

The importance of intermittent and ephemeral streams to wildlife in arid environments is well known (Levick et al. 2008). Ephemeral drainages, such as those occurring in the Project Area, provide unique habitat that is distinct from the surrounding uplands providing more continuous vegetation cover and micro-topographic diversity than the surrounding uplands. Ephemeral and intermittent streams in the arid west provide important habitat for wildlife and are responsible for much of the biotic diversity (Levick et al. 2008). They have higher moisture content and provide shade and cooler temperatures within the channel. In cases where the habitat is distinct in species composition, structure, or density, wash communities provide habitat values not available in the adjacent uplands. [CPUC 2016]

Direct impacts to CDFW, State, and federal waters would include the removal of native riparian vegetation, the discharge of fill, degradation of water quality, and increased erosion and sediment transport. Indirect impacts could include alterations to the existing topographical and hydrological conditions and the introduction of non-native, invasive plant species. Operational impacts to wetland habitats would be similar to direct and indirect impacts. As required by law, the Project would comply with the regulations regarding conducting Project activities in water courses and habitats under the jurisdiction of the State and federal government. Therefore, the Project would obtain required permits pursuant to Section 401 and 404 of the CWA, the State Porter-Cologne Act, and Fish and Game Code Section 1602. Due to the importance of riparian habitats and ephemeral/perennial drainages and their suitability to support special status species, any loss of the habitats described above associated with the Project would be considered a significant adverse impact without mitigation.

To minimize and/or avoid impacts to jurisdictional waters/wetlands a suite of APMs, BLM BMPs, and MMs have been developed for the Project. The Project will be designed to avoid impacts to riparian habitats and other special status biological resources (APM BIO-13, APM BIO-15, BMP BIO-50, and BMP BIO-51). Pre-construction surveys of disturbance zones would include preparation of maps delineating special vegetation features including jurisdictional waters for avoidance (BMP BIO-52). Other measures that would be implemented to avoid and minimize impacts during construction include implementation of a worker environmental awareness program (APM/BMP BIO-1 and MM BIO-CEQA-1), limiting activities to established work areas (APM/BMP BIO-3), establishing environmentally sensitive areas (APM BIO-4), establishing prohibited activities along the Project alignment (APM BIO-8), minimizing vegetation clearing (APM BIO-14), limiting off-road vehicular travel (APM BIO-17), limit vegetation removal (BMP VEG-1 and BMP VEG-2), and implement biological resources construction monitoring (MM BIO-CEQA-2) and best management practices (MM BIO-CEQA-3).

Compensation for temporary impacts to jurisdictional waters/wetlands will include on-site habitat restoration with similar species compositions to those present prior to construction at a ratio of 1:1 (MM BIO-CEQA-13). Compensation for permanent impacts to jurisdictional waters/wetlands will include a) on-site habitat creation or enhancement with similar species compositions to those present prior to construction, b) off-site creation, enhancement, and/or preservation or c) participation in an established mitigation bank program (MM BIO-CEQA-13). Desert riparian woodland (blue palo verde-irownwood woodland and mesquite thickets) would be compensated at a ratio of 5:1 (MM BIO-CEQA-12). The Vegetation Management Plan (APM BIO-11) and the HRMMP (APM/BMP BIO-15 and MM BIO-CEQA-4) will outline the planting/seeding methodologies, qualitative/quantitative monitoring requirements, success criteria, and reporting procedures. Further, a Noxious Weed Control Plan would be prepared and implemented to address potential impacts associated with the colonization and spread of noxious weeds (APM BIO-12).

Compliance with CDCA CMAs Applicable to Jurisdictional Habitats

Table 2.4-3 presents a list of CMAs applicable to jurisdictional habitats that have already been addressed above in detail under Impact BIO-1.

Table 2.4-3 CMAs Addressed Under Impact BIO-1 Applicable to Jurisdictional Habitats

CMA	APPLICABLE APM, BMP, AND/OR MM
CMA LUPA-BIO-9	APM BIO-08, APM BIO-07, APM BIO-10, BMP HAZ-03, and APM HAZ-01
CMA LUPA-BIO-RIPWET-1.	AMP BIO-11, BMP BIO-11, BMP BIO-19, APM BIO-20, BMP BIO-29, BMP BIO-47, BMP BIO-50, BMP BIO-51, and BMP BIO-52
CMA LUPA-BIO-RIPWET-3	APM BIO-02, APM BIO-20, APM BIO-25, MM BIO-CEQA-2, and MM BIO-CEQA-6
CMA LUPA-SW-16	APM BIO-19

Impact BIO 4 - Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

Potentially Significant – Less than Significant with Mitigation

An identified 5-mile-wide wildlife movement corridor centered on Wiley's Well Road provides linkage across I-10 between the Mule and McCoy mountains; refer to Figure D-1 in Appendix D of the DRECP LUPAa for a graphical depiction of this corridor. The Project is 4.5 miles from the Project and outside the linkage corridor (2.5 miles to each side of Wiley's Well Road).

Migratory songbirds utilizing the riparian vegetation associated with the Colorado River and various canals and drains serving agricultural areas west of the Colorado River for breeding, nesting, and foraging, or at a minimum, as transient rest sites during migration flights are likely to utilize the Project site for foraging opportunities and as a rest site.

Terrestrial wildlife may disperse from the riparian corridor of the Colorado River and cross through the Project site; however, the existing agricultural operations west of the Colorado River likely limit wildlife activity in this general area.

Direct impacts resulting from the construction of Project include the placement of physical structures such as poles/towers and fencing. Ground-disturbing activity including vegetation removal and tower/pole site preparation are expected to temporarily interfere with terrestrial wildlife movement during construction of the Project. The Project could also affect wildlife in adjacent habitats by interfering with movement patterns or causing animals to temporarily avoid areas adjacent to the construction zone. More mobile species such as birds and larger mammals would likely disperse into adjacent habitat areas during ground disturbing activities.

Indirect impacts include human disturbance, colonization or expansion of invasive weeds, bird collisions with the transmission line, and vehicle traffic. Operational impacts would be the same as described for direct and indirect impacts. Construction activities may temporarily limit terrestrial wildlife movement within the Project Area; however, the broad geographic range and habitat that occurs in the region would remain available to wildlife. The Project would not

substantially interfere with the movement of any native resident or migratory fish, reptile, avian, mammalian, or amphibian species.

There are no known bird or bat migratory corridors that would be directly impeded by the Project. Large concentrations of migrants are known to utilize the Colorado River. Additionally, the agricultural areas and various canals and drains support many resident and migrant species. However, the Project's activities and operation are not expected to preclude use of the area. Most avian species will continue to fly through the project alignment during north and southbound migrations along the Pacific Flyway. Since the Project has an east-west orientation, avian species will be primarily flying perpendicular to the transmission lines and may collide with the lines.

Several APMs and BMPs would be implemented to ensure that impacts to wildlife movement are reduced to a less-than-significant level. The Project will be designed to avoid impacts to special status biological resources (APM BIO-12, APM BIO-15, BMP BIO-50, BMP BIO-51, BMP BIO-53, and BMP BIO-55). In particular, APM BIO-13 requires that riparian areas and xeroriparian drainages that occur within the easement would be denoted as environmentally sensitive areas and would be avoided during construction to the extent practicable. This will avoid and/or minimize impacts to riparian-dependent species. Other measures that would be implemented to avoid and minimize impacts include limiting activities to established work areas (APM/BMP BIO-3), installing escape ramps (APM BIO-9), erosion and dust control (APM BIO-10), limiting off-road vehicular travel (APM BIO-17), reduce bird collisions and other protections (BMP BIO-19 through APM/BMP BIO-21, and BMP BIO-48), implement a bird and bat conservation strategy (BMP BIO-29), seasonal restrictions (BMP BIO-32), manage construction lighting, water, and materials to benefit wildlife (BMP BIO-33 through BMP BIO-36), use bird and bat-friendly fencing (BMP BIO-39), and implement biological resources best management practices (MM BIO-CEQA-3). The Vegetation Management Plan (APM BIO-11) and the HRMMP (APM/BMP BIO-15 and MM BIO-CEQA-4) will outline the planting/seeding methodologies, qualitative/quantitative monitoring requirements, success criteria, and reporting procedures. Further, a Noxious Weed Control Plan would be prepared and implemented to address potential impacts associated with the colonization and spread of noxious weeds (APM BIO-12).

Compliance with CDCA CMAs Applicable to Wildlife Movement

Table 2.4-4 presents a list of CMAs applicable to wildlife movement that have already been addressed above in detail under Impact BIO-1.

Table 2.4-4 CMAs Addressed Under Impact BIO-1 Applicable to Wildlife Movement

CMA	APPLICABLE APM, BMP, AND/OR MM
CMA LUPA-BIO-13	APM BIO-11, BMP BIO-11, APM BIO-13, BMP BIO-31, BMP BIO-52, APM BIO-4, APM BIO-22, BMP BIO-33, APM BIO-03, BMP BIO-03, APM BIO-17, BMP BIO-53, BMP BIO-55, and BMP T&T-04

Impact BIO 5 - Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

No Impact

County of Riverside Ordinance No. 559 regulates the removal of trees within the County. This ordinance states:

> *No person shall remove any living native tree on any parcel or property greater than one-half acre in size, located in an area above 5,000 feet in elevation and within the unincorporated area of the County of Riverside, without first obtaining a permit to do so, unless exempted by the provisions of Section 4 of this ordinance.*

Since the Project Area is below 5,000 feet in elevation the Project is not subject to this ordinance. Were portions of the Project located above this elevation it would be it would meet an exemption to the ordinance for any activities conducted by a public utility, subject to the jurisdiction of the Public Utilities Commission or any other constituted public agency, it would not conflict with the Riverside County Tree Ordinance. Therefore, the Project will not conflict with any local policies or ordinances protecting biological resources such as a tree preservation policy or ordinance and the Project would have no impact.

Impact BIO 6 - Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

No Impact

The Project would comply with state laws, regulations, and orders in the conservation and management of biological resources, including the California Endangered Species Act (California Fish and Game Code [CFGC] 2050, et seq.), California Native Plant Protection Act of 1977 (CFGC 1900–1913), California Fish and Game Code 1600–1603, Streambed Alteration Agreement, California Fish and Game Code 3511, 4700, 5050, and 5515, Fully Protected Wildlife, California Fish and Game Code 3500–3516, Protection of Birds. Additionally, no lands within the study area were specifically addressed by the California Desert Protection Act of 1994.

The Project does not cross areas designated under the DRECP (BLM 2016) or other applicable BLM management plans (BLM 1980, 2002a) as Areas of Critical Environmental Concern or as other areas designated for the conservation or focused management of biological resources or their habitat. BLM-managed lands in California that are crossed by the Project are classified in the DRECP as Development Focus Areas. DRECP and CDCA/NECO, are described below, as they both allow for utility uses within designated corridors.

California Desert Conservation Plan (CDCA) amended by Northern and Eastern Colorado Desert Coordinated Management Plan (NECO)

As discussed in Section 3.8.3.1 of the TES (BLM 2018), the BLM's management of Federal lands within the land use study area in California is directed by the 1980 California Desert Conservation Area (CDCA) Plan (BLM 1980), which was amended in 2002 by the Northern and Eastern Colorado Desert Coordinated Management (NECO) Plan (BLM 2002b). This plan applies to

Federal lands in the Palm Springs Field Office planning area and includes BLM-managed lands. The NECO planning area is located primarily in the Sonoran Desert of San Bernardino, Riverside, and Imperial counties in southeastern California.

Desert Renewable Energy Conservation Plan (DRECP)

As discussed in Section 3.8.3.1 of the TES, the DRECP Land Use Plan Amendment (BLM 2016) further amended the CDCA Plan. This land use plan amendment was developed to help manage Federal lands in compliance with the 2013 Presidential goal to approve an additional 10,000 MW of energy generation on public land by 2020. Along with the management considerations in the land use plan amendment, the BLM will continue to manage resources and uses on BLM-administered lands by following existing land use planning decisions under the NECO Plan. In preparing the CDCA Plan, the NECO Plan, and the DRECP land use plan amendment, the Palm Springs Field Office coordinated with Federal, state, local, and tribal officials and reviewed several plans that outline policies and guide activities of the agencies and organizations. The Palm Springs Field Office has identified 12 utility corridors in its planning area. To minimize impacts on BLM-managed lands, new infrastructure should be within these designated corridors, each of which is between 1 and 2 miles wide.

Section 2.4.2 above presents a suite of APMs and BMPs that have been developed/identified to comply with the CMAs contained in the CDCA of the DRECP; specific MMs presented in Section 2.4.6 below also provide compliance with the CMA's of the CDCA. A complete list of CMAs applicable to the Project are presented in EIS Appendix 2C. An analysis of which APMs, BMPs, or MMs provide compliance with the CDCA is provided under each impact discussion presented in Section 2.4.5.

With the implementation of the above mentioned APMs, BMPs, and MMs the Project complies with provisions of an all applicable Habitat Conservation Plans, Natural Community Conservation Plans, or other approved local, regional, or state habitat conservation plans and will therefore no impacts to applicable plans would occur.

2.4.6 Biological Resources Mitigation

The following mitigation measures have been developed to reduce and/or avoid impacts to biological resources:

MM BIO-CEQA-1 Implement a Worker Environmental Awareness Program: Prior to any work activities on the Project site, including surveying, mobilization, fencing, grading, or construction, a Worker Environmental Awareness Program (WEAP) will be prepared; the WEAP will be approved by the CPUC with a final version complete prior to the issuance of construction permits. The WEAP will be implemented throughout the duration of Project related construction activities, including O&M phases. The WEAP will include, at a minimum, the following items:

- Maps showing the known locations of listed and/or special status wildlife, populations of listed and rare plants and sensitive vegetation communities, riparian habitats, seasonal depressions and known waterbodies, wetland habitat, exclusion areas, and other construction limitations.

- A discussion of measures to be implemented for avoidance of sensitive resources discussed in the EIS (including this appendix) and the identification of an onsite contact in the event of the discovery of sensitive species on the site; this will include a discussion on micro trash.
- Training materials and briefings will include but not be limited to: a discussion of the Federal and State Endangered Species Acts, Bald and Golden Eagle Protection Act, and the Migratory Bird Treaty Act; the consequences of non-compliance with these acts; identification and values of plant and wildlife species and significant natural plant community habitats; hazardous substance spill prevention and containment measures; a contact person and phone number in the event of the discovery of dead or injured wildlife; and a review of mitigation requirements.
- Protocols to be followed when road kill is encountered in the work area or along access roads and the identification of an onsite representative to whom the road kill will be reported. Road kill will be reported to the appropriate local animal control agency and CPUC within 24 hours. Road kill of special status species will also be reported to the CDFW and USFWS (for federally listed species) per MM BIO-CEQA-2. Special status species mortalities should be reported to the CPUC, CDFW, and USFWS within 24 hours or as otherwise required by the project's regulatory permits.
- Literature and photographs or illustrations of potentially occurring special status plant and/or wildlife species will be provided to all Project contractors and heavy equipment operators.
- A special hardhat sticker or wallet size card will be issued to all personnel completing the training, which will be carried with the trained personnel at all times while on the Project site.
- All new personnel will receive this training and may work in the field for no more than 5 days without participating in the WEAP. A log of all personnel who have completed the WEAP training will be kept on site.
- A copy of the WEAP will be kept at an easily accessible location within the Project site (i.e., foreman's vehicle, construction trailer, etc.) for the duration of the Project.
- A standalone version of the WEAP will be developed, that covers all previously discussed items above, and that can be used as a reference for maintenance personnel during Project operations.

MM BIO-CEQA-2 Implement Biological Construction Monitoring: No more than 30 days prior to the start of site mobilization or ground disturbing activities, the applicant will retain a qualified and/or designated biologist(s) to monitor construction of the Project. Qualified and Designated Biologists must be approved by the CPUC and BLM prior to conducting construction monitoring. The biologist(s) must be knowledgeable with the life history and habitat requirements of State and/or federally listed and special status plants, mammals, reptiles, amphibians, and birds. The qualified/designated biologist(s) will conduct clearance surveys for listed and special status species prior to the start of construction activities each work day during initial site disturbance; clearance surveys can be conducted on a weekly basis thereafter. The qualified biologist(s)

monitoring for and handling desert tortoise must be USFWS-approved designated biologists and comply with the Biological Opinion assumed to be issued for the Project.

During initial site disturbance and for the duration of construction the qualified/designated biologist(s) will be on-site at all times when activities will occur immediately adjacent to, or within, habitat that supports populations of listed and/or special status species. The qualified/designated biologist(s) will relocate any terrestrial special status species that would be impacted by the Project; permits and/or a Memorandum of Understanding (MOU) may be required for some species). All locations of listed and/or special status plants will be flagged for avoidance. Buffers for occurrences of listed and or special status species will be implemented as described in MM-BIO-CEQA-07. A setback of 0.25 mile for all Focus and BLM Special Status Plant Species is required.

If, during construction, the biological monitor observes a dead or injured special status wildlife species on the construction site, a written report will be sent to the CPUC, CDFW and/or USFWS (as appropriate) within five calendar days. The report will include the date, time of the finding or incident (if known), and location of the carcass or injured animal and circumstances of its death or injury (if known). Injured animals will be taken immediately to the nearest appropriate veterinary or wildlife rehabilitation facility. The biological monitor will, immediately upon finding the remains or injured animal, coordinate with the onsite construction foreman to discuss the events that caused the mortality or injury, if known, and implement measures to prevent future incidents. Details of these measures will be included with the report. Species remains will be collected and frozen as soon as possible, and CDFW and USFWS, as appropriate, will be contacted regarding ultimate disposal of the remains. [CPUC 2016]

MM BIO-CEQA-3 Implement Biological Resources Best Management Practices: BMPs will be implemented as standard operating procedures during all ground disturbance and construction related activities to avoid or minimize Project related impacts on biological resources. Compliance with BMPs will be documented, provided to CPUC on a weekly basis, and provided in a written report on an annual basis. The report will include a summary of the construction activities completed, a review of the sensitive plants and wildlife encountered, a list of compliance actions and any remedial actions taken to correct the actions, and the status of ongoing mitigation efforts. The APMs, BLM BMPs, and CMAs in Sections 2.4.2 and 2.4.3 above provide a suite of BMPs to be implemented for the Project. Additional BMPs to be implemented, that were not previously addressed in these sections, include but are not limited to the following:

- Speed limit signs, imposing a speed limit of 15 miles per hour, will be installed where construction vehicles would travel on unpaved public and private roads (without existing posted limits) throughout the Project site prior to initiation of site disturbance and/or construction. Off-road traffic outside of designated Project areas will be prohibited.
- Prior to ground disturbance of any kind all Project related work areas will be clearly delineated by stakes, flags, or other clearly identifiable system.
- Any vehicles driven and/or operated within or adjacent to drainages or wetlands will be checked and maintained daily to prevent leaks of materials.
- No firearms will be allowed on the Project site, unless otherwise approved for security personnel.

- Any contractor or employee that inadvertently kills or injures a special status animal, or finds one either dead, injured, or entrapped, will immediately report the incident to the onsite representative identified in the WEAP. The representative will contact the USFWS, CDFW, and CPUC by telephone by the end of the day, or at the beginning of the next working day if the agency office is closed. In addition, formal notification will be provided in writing within three working days of the incident or finding. Notification will include the date, time, location and circumstances of the incident.
- Use of rodenticides is restricted in areas that may support special status wildlife.
- During the site disturbance and/or construction phase, grading and construction activities, when possible, should not occur before dawn and after dusk.
- All pipes and culverts with a diameter of greater than 4 inches will be capped or taped closed. Prior to capping or taping the pipe/culvert will be inspected for the presence of wildlife. If encountered the wildlife will be allowed to escape unimpeded.
- Develop a plan to address nuisance animals within the Project site.
- Dune formations and other sand accumulations (i.e., sand ramps, sand sheets) with suitable habitat characteristics for the Mojave fringe-toed lizard (i.e., unconsolidated blow-sand) will be mapped according to mapping standards established by the BLM National Operations Center.

MM BIO-CEQA-4 Develop a Habitat Restoration, Mitigation, and Monitoring Plan: The intent of this mitigation measure is to require the Applicant to restore temporarily disturbed areas to pre-construction conditions or better and provide for habitat creation/restoration resulting from permanent impacts to sensitive vegetation communities and jurisdictional habitats (refer to MM BIO-CEQA-12 and MM BIO-CEQA-13). Prior to the site mobilization activities and removal of any vegetation, the Applicant will retain a qualified biologist (approved by the CPUC) knowledgeable in the area(s) of restoration as they pertain to the on-site vegetation communities and jurisdictional habitats, to prepare a Habitat Restoration, Mitigation, and Monitoring Plan (HRMMP); the plan must be approved by the CPUC and CDFW prior to the start of site mobilization activities. This biologist will also be responsible for monitoring the implementation of the plan as well as the progress on achieving the established success criteria. [CPUC 2016]

The purpose of the HRMMP will be to explicitly identify the process by which all temporarily disturbed areas will be restored to pre-construction conditions. The plan will also address restoration and revegetation related to permanent impacts to sensitive vegetation communities and jurisdictional habitat disturbance from construction. The plan will include, at a minimum, the following items:

- Figures depicting areas proposed for temporary disturbance: The HRMMP will include detailed figures indicating the locations and vegetation types of areas proposed for temporary disturbance. These figures will be updated, as necessary, to reflect current site conditions should they change.
- Proposed species for restoration/revegetation: The species palate proposed for restoration/revegetation will include an appropriate native seed mix representative of the current species composition in the restoration/revegetation areas, and will not contain non-

native invasive species. Seed should be sourced from genetic stock appropriate to eastern Riverside County; if seed from genetic stock appropriate to eastern Riverside County is not available the source of available seed must be approved by the BLM and CPUC prior to use in any species palates.

- Planting methodology: A description of the preferred methods proposed for seeding will be provided (e.g., hydroseeding, drill seeding, broadcast seeding, etc.). Additionally, a discussion on timing of seeding, type of irrigation system proposed (as needed), type and duration of irrigation, and erosion controls proposed for revegetation activities will be included.
- Schedule: A proposed schedule for all restoration and/or habitat creation will be provided. When applicable restoration or habitat creation activities will occur once construction activities are complete within a specific area; the Project area should be broken up into sections based on the required construction activities. Once construction is complete within a defined section, restoration and/or habitat creations should commence. Restoration and/or creation of habitat should occur within an appropriate window for each specific community and species makeup (i.e., impacts to habitat during the summer months may not be initiated until the fall to promote native seed germination).
- Success criteria: A description of the success criteria for the restoration/revegetation efforts, and supplemental activities to be conducted to ensure success criteria are met.
- Monitoring program: Areas subject to restoration/revegetation will be monitored to assess progress and to make recommendations for successful habitat establishment. Monitoring will be performed by a qualified biologist(s) knowledgeable in the area of habitat restoration specific to the on-site vegetation communities. Monitoring should include, at a minimum:
    - Qualitative Monitoring: Qualitative monitoring surveys will be performed monthly in all restored/revegetated areas for the first year following planting in any phase of the Project. Qualitative monitoring will be on a quarterly schedule thereafter, until final completion and approval by the appropriate regulatory agencies. Qualitative surveys will assess native plant species performance, including growth and survival, germination success, reproduction, and plant fitness and health as well as pest or invasive plant problems.
    - Monitoring at this stage will indicate need for remediation or maintenance work well in advance of final success/failure determination. The monitoring reports will describe site progress toward achieving success criteria, conditions, and all observations pertinent to eventual success, and make recommendations as appropriate regarding remedial work, maintenance, etc.
    - Quantitative Monitoring: Quantitative monitoring will occur annually for years one to five or until the success criteria are met. Within each revegetation area, the biologist will collect data in a series of 1 m2 quadrats to estimate cover and density of each plant species within the restored/revegetated areas. In year 2 or 3, depending on the growth within the restoration area, the qualitative monitoring methods may deviate from the quadrat methodology to toepoint transects based on methods described by Evans and Love (1957). Data will be used to measure native species growth performance, to estimate native and non-native species coverage, seed mix

germination, native species recruitment and reproduction, and species diversity. Based on these results, the biologist will make recommendations for maintenance or remedial work on the site and for adjustments to the approved seed mix.

- Reporting – Reporting will include progress reports summarizing site status and recommended remedial measures that will be submitted by the biologist on a quarterly basis, with the exception of the site visits immediately preceding the development of each annual status report (see below). Each progress report will list estimated species coverage and diversity, species health and overall vigor, the establishment of volunteer native species, topographical/soils conditions, problem weed species, the use of the site by wildlife, significant drought stress, and any recommended remedial measures deemed necessary to ensure compliance with specified success criteria.

One annual site status report that summarizes site conditions will be forwarded by the qualified biologist to the appropriate regulatory agencies (i.e., USACE, CDFW, and CPUC) at the end of each year following implementation of this plan until the established success criteria have been met. Each annual report will list plant species coverage and diversity measured during yearly quantitative surveys, compliance/non-compliance with required success criteria, species health and overall vigor, the establishment of volunteer native species, hydrological and topographical conditions, use of the site by wildlife, and the presence of invasive weed species. In the event of substantial non-compliance with the required success criteria, the reports will include remedial measures deemed necessary to ensure future compliance with specified performance criteria. [CPUC 2016]

Each annual report will include, at the minimum:

- The name, title, and company of all persons involved in restoration monitoring and report preparation;
- Maps or aerials showing restoration areas, transect locations, and photo documentation locations;
- An explanation of the methods used to perform the work, including the number of acres treated for removal of non-native plants; and
- An assessment of the treatment success.

MM BIO-CEQA-5 Develop a Special Status Plant Transplantation and Compensation Plan:

As described in the impact analysis (Section 2.4.5) and in the APMs and BMPs presented in Sections 2.4.2, the Project will make every effort to avoid impacts to listed and/or special status plants. If impacts cannot be avoided, consistent with measures approved for the Devers-Palo Verde No. 2 Transmission Line Project (occurs approximately 200ft north of the Project) and in coordination with the BLM, the Applicant will prepare a transplanting plan in compliance with both Arizona and California laws and regulations regarding native and sensitive plants, prior to project construction activities. The plan will provide details on the plants being transplanted, including which species and how many individuals of each species; where the plants will be transplanted; how the plants will be transplanted; how the plants will be maintained during the transplanting efforts; and if the plants will be used to re-vegetated disturbed areas of the construction site. As a condition of the plan, a pre-construction survey will be conducted to mark

(using bright-colored flagging) all plants that will be transplanted. Some cacti will need to be transplanted facing the same direction as they currently face (in other words, the north side of the plant must stay facing the north); these cacti will be identified in the plan and appropriately marked to identify which side faces north.

The plan will include, at a minimum, the following items:

- Figures depicting the location of species to be impacted and areas proposed for transplantation activities. These figures will be updated, as necessary, to reflect current site conditions should they change.
- Planting methodology: A description of the preferred methods proposed for transplantation activities shall be provided. Additionally, a discussion on timing of planting, type of irrigation system proposed (as needed), type and duration of irrigation, and erosion controls proposed for revegetation activities will be included.
- Schedule: A proposed schedule for all transplantation activities will be provided
- Success criteria: A description of the success criteria for the transplantation efforts, and supplemental activities to be conducted to ensure success criteria are met.
- Monitoring program: All transplanted individuals will be monitored to assess progress and to make recommendations for successful establishment. Monitoring will be performed by a qualified biologist(s) knowledgeable in the area of habitat restoration specific to the species being transplanted. Monitoring should include, at a minimum:
    - Qualitative Monitoring: Qualitative monitoring surveys will be performed monthly in all transplantation areas for the first year following. Qualitative monitoring will be on a quarterly schedule thereafter, until final completion and approval by the appropriate regulatory agencies. Qualitative surveys will assess species performance, including growth and survival and plant fitness and health as well as pest or invasive plant problems.
    - Monitoring at this stage will indicate need for remediation or maintenance work well in advance of final success/failure determination. The monitoring reports will describe site progress toward achieving success criteria, conditions, and all observations pertinent to eventual success, and make recommendations as appropriate regarding remedial work, maintenance, etc.
    - Quantitative Monitoring: Quantitative monitoring will occur annually for years one to five or until the success criteria are met. Data collection will include counts of transplanted individuals to determine mortality estimates/percentages. Based on these results, the biologist will make recommendations for maintenance or remedial work on the site and for adjustments to management activities.
- Reporting – Progress reports will include summarizing site status and recommended remedial measures that will be submitted by the biologist on a quarterly basis, with the exception of the site visits immediately preceding the development of each annual status report (see below). Each progress report will list estimated species survival, species health and overall vigor, the establishment of volunteer native species, topographical/soils conditions, problem weed species, the use of the site by wildlife, significant drought stress,

and any recommended remedial measures deemed necessary to ensure compliance with specified success criteria.

Compensation for temporary impacts to potential special status species habitat will include on-site habitat creation or enhancement with similar species compositions to those present prior to construction at a ratio of 1:1; the HRMP described under MM BIO-CEQA-4 will outline the planting/seeding methodologies, qualitative/quantitative monitoring requirements, success criteria, and reporting procedures. It is assumed that Project-related impacts would result in the loss of more than 10% of the on-site population of any special status plant species with a CRPR of 1 or 2. As a result, compensation for permanent impacts to potential special status plant species habitat will include off-site creation, enhancement, and/or preservation or participation in an established mitigation bank program at a minimum 3:1 replacement ratio. Additional mitigation may be proposed by each agency during the regulatory permitting process. Mitigation for impacts to special status plant species habitat shall consider and overlap with compensation for special status wildlife, sensitive vegetation communities, and jurisdictional waters and wetlands.

The Applicant will provide for open space/conservation easements on all acquired lands or provide the required funds for the acquisition of easements to a "qualified easement holder"; the CDFW is a qualified easement holder. To qualify as a "qualified easement holder" a private land trust must have substantial experience managing open space/conservation easements that are created to meet mitigation requirements for impacts to special status species, adopted the Land Trust Alliance's Standards and Practices, and have a stewardship endowment fund to pay for its perpetual stewardship obligations. The Applicant will also provide the "qualified easement holder" with adequate funds to cover administrative costs incurred during the creation of the easement, funds in the form of a non-wasting endowment to cover the cost of monitoring and enforcing the terms of the easement in perpetuity.

MM BIO-CEQA-6 Pre-construction Surveys for Nesting and Breeding Birds and Implement Avoidance Measures: The Applicant will retain a qualified avian biologist(s) to conduct pre-construction nesting bird surveys, within the recognized breeding season (generally 15 Feb – 15 Sep [1 Jan – 15 Aug for raptors]), for all areas within 500 feet of construction activities; construction activities include mobilization, staging, grading, and/or construction. These survey dates may only be modified with the approval of CDFW and USFWS (where applicable). Measures intended to exclude nesting birds will only be implemented with the prior approval by the CDFW and/or USFWS.

If breeding birds with active nests are found prior to or during construction, the qualified avian biologist will establish a minimum 300-foot buffer (500 foot for raptors) around the nest and no activities will be allowed within the buffer(s) until the young have fledged from the nest or the nest fails. [CPUC 2016]

The prescribed buffers may be adjusted by the qualified avian biologist based on existing conditions around the nest, planned construction activities, tolerance of the species, and other pertinent factors. Buffer reductions for listed or special status species may require coordination with the USFWS and/or CDFW. The qualified avian biologist will conduct regular monitoring of the nest to determine success/failure and to ensure that Project activities are not conducted within the buffer(s) until the nesting cycle is complete or the nest fails. The avian biologist will be responsible for documenting the results of the surveys, nest buffers implemented, and the results

of ongoing monitoring and will provide a copy of the monitoring reports for impact areas to the appropriate resource agencies (i.e., USFWS and CDFW). [CPUC 2016]

If trees with nests are to be removed as part of Project construction activities, they will be done so outside of the nesting season to avoid additional impacts to nesting raptors. If removal during the nesting season cannot be avoided all trees will be inspected for active nests by the avian biologist. If nests are found within these trees, and contain eggs or young, no activities within a 300-foot buffer for nesting birds and/or a 500-foot buffer for raptors will occur until the young have fledged the nest. [CPUC 2016]

MM BIO-CEQA-7 Prepare and Implement a Nesting Bird Management Plan: The Project applicant will prepare a Nesting Bird Management Plan (NBMP) in coordination with and approval by the applicable permitting/resource agencies (i.e., BLM, CDFW, USFWS, CPUC). The purpose of the plan is to outline measures/methods to minimize potential project effects to nesting birds and avoid unauthorized take; the NBMP will be approved by the above noted agencies prior to the site disturbance or pre-construction activities.

The NBMP will, at a minimum, include the following:

- Definitions of standard nest buffers for each species or group of species, depending on characteristics and conservation status for each species
- A notification procedure for buffer distance reductions should they become necessary under special circumstances
- A monitoring protocol including qualifications of monitors, monitoring schedule, and field methods, to ensure that any project-related effects to nesting birds will be minimized
- A protocol for documenting and reporting any inadvertent contact or effects to birds or nests
- A summary of applicable State and federal laws and regulations, including definition of what constitutes a nest or active nest under state and federal law.
- A list of bird species potentially nesting on or near the Project area, indicating approximate nesting seasons, nesting habitat, typical nest locations (e.g., ground, vegetation, structures, etc.), tolerance to disturbance (if known) and any conservation status for each species.
- A discussion of how construction of the Project has been scheduled, to avoid or minimize project impacts to nesting birds. Activities that may adversely affect breeding birds will be scheduled outside the nesting season, as feasible.
- Discussion on nest buffer modification or reduction guidelines, including reporting procedures to the appropriate agencies (i.e., CDFW, USFWS, and CPUC).
- Discussion on use of nest deterrents and communication protocols for on-site monitors
- Monitoring and reporting requirements
- Detailed noise monitoring guidelines for active breeding territories and/or nests for special status species that may occur within 500-feet of the Project Area.

- Procedures for the calculation of a fee, to be reassessed every five years, to fund compensatory mitigation for bird and bat mortality impacts; this shall be based on requirements described in CMA LUPA-BIO-COMP-2.

MM BIO-CEQA-8 Complete Focused Pre-Construction Burrowing Owl Surveys and Implement Avoidance Measures: Prior to initial ground disturbance (no more than 15 days prior) the Project applicant will conduct focused survey for burrowing owl. Surveys will be conducted by a qualified biologist knowledgeable with the species in conformance with CDFW's 2012 Staff Report on burrowing owl mitigation. The following avoidance measures will be implemented for the Project:

- Occupied burrows will not be disturbed during the nesting season (1 February through 31 August) unless a qualified biologist approved by CDFW verifies through non-invasive methods that either the birds have not begun egg-laying and incubation or that juveniles from the occupied burrows are foraging independently and are capable of independent survival.
- Unless otherwise authorized by CDFW and the CPUC, a 250-foot buffer, within which no activity will be permissible, will be maintained between Project activities and nesting burrowing owls during the nesting season. This protected area will remain in effect until 31 August or based upon monitoring evidence, until the young owls are foraging independently.
- If there is any danger that owls will be injured or killed as a result of construction activity, during the non-breeding season, the birds may be passively relocated. Relocation of owls during the non-breeding season will be performed by a qualified biologist using one-way doors, which should be installed in all burrows within the impact area and left in place for at least two nights. These one-way doors will then be removed, and the burrows backfilled immediately prior to the initiation of grading. To avoid the potential for owls evicted from a burrow to occupy other burrows within the impact area, one-way doors will be placed in all potentially suitable burrows within the impact area when eviction occurs.
- Any damaged or collapsed burrows will be replaced with artificial burrows in adjacent habitat at a 2:1 ratio.

MM BIO-CEQA-9 Conduct Protocol Surveys for Arizona Bell's Vireo, Southwestern Willow Flycatcher, and Willow Flycatcher; Avoid Occupied Habitat; Compensate Impacts: If Project related activities are scheduled to occur during the breeding season (generally 15 Feb – 15 Sep) the Applicant will have a qualified avian biologist, approved by the CPUC, conduct protocol surveys for Arizona Bell's vireo (ABV), southwestern willow flycatcher (SWFL), and willow flycatcher (WFL) in suitable habitat within the Project area and 500 feet of disturbance areas. The surveys will be of adequate duration to verify potential nest sites if work is scheduled to occur during the breeding season.

Prior to construction, documentation will be submitted providing the results of the pre-construction focused surveys for ABV, SWFL, and WFL to the CPUC for review and approval in consultation with USFWS and CDFW. Protocol or focused nest location surveys, as appropriate, will be conducted within one year prior to the start of construction and will continue annually until completion of construction and restoration activities. [CPUC 2016]

If an active breeding territory or nest is confirmed, the CPUC, USFWS, and CDFW will be notified immediately. All active nests will be monitored on a weekly basis until the nestlings fledge or the nest becomes inactive. The Applicant will provide monitoring reports to the CPUC for review on a weekly basis. In coordination with the USFWS and CDFW, a minimum 300-foot disturbance-free ground buffer will be established around the active nest and demarcated by fencing or flagging. No construction or vehicle traffic will occur within nest buffers. [CPUC 2016]

The qualified biologist will have the authority to halt construction activities and will devise methods to reduce the noise and/or disturbance in the vicinity. This may include methods such as, but not limited to, turning off vehicle engines and other equipment whenever possible to reduce noise, installing a protective noise barrier between the nest site and the construction activities, and working in other areas until the young have fledged. All active nests will be monitored on a weekly basis until the nestlings fledge. [CPUC 2016]

If impacts to suitable riparian and riparian scrub habitat cannot be avoided, the Applicant will consult with the CDFW and USFWS to obtain the appropriate take authorizations/permits prior to site mobilization activities. Compensation for temporary impacts to listed species habitat will include on-site habitat restoration at a minimum 1:1 ratio. Compensation for permanent impacts to listed species habitat will include a) off-site creation, enhancement, and/or preservation, and/or b) participation in an established mitigation bank program at a minimum 3:1 ratio. Additional mitigation may be required by each agency during the regulatory permitting process. Mitigation for impacts to listed species habitat shall consider and overlap with compensation for special status plants, sensitive vegetation communities, and jurisdictional waters and wetlands.

MM BIO-CEQA-10 Conduct Pre-construction Surveys for Listed and Special Status Terrestrial Herpetofauna and Compensate Impacts: Prior to ground disturbance or vegetation clearing within the Project site, the Applicant will retain a CPUC approved/qualified biologist to conduct surveys for terrestrial herpetofauna (i.e., lizards, snakes, turtles, etc.) where suitable habitat is present and directly impacted by construction vehicle access, or maintenance. Focused surveys will consist of a minimum of three daytime surveys and one nighttime survey within one week of vegetation clearing. The qualified biologist will be present during all activities immediately adjacent to or within habitat that supports terrestrial herpetofauna. Clearance surveys for terrestrial herpetofauna will be conducted by the qualified biologist prior to the initiation of construction each day in suitable habitat. Terrestrial herpetofauna found within the area of disturbance or potentially affected by the Project will be relocated to the nearest suitable habitat that will not be affected by the Project. Compensation for temporary impacts to desert tortoise and special status terrestrial herpetofauna (including Couch's spadefoot toad and Mojave fringe-toed lizard) potential/modeled habitat will include on-site habitat restoration at a minimum 1:1 ratio. Compensation for permanent impacts to desert tortoise potential/modeled habitat will include a) off-site creation, enhancement, and/or preservation, and/or b) participation in an established mitigation bank program at a minimum 2:1 ratio. Compensation for temporary and permanent impacts for all other special status wildlife habitat will include a combination of a) on-site habitat creation or enhancement with similar species compositions to those present prior to construction, b) off-site creation, enhancement, and/or preservation, and/or c) participation in an established mitigation bank program at a 2:1 minimum ratio. Additional mitigation may be proposed by each agency during the regulatory permitting process. Mitigation for impacts to all listed and special

status species habitat shall consider and overlap with compensation for special status plants, sensitive vegetation communities, and jurisdictional waters and wetlands. [CPUC 2016]

MM BIO-CEQA-11 Survey for Maternity Colonies or Hibernaculum for Roosting Bats: The Applicant will retain a qualified biologist, approved by the CPUC, to conduct surveys for sensitive bats prior to ground disturbance or vegetation clearing within the Project. These surveys will be conducted no more than 15 days prior to grading near or the removal of trees or other structures. Surveys will also be conducted during the maternity season (1 March to 31 July) within 300 feet of Project activities. If active maternity roosts or hibernacula are found, the structure, tree or tower occupied by the roost will be avoided (i.e., not removed), if feasible. If avoidance of the maternity roost is not feasible the qualified biologist will implement the following actions. [CPUC 2016]

- Maternity roosts: If a maternity roost will be impacted by the Project, and no alternative maternity roosts are in use near the site, substitute roosting habitat for the maternity colony will be provided on, or in close proximity to, the Project site no less than three months prior to the eviction of the colony. Alternative roost sites will be constructed in accordance with the specific bats requirements in coordination with CDFW. By making the roosting habitat available prior to eviction, the colony will have a better chance of finding and using the roost. Alternative roost sites must be of comparable size and proximal in location to the impacted colony. The CDFW will be notified of any hibernacula or active nurseries within the construction zone. [CPUC 2016]
- Exclusion of bats prior to eviction from roosts: If non-breeding bat hibernacula are found in trees scheduled to be removed, the individuals will be safely evicted, under the direction of a qualified biologist, by opening the roosting area to allow airflow through the cavity or other means determined appropriate by the bat biologist (e.g., installation of one-way doors). In situations requiring one-way doors, a minimum of one week will pass after doors are installed and temperatures should be sufficiently warm for bats to exit the roost because bats do not typically leave their roost daily during winter months in southern California. This action should allow all bats to leave during the course of one week. Roosts that need to be removed in situations where the use of one-way doors is not necessary in the judgment of the qualified biologist will first be disturbed by various means at the direction of the bat biologist at dusk to allow bats to escape during the darker hours, and the roost tree will be removed, or the grading will occur the next day (i.e., there will be no less or more than one night between initial disturbance and the grading or tree removal). [CPUC 2016]

MM BIO-CEQA-12 Compensation for Impacts to Sensitive Vegetation Communities: The Applicant will restore all temporary impact to sensitive vegetation communities (blue palo verde-ironwood woodland, mesquite thickets, and bush seepweed scrub) and special status species habitat at a ratio of 1:1 as described in the Habitat Restoration, Mitigation, and Monitoring Plan (refer to MM-BIO-CEQA-4). To compensate for permanent impacts to sensitive vegetation communities and special status species habitat, the Applicant will provide the creation and/or restoration of habitat at the following ratios:

- Permanent impacts to riparian desert woodland habitats (blue palo verde-ironwood woodland and mesquite thickets) will be mitigated at a ratio of 5:1;

- Permanent impacts to other sensitive vegetation communities and desert tortoise potential/modeled habitat within previously undisturbed habitats will be mitigated at a ratio of 3:1;
- Permanent impacts to all other special status species habitat within previously undisturbed habitats will be mitigated at a ratio of 2:1; and
- Permanent impacts to other sensitive vegetation communities and special status species habitat within previously disturbed habitats will be mitigated at a ratio of 1.5:1.

Based on the above ratios the Applicant will be required to create or restore lands in the amounts listed below to compensate for permanent impacts to the following sensitive communities:

- Blue palo verde - ironwood woodland – 37.80 acres (7.56 acres impacted)
- Mesquite thickets – 6.80 acres (1.36 acres impacted)
- Bush seepweed scrub – 1.35 acres (0.45 acres impacted)

The exact amount of compensatory mitigation lands required for special status species will be determined following analysis of all pre-construction surveys, micrositing of facilities, final impact calculations, and consultation with the regulatory agencies during the environmental permitting process. All created or restored habitats will be monitored per the requirements in the Habitat Restoration, Mitigation, and Monitoring Plan (refer to MM-BIO-CEQA-4). All lands identified for preservation would require the recordation of a conservation easement. The easement could be held by CDFW or an approved land management entity; the easement will be recorded upon purchase of the lands; refer to MM-BIO-CEQA-5 for details and requirements for easements on mitigation lands. All lands identified for preservation will require approval from the resource/permitting agencies where applicable (i.e., BLM, CDFW, USACE, and CPUC).

MM BIO-CEQA-13 Avoidance Measures and Compensation for Impacts to Jurisdictional Habitats: Construction activities will be done in such a manner as to avoid and minimize the removal of and impacts to jurisdictional wetland habitats. If impacts to jurisdictional waters or wetland habitats cannot be avoided, the Applicant will restore all temporary impact at a ratio of 1:1 as described in the Habitat Restoration, Mitigation, and Monitoring Plan (MM-BIO-CEQA-4). To compensate for permanent impacts to jurisdictional waters and wetlands, the impacted habitats will be replaced at a minimum ratio of 2:1. Permanent impacts to riparian desert woodland habitats (blue palo verde-ironwood woodland and mesquite thickets) that are jurisdictional will be mitigated at a ratio of 5:1. Additional mitigation may be proposed by each agency during the regulatory permitting process. The compensation for the loss of jurisdictional wetland habitats may be achieved either by a) on-site habitat creation or enhancement with similar species compositions to those present prior to construction, b) off-site creation, enhancement, and/or preservation or c) participation in an established mitigation bank program.

All created or restored habitats will be monitored per the requirements in the Habitat Mitigation and Monitoring Plan (refer to MM-BIO-CEQA-04). All lands identified for preservation would require the recordation of a conservation easement. The easement could be held by CDFW or an approved land management entity; the easement will be recorded upon purchase of the lands; refer to MM-BIO-CEQA- 05 for details and requirements for easements on mitigation lands. All lands

identified for preservation will require approval from the resource/permitting agencies where applicable (i.e., BLM, CDFW, USACE, and CPUC).

2.5 CULTURAL RESOURCES

This section describes the impacts to cultural resources associated with the construction, operation, and maintenance of the proposed transmission line, substations, and ancillary facilities in terms of CEQA significance thresholds disclosed below in Section 2.5.4. Additionally, this section responds to issues raised during the public scoping process, which are presented in Appendix 1 of the EIS. Tribal concerns are addressed in Section 2.6 (Tribal Cultural Resources) of this appendix.

As disclosed in Section 4.6.2.1 of the TES (BLM 2018), the Area of Potential Effects (APE) for the Project consists of areas where direct effects to cultural resources may occur. Direct effects are defined by areas where ground disturbance would occur for Project construction, such as tower locations, access roads, lay down areas, and spur roads, among others. In addition to direct impacts, indirect impacts to cultural resources as a result of the Project may occur. Indirect impacts to cultural resources include visual, atmospheric, and auditory effects.

As concluded in Section 4.6.2.2 of the TES, potential adverse effects to historic properties would be mitigated in accordance with the provisions of the Programmatic Agreement (PA). Per CEQA, potentially significant impacts to historical resources and to archaeological resources would also be mitigated in accordance with the provisions of the PA. The CEQA terms “historical resources” and “archaeological resources” will be used throughout this CEQA appendix.

Avoidance of cultural resources by final design and construction would be the preferred form of mitigation. See Chapter 3.5 of the TES (BLM 2018) for further discussion.

2.5.1 Thresholds and Methodology

Existing conditions described in Section 3.6 of the TES (BLM 2018) have been evaluated with regard to their potential to be affected by project construction, operation, maintenance, and decommissioning activities. The potential impacts associated with the project are evaluated on a qualitative and quantitative basis through a comparison of the anticipated project effects on cultural resources. Resources can experience impacts, these impacts can be considered significant under CEQA, or constitute an effect under Section 106. Under Section 21083.2 of CEQA, an important archaeological or historical resource is an object, artifact, structure, site, or district that is listed on, or eligible for listing on, the California Register of Historical Resources (CRHR). Eligibility and Significance can be assumed for properties that are already listed on the NRHP, if evidence supporting the decision is verified and applied. The evaluation of Project impacts is based on the significance criteria established by Appendix G of the CEQA Guidelines, listed below.

- Damage to or loss of a site of a cultural resource that is listed, or eligible for listing, on the NRHP, or California Register of Historical Resources (CRHR);
- An activity would directly or indirectly alter the characteristics of the cultural resource that qualify it for inclusion in the NRHP, or CRHR (location, design, setting, materials, workmanship, feeling, or association);

- The Project results in visual changes to a viewshed of recognized cultural significance under the NRHP, or CRHR, or identified as a Traditional Cultural Property (TCP)/Tribal Cultural Resource (TCR);
- Loss or degradation would also include cases in which access to the cultural resource is restricted for future use (i.e. a sacred site);
- Impacts to NRHP-, or CRHR-eligible cultural resources cannot be satisfactorily mitigated (i.e., data recovery, etc.) as determined through consultation with the State Historic Preservation Office (SHPO) and other interested parties;
- Exposure of cultural resources to vandalism or unauthorized collecting;
- A substantial increase in the potential for erosion or other natural processes that could affect cultural resources;
- Neglect of a cultural resource that causes its deterioration, except where such neglect and deterioration are recognized qualities of a property of religious and cultural significance to a Native American tribe;
- Transfer, lease, or sell a cultural resource out of federal ownership or control without adequate and legally enforceable restrictions or conditions to ensure long-term preservation of the resource's historic significance;
- Disturbance of any human remains, including those interred outside of formal cemeteries; and,
- An activity that would affect a cultural resource for which setting is an important aspect of its NRHP, or CRHR eligibility (causing a high degree of visual impacts, as determined through the visual resource analysis).

2.5.2 Applicant Proposed Measures and BLM Best Management Practices

Applicant Proposed Measures (APMs) have been identified and would be implemented by the Project applicant. In addition, BLM would require implementation of Best Management Practices (BMPs), which are intended to further minimize Project impacts. All Project APMs and BMPs are described in EIS Appendix 2A. Of these, the following would apply to the portion of the Project located within California and have therefore been incorporated into the Project for evaluation of significant impacts to Cultural Resources under CEQA.

APM CULT-01: Cultural Resources Inventory. A cultural inventory would be conducted that would document cultural resources within the area of potential effects for the Project. Based on results of this inventory, a Historic Properties Treatment Plan would be developed to specifically address direct and indirect impacts that may result from Project construction.

APM CULT-02: Monitoring and Discovery Plan. DCR Transmission's contractor would prepare a Monitoring and Discovery Plan that would describe procedures to be followed in the event of the discovery of cultural resources or human remains during implementation of the Project. The Draft Monitoring and Discovery Plan would be reviewed by BLM and consulting state and federal agencies, the California and Arizona SHPOs, and local tribes. Upon approval of

the Monitoring and Discovery Plan, DCR Transmission would follow the procedures set forth in that plan during implementation of the Project.

BMP CULT-03: Cultural Resources Avoidance and Stipulations. DCRT would follow the avoidance procedures and other stipulations outlined in the PA and in the appropriate State Historic Properties Treatment Plan for each historic property identified in the HPTP.

BMP CULT-04: Worker Cultural Resources Awareness Program. Before starting any work, including mowing, staging, sediment and erosion control installation, tree removal, construction, and restoration, all employees and contractors performing activities and construction would receive training on the National Historic Preservation Act, the Archaeological Resources Protection Act, and the Native American Graves Protection and Repatriation Act and the consequences of noncompliance with these acts. Training would also include cultural sensitivity to Native American concerns, since tribal monitors would be present during construction.

BMP CULT-05: Compensatory Mitigation Fee. DCRT would pay a compensatory mitigation fee for cumulative and indirect effects to historic properties as a result of construction. The fee structure of the compensatory mitigation fee would be calculated in a manner that is commensurate to the size and regional impacts of the project and would include a management fee. This fee structure would be determined by BLM and contained in the project-specific PA.

BMP CULT-06: Sensitivity Model. BLM would develop a sensitivity model for cultural resources using the DRECP geodatabase for the purpose of selecting Project footprints to minimize impacts to recorded historic properties and areas that are culturally sensitive to Tribes.

BMP CULT-07: Sample Survey. The BLM will ensure that a statistically significant cultural resources sample survey is conducted for consideration in Project planning in locations within the CDCA boundary.

BMP CULT-08: Project Planning. DCRT would consider the results of the BLM's cultural resources sensitivity model in Project planning and provide justification if it is not considered to be feasible.

APM PALEO-01: Paleontological Resources Treatment Plan. DCRT would prepare a Paleontological Resources Treatment Plan that would describe procedures to be followed in the event of the discovery of paleontological resources during implementation of the Project. Upon approval of the draft plan, DCRT would follow the procedures set forth in that Plan during implementation of the Project.

BMP PALEO-02: Paleontological Resources Monitor. A qualified paleontologist would provide monitoring for paleontological resources during construction in areas of high or unknown fossil potential.

2.5.3 Conservation and Management Actions

The CDCA Plan, as amended, contains CMAs, which include a specific set of avoidance, minimization, and compensation measures. The applicability of those measures to the Project was determined using a CMA checklist (EIS Appendix 2C). The CMAs applicable to the Project and

related to Cultural Resources and Tribal Interests are listed below and Project compliance with CDCA CMAs is addressed in the analysis portion of this section.

LUPA-CUL-4: Cultural Resources and Tribal Interests. Design activities to minimize impacts on cultural resources including places of traditional cultural and religious importance to federally recognized Tribes.

LUPA-TRANS-CUL-1: Cultural Resources and Tribal Interests. For transmission (and renewable energy) activities, require the applicant to pay all appropriate costs associated with the following processes, through the appropriate BLM funding mechanism:

- All appropriate costs associated with the BLM's analysis of the DRECP geodatabase and other sources for cultural resources sensitivity.
- All appropriate costs associated with preliminary sensitivity analysis.
- All appropriate costs associated with the Section 106 and CEQA processes including the identification and defining of cultural resources. These costs may also include logistical, travel, and other support costs incurred by tribes in the consultation process.
- All appropriate costs associated with updating the DRECP cultural resources geodatabase with project specific results.

LUPA-TRANS-CUL-2. Consistent and in compliance with the NHPA PA, signed February 5, 2016, or the most up to date signed version – for transmission (and renewable energy) activities, a compensatory mitigation fee will be required within the LUPA Decision Area to address cumulative and some indirect adverse effects to historic properties. The mitigation fee will be calculated in a manner that is commensurate to the size and regional impacts of the project. Refer to the NHPA PA for details regarding the mitigation fee.

LUPA-TRANS-CUL-3. For transmission (and renewable energy) activities, the management fee rate will be determined through the NHPA programmatic Section 106 consultation process that will be completed as part of the DRECP land use plan amendment.

LUPA-TRANS-CUL-4. For transmission (and renewable energy) activities, demonstrate that results of cultural resources sensitivity, based on the DRECP geodatabase, and other sources, are used as part of the initial planning pre-application process and to select of specific footprints for further consideration.

LUPA-TRANS-CUL-5. For transmission (and renewable energy) activities, provide a statistically significant sample survey as part of the pre-application process, unless the BLM determines the DRECP geodatabase and other sources are adequate to assess cultural resources sensitivity of specific footprints.

LUPA-TRANS-CUL-6. For transmission (and renewable energy) activities, provide justification in the application why the project considerations merit moving forward if the specific footprint lies within an area identified or forecast as sensitive for cultural resources by the BLM.

DFA-VPL-CUL-1. For renewable energy activities and transmission, require the applicant to pay all appropriate costs associated with the following processes, through the appropriate BLM funding mechanism:

- All appropriate costs associated with the BLM's analysis of the DRECP geodatabase and other sources for cultural resources sensitivity.
- All appropriate costs associated with preliminary sensitivity analysis.
- All appropriate costs associated with the Section 106 process including the identification and defining of cultural resources. These costs may also include logistical, travel, and other support costs incurred by tribes in the consultation process.
- All appropriate costs associated with updating the DRECP cultural resources geodatabase with project specific results.

DFA-VPL-CUL-2. Consistent and in compliance with the NHPA PA, signed February 5, 2016, or the most up to date signed version -for renewable energy activities and transmission, a compensatory mitigation fee will be required within the LUPA Decision Area to address cumulative and some indirect adverse effects to historic properties. The mitigation fee will be calculated in a manner that is commensurate to the size and regional impacts of the project. Refer to the PA for details regarding the mitigation fee.

DFA-VPL-CUL-3. For renewable energy activities and transmission, the management fee rate will be determined through the NHPA programmatic Section 106 consultation process that will be completed as part of the DRECP land use plan amendment.

DFA-VPL-CUL-4. For renewable energy activities and transmission, demonstrate that results of cultural resources sensitivity, based on the DRECP geodatabase, and other sources, are used as part of the initial planning pre-application process and to select of specific footprints for further consideration.

DFA-VPL-CUL-5. For renewable energy activities and transmission, provide a statistically significant sample survey as part of the pre-application process, unless the BLM determines the DRECP geodatabase and other sources are adequate to assess cultural resources sensitivity of specific footprints.

DFA-VPL-CUL-6. For renewable energy activities and transmission, provide justification in the application why the project considerations merit moving forward if the specific footprint lies within an area identified or forecast as sensitive for cultural resources by the BLM.

DFA-VPL-CUL-7. For renewable energy activities and transmission, complete the NHPA Section 106 Process as specified in 36 CFR Part 800, or via an alternate procedure, allowed for under 36 CFR Part 800.14 prior to issuing a ROD or ROW grant on any utility-scale renewable energy or transmission project. For utility-scale solar energy developments, the BLM may follow the Solar PA.

2.5.4 CEQA Significance Criteria

Appendix G of CEQA Guidelines (14 CCR 15000 et seq.) provides guidance on assessing whether a project would have significant impacts on the environment. Consistent with Appendix G, the Project would have significant hazards and hazardous materials impacts if it would:

a. Cause a substantial adverse change in the significance of a historical resource as defined in § 15064.5?
b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?
c. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?
d. Disturb any human remains, including those interred outside of formal cemeteries?

2.5.5 Cultural Resources Impact Analysis

Impact CUL 1 - Cause a substantial adverse change in the significance of a historical resource as defined in § 15064.5?

Potentially Significant – Less than Significant with Mitigation

As detailed in Section 4.6 of the TES (BLM 2018), impacts on cultural resources would result if ground-disturbing activities cause damage, destruction, or alteration of historic properties. Ground-disturbing activities include Project-related excavation, grading, trenching, vegetation clearing, operation of heavy equipment, and other surface and subsurface disturbance that could damage or destroy surficial or buried archaeological resources including prehistoric and historic resources or human burials. Though most impacts to historic properties are expected to occur in association with construction, some continuing Project-related activities could affect historic properties during operations and maintenance.

The selected route would be inventoried for cultural resources through archival review and pedestrian survey prior to any ground-disturbing activities, all cultural resources that may be directly or indirectly affected or impacted would be evaluated for eligibility to the CRHR as historical resources and to the NRHP as historic properties, and a Historic Properties Treatment Plan (HPTP) developed to address potential direct and indirect effects or impacts to all historic properties/historical resources (APM CULT-01). The PA will implement actions identified as measures to resolve adverse effects. The Project would adhere to BMP CULT-03 (which provides compliance with CMA LUPA-CUL-4) during project activities that would require avoidance procedures and appropriate treatment of each historic property identified in the HPTP (APM CULT-01). With the implementation of APM CULT-02, if prehistoric or historic-period materials are encountered during ground disturbing work at any of the Project work sites, all work in the immediate vicinity of the discovery would be halted until a qualified archaeologist can evaluate the significance of the find. If the find is determined to be significant, a qualified archaeologist and the lead agency would determine the appropriate avoidance measures or other suitable mitigation in consultation with the appropriate SHPO. Significant cultural materials would be curated according to current professional standards.

As discussed in Section 4.6.2.1 of the TES (BLM 2018), indirect effects to historic properties or significant historical resources could occur in areas where the construction of new roads into the Project Area would provide improved access into previously inaccessible areas. Improved access could lead to site damage by OHVs and recreational use of these areas. Such damage could consist of vehicular damage to surface archaeological sites, and vandalism to sensitive areas where rock

art is present. Measures to mitigate potential adverse effects to historic properties as a result of improved access would be included in the Project-specific PA (PA; Appendix 2D of the EIS).

Because cultural resources are non-renewable resources, any disturbance, damage, or loss to a resource that is or may be eligible for the NRHP or CRHR would constitute an irreversible and irretrievable and significant impact to that resource, as outlined in Section 4.20.1.5 of the TES (BLM 2018).

Under CEQA, significant impacts would be mitigated to a level that is considered less than significant through implementation of mitigation measures outlined in Section 2.5.2 above and specified in the PA.

The following CMAs would be applicable and would be addressed by the noted Project APMs and BMPs.

LUPA-CUL-4 is specific to the Project design to minimize impacts on cultural resources, including those places of elevated cultural or spiritual significance to federally recognized tribes. Compliance with CMA LUPA-CUL-4 would be satisfied with BMP-CULT-03, which states that the Proponent would follow avoidance and stipulations outlined in the PA (PA) and appropriate Historic Property Treatment Plans (HPTPs), and APM-CULT-01 and APM-CULT-02, in which the Proponent commits to following those stipulations.

LUPA-TRANS-CUL-1 and DFA-VPL-CUL-1 are specific to the responsibility of the Project Proponent to pay for costs associated with the Project's cultural resources compliance. Compliance with CMA LUPA-TRANS-CUL-1 and DFA-VPL-CUL-1 would be satisfied by APM-CULT-01 and APM-CULT-02, in which the Proponent commits to conducting a cultural resources inventory of the direct and indirect APE, preparing HPTPs, and conducting cultural resource monitoring during Project construction, operations, and maintenance (as appropriate) to meet stipulations outlined in the PA (Appendix 2D of the EIS).

LUPA-TRANS-CUL-2 and DFA-VPL-CUL-2 are specific to the Proponent's payment of compensatory mitigation fees for cumulative and indirect effects to historic properties as a result of Project construction, operations, and maintenance. Compliance with CMA LUPA-TRANS-CULT-2 and DFA-VPL-CUL-2 would be satisfied by BMP-CULT-05, which outlines the fee structure of the compensatory mitigation fee. The compensatory mitigation fee structure is also outlined in the stipulations contained within the PA (Appendix 2D of the EIS).

LUPA-TRANS-CUL-3 and DFA-VPL-CUL-3 are specific to the Proponent's payment of management fees as part of the compensatory mitigation fee contained in CMA LUPA-TRANS-CUL-2 and DFA-VPL-CUL-2, respectively. Compliance with LUPA-TRANS-CUL-3 and DFA-VPL-CUL-3 would be satisfied by BMP-CULT- 05, which outlines the fee structure of the management fee as part of the compensatory mitigation fee. The management fee and compensatory mitigation fee structure is also outlined in the stipulations contained within the PA (Appendix 2D of the EIS).

LUPA-TRANS-CUL-4 and DFA-VPL-CUL-4 are specific to the development of a cultural resources sensitivity model based on existing cultural resources data in the CDCA for consideration in Project planning and alternative selection. Compliance with CMA LUPA-

TRANS-CUL-4 and DFA-VPL-CUL-4 would be satisfied with BMP-CUL-06. The BLM has prepared a sensitivity model (Kline 2017).

LUPA-TRANS-CUL-5 and DFA-VPL-CUL-5 are specific to the provision of a statistically significant cultural resources sample survey to be used in Project planning. Compliance with CMA LUPA-TRANS-CUL-5 and DFA-VPL-CUL-5 would be satisfied by BMP-CULT-07, which requires a sensitivity analysis and cultural resources Class III survey of segments p-17 and p-18 to be conducted during the NEPA and CEQA analyses to meet the conditions of CMA LUPA-TRANS-CUL-5 and DFA-VPL-CUL-5. The Class III survey of the segments in the CDCA that require inventory, identified as segments p-17 and p-18 has been conducted.

The Class I cultural resources data available for the California portion of the Project has been compiled into a Sensitivity Analysis (Kline 2018). The results of the Sensitivity Analysis are discussed in association to relevant segments, alternatives, and subalternatives located in the Colorado River and California Zone (Section 3.6.3.2 and Sections 4.6.1 and 4.6.4.5 of the TES [BLM 2018]). The Sensitivity Analysis is a specific Project requirement for compliance with LUPA-TRANS-CUL-5. The results of the Sensitivity Analysis are discussed within the contexts of the relevant Project segments located in the Colorado River and California Zone.

LUPA-TRANS-CUL-6 and DFA-VPL-CUL-6 is specific to the Proponent's justification to move areas identified as sensitive to cultural resources forward through NEPA and CEQA analyses. Compliance with CMA LUPA-TRANS-CUL-6 and DFA-VPL-CUL-6 would be satisfied by BMP-CULT-08, which requires such justification from the Project proponent.

Impact CUL 2 - Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?

Potentially Significant – Less than Significant with Mitigation

The selected route would be inventoried for archaeological resources prior to any ground-disturbing activities, all archaeological resources would be evaluated for eligibility to the NRHP and CRHR, and a Historic Properties Treatment Plan/Historical Resources Mitigation and Management Plan developed to address potential direct and indirect affects/impacts to historic properties under Section 106 and historical resources under CEQA (APM CULT-01, provides compliance with CMA LUPA-TRANS-CUL-1). The Project would adhere to BMP CULT-03 (which provides compliance with CMA LUPA-CUL-4) during project activities that would require avoidance procedures and appropriate treatment of each historic property/historical resource identified in the HPTP. With the implementation of APM CULT-02 (provides compliance with CMA LUPA-TRANS-CUL-1), if prehistoric or historic-period materials are encountered during ground disturbing work at any of the Project work sites, all work in the immediate vicinity of the discovery would be halted until a qualified archaeologist can evaluate the significance of the find. If the find is determined to be significant, or qualify as a unique archaeological resource under CEQA, a qualified archaeologist and the lead agency would determine the appropriate avoidance measures or other suitable mitigation in consultation with the appropriate SHPO. Significant cultural materials would be curated according to current professional standards.

As discussed in Section 4.6.2.1 of the TES (BLM 2018), indirect effects to historic properties under Section 106 and historical resources under CEQA could occur in areas where the

construction of new roads into the Project Area would provide improved access into previously inaccessible areas. Improved access could lead to site damage by off-road vehicles and recreational use of these areas. Such damage could consist of vehicular damage to surface archaeological sites, and vandalism to sensitive areas where rock art is present. Measures to mitigate potential adverse effects to historic properties under Section 106 and historical resources under CEQA as a result of improved access would be included in the Project-specific PA (Appendix 2D of the EIS).

Because cultural resources are non-renewable resources, any disturbance, damage, or loss to a resource that is or may be eligible for the NRHP or CRHR would constitute an irreversible and irretrievable impact to that resource, as outlined in Section 4.20.1.5 of the TES. However, avoidance and mitigation would reduce impacts to less than significant.

The same CMAs would be applicable and would be addressed by the noted Project APMs and BMPs as described under Impact CUL-1.

Impact CUL 3 - Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Potentially Significant – Less than Significant with Mitigation

As indicated in Section 4.4.7.1 of the TES, a portion of the Project would cross an area (Segment p-16) with high to very high potential to encounter fossils. Further, the majority of the route would cross land with unknown fossil potential. Direct loss of scientifically important fossils and indirect loss of access to scientifically important fossils could occur if fossils are present. Construction within the ROW would include clearing and grading and the excavation for the structure foundations. Grading or willow excavations in the uppermost layers of soil and younger Quaternary and Tertiary deposits in the Project Area are unlikely to discover significant vertebrate fossils. BMP PALEO-02 (Appendix 2A of the EIS) would require a qualified paleontologist to monitor for fossils in all areas of high or unknown fossil potential.

Following APM PALEO-01 in Appendix 2A of the EIS, a Paleontological Resources Treatment Plan would describe procedures to be followed if vertebrate or noteworthy occurrences of invertebrate or plant fossils are discovered, which would include that the user/operator will suspend all operations that further disturb such materials and immediately contact the authorized officer. Work in the area will not resume until written authorization to proceed is issued by the authorized officer. Within five working days, the authorized officer will evaluate the discovery and inform the operator of actions that would be necessary to prevent loss of significant scientific values. Upon verification from the authorized officer that the required mitigation has been completed, the operator will be allowed to resume operations. With the implementation of APMs and BMPs provided in Appendix 2A of the EIS, impacts to paleontological resources would be reduced to less than significant.

CMAs LUPA-PALEO-1 and LUPA-PALEO-2 would apply to the Project (Appendix 2C of the EIS) and would be satisfied by information provided in Section 3.4.3.1 and Section 3.4.1.1 of the TES (BLM 2018), respectively. CMA LUPA-PALEO-3 and CMA LUPA-PALEO-4 would also apply to the Project (Appendix 2C). The Project would comply with these CMAs through APM PALEO-1 and BMP PALEO-2 (Appendix 2A of the EIS).

Impact CUL 4 - Disturb any human remains, including those interred outside of formal cemeteries?

Potentially Significant – Less than Significant with Mitigation

As indicated in Section 4.7.7.1 of the TES, Segment p-17 includes a site with exposed human remains, and may indicate an increased potential for encountering additional human remains with ground disturbing activities. The Colorado River Indian Tribe (CRIT) expressed concern regarding the treatment of human remains and mortuary items. It is their belief that if human remains are encountered, they should not be removed but avoided entirely and left in place. BMP CULT-08 (provides compliance with CMA LUPA-TRANS-CUL-6) requires the proponent to consider such sites in project planning and APM CULT-03 includes avoidance procedures and other stipulations for such sites.

Further, with the implementation of APM CULT-02, if construction or other Project personnel discover what may be human remains, funerary objects, or items of cultural patrimony on BLM-administered land, all construction activities would cease within 100 feet of the discovery. The location of the find would not be publicly disclosed, and the remains would be secured and preserved in place. DCRT or its contractors would immediately notify the BLM Authorized Officer and the appropriate sheriff's office of the discovery, followed by written notification. The BLM would then notify the Native American Parties of interest and the SHPO. If the remains were found on private land, the SHPO would be notified immediately after the tribes. How to proceed from there would be determined through consultation with the appropriate agencies. If the remains can be left safely in situ, that would be the preferred option. Construction would not resume in the area of the discovery until the BLM Authorized Officer has issued a Notice to Proceed.

In California, if the human remains are of Native American origin, the coroner must notify the Native American Heritage Commission within 24 hours of such identification. The most likely descendant would work with the Cultural Resource Specialist to develop a program for re-interment or other disposition of the human remains and any associated artifacts. No additional work would take place in the immediate vicinity of the find until the appropriate actions have been implemented.

CMA LUPA-CUL-4 is specific to the Project design to minimize impacts on cultural resources, including those places of elevated cultural or spiritual significance to Federally recognized tribes. Compliance with CMA LUPA-CUL-4 would be satisfied with BMP-CULT-03, which states that the Proponent would follow avoidance and stipulations outlined in the PA and appropriate Historic Property Treatment Plans (HPTPs), and APM-CULT-01 and APM-CULT-02, in which the Proponent commits to following those stipulations.

2.5.6 Cultural Resources Mitigation

Mitigation measures for cultural resources are outlined in the draft PA (Appendix 2D of the EIS). The draft PA has been developed prior to the issuance of the Record of Decision (ROD) for public review, and measures contained in the final PA would be implemented prior to and during construction and post-construction during maintenance activities, operations, and decommissioning.

The following mitigation measures have been developed to further reduce and/or avoid impacts to cultural resources. They augment previously developed APMs and BMPs:

- **MM CUL-CEQA-1 Cultural Resources Inventory.** The cultural inventory required by APM-CULT-01 shall include archival and pedestrian surveys to identify cultural resources, as well as an evaluation of the significance of those resources that cannot be avoided, in order to determine eligibility for listing in the CRHR, or that meet the qualifications to be considered unique archaeological resources under CEQA. Once all of these tasks have been completed, the Historic Resources Mitigation and Management Plan will be prepared to ensure proper treatment of the significant or unique resources, as specified in the PA.
- **MM CUL-CEQA-2 Cultural Resources Avoidance and Stipulations.** Avoidance of impacts must be considered for all cultural resources identified in the Project APE. If the resource cannot be avoided, then the resource must be evaluated for significance and eligibility for listing in the CRHR, to determine whether the resource qualifies as a unique archaeological resource under CEQA. As stated in BMP CULT-03, DCRT would follow the avoidance procedures and other stipulations outlined in the PA (PA) and in the appropriate State HPTP. It shall do so for each cultural resource identified in the Project APE.
- **MM CUL-CEQA-3 Protect Paleontological Resources**. The mitigation actions required by APM PALEO-01 and BMP PALEO-02 shall be accomplished by following the guidance within BLM IM 2009-11, which the CPUC has accepted as appropriate for CEQA (DRECP EIS/EIR). The following steps should be taken:
    - Project developers shall document in a paleontological resources assessment report whether paleontological resources exist in a project area on the basis of the following: the geologic context of the region and site and its potential to contain paleontological resources (including the PFYCs on site), a records search of institutions holding paleontological collections from California desert regions, a review of published and unpublished literature for past paleontological finds in the area, and coordination with paleontological researchers working locally in potentially affected geographic areas (or studying similar geologic strata).
    - If the PFYC (or PFYCs) of the geologic units to be encountered during project construction has not been determined, the project developer shall use the best available data and field surveys, as applicable, to develop a site-specific map of the PFYC ratings. The PFYC map shall be at a scale equal to or more detailed than 1:100,000. Depending on the extent of existing information available and the sensitivity of the site, development of the resource assessment and PFYC map could require the completion of a paleontological survey.
    - If paleontological resources are present at the site or if the geologic units to be encountered by the project (at the surface or the subsurface) have a PFYC Class of 3, 4, or 5, a Paleontological Resources Management Plan shall be developed. The elements of the plan shall be consistent with BLM IM 2009-11 and shall be prepared and implemented by a professional paleontologist as defined under Secretary of the Department of the Interior Standards. The plan shall include the following:

- The qualifications of the principal investigator and monitoring personnel o Construction crew awareness training content, procedures, and requirements
- Any measures to prevent potential looting, vandalism, or erosion impacts
- The location, frequency, and schedule for on-site monitoring activities
- Criteria for identifying and evaluating potential fossil specimens or localities
- A plan for the use of protective barriers and signs, or implementation of other physical or administrative protection measures
- Collection and salvage procedures
- Identification of an institution or museum willing and able to accept any fossils discovered
- Compliance monitoring and reporting procedures

o The Paleontological Resources Management Plan shall also identify if all geologic units that would be affected by the project have been determined to be within an area with a PFYC Class of 1 or 2, the lead agency shall include paleontological resources as an element in construction worker awareness training and shall include measures to be followed in the event of unanticipated discoveries, including suspension of construction activities in the vicinity. The measure shall stipulate that the site be protected from further earth moving or damage until a qualified paleontologist can assess the significance and importance of the find and until the fossil specimen or locality can be recorded and salvaged, if necessary.

o The Paleontological Resources Management Plan shall evaluate all of the construction methodologies proposed on a site, including destructive excavation techniques. Where applicable, the principal investigator shall include in the plan an evaluation of the potential for such techniques to disturb or destroy paleontological resources, an evaluation of whether loss of such fossils would represent a significant impact, and discussion of mitigation or compensatory measures (such as recordation/recovery of similar resources elsewhere on the site) that are necessary to avoid or substantially reduce the impact.

2.6 TRIBAL RESOURCES

This section describes the impacts to Tribal Cultural Resources (TCRs) associated with the construction, operation, and maintenance of the proposed transmission line, substations, and ancillary facilities in terms of CEQA significance thresholds disclosed below in Section 2.6.4 below. Additionally, this section responds to issues raised during the public scoping process, which are presented in Appendix 1 of the EIS. Cultural Resources are addressed in Section 2.5 of this CEQA appendix.

As discussed in Section 4.7.2.2 of the TES (BLM 2018), BLM has determined a Project-specific PA developed in consultation with interested Tribes, land-managing and permitting agencies, and other stakeholders is required for the Project (Appendix 2D of the EIS). As stated in the PA, there

is a procedure for finalizing and/or modifying the APE for the inventory of direct and indirect impacts to historic properties and TCPs that may be affected by the Project. The Project's direct APE has been defined as a 200-foot-wide corridor where the construction of Project elements such as structures, access and spur roads, and other ancillary elements would occur. In addition, the PA would outline protocols for minimizing impacts to areas of Native American concern, such as options for regulating access, inclusion of tribal members in cultural resources investigations and fieldwork, and the preparation of ethnographic studies to address the Project's cultural landscape, among other provisions, as required. As concluded in Section 4.6.2.2 of the TES, potential adverse effects to historic properties would be mitigated in accordance with the provisions of the PA. These same provisions provide adequate mitigation under CEQA to reduce significant impacts to historical resources and TCRs to a level less than significant. Avoidance of cultural resources by final design and construction would be the preferred form of mitigation. As the lead Federal agency responsible for ensuring compliance with the provisions of Section 106 of the NHPA, and other regulatory requirements specific to historic properties and tribal concerns, the BLM has initiated consultation with affiliated Native American tribes. Affiliated tribes were identified by BLM Field Offices (Yuma, Palm Springs, Lake Havasu, Hassayampa, and Lower Sonoran), as well as through communication with the Native American Heritage Commission in California.

The BLM's consultation protocols include formal Government-to-Government and Section 106 consultation through letters and outreach, and face-to-face meetings and conference calls. In addition, the BLM has requested tribal input through the NEPA scoping process and workshops.

Efforts to initiate government-to-government consultation with Native American tribes with jurisdiction or interest in the Project have been undertaken. Section 106 consultation has been summarized in Section 5.3 of the EIS.

In California, Assembly Bill (AB) 52 changes sections of the public resources code to add consideration of Native American culture within CEQA. The goal of AB 52 is to promote the involvement of California Native American Tribes in the decision-making process when it comes to identifying and developing mitigation for impacts to resources of importance to their culture. To reach this goal, the bill establishes a formal role for tribes in the CEQA process. CEQA lead agencies are required to consult with tribes about potential TCRs in the project area, the potential significance of project impacts, the development of project alternatives, and the type of environmental document that should be prepared. AB 52 specifically states that a project that may cause a substantial adverse change in the significance of a TCR is a project that may have a significant effect on the environment.

A TCR, as defined in section 21074 of the PRC, defined TCRS as either:

> (1) Sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either of the following:
>
> (A) Included or determined to be eligible for inclusion in the California Register of Historical Resources.
>
> (B) Included in a local register of historical resources as defined in subdivision (k) of Section 5020.1.

(2) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Section 5024.1. In applying the criteria set forth in subdivision (c) of Section 5024.1 for the purposes of this paragraph, the lead agency shall consider the significance of the resource to a California Native American tribe.

(b) A cultural landscape that meets the criteria of subdivision (a) is a tribal cultural resource to the extent that the landscape is geographically defined in terms of the size and scope of the landscape.

(c) A historical resource described in Section 21084.1, a unique archaeological resource as defined in subdivision (g) of Section 21083.2, or a "nonunique archaeological resource" as defined in subdivision (h) of Section 21083.2 may also be a tribal cultural resource if it conforms with the criteria of subdivision (a).

AB 52 establishes a consultation process for CEQA lead agencies with all California Native American Tribes, both Federally and non-Federally recognized tribes. AB 52 requires tribal notification, meaningful consultation, and consideration of Tribal Cultural Values in determination of project impacts and mitigation.

Should the CPUC approve DCRT's CPCN application and initiate formal environmental review pursuant to CEQA, they would become the CEQA Lead agency in charge of the AB 52 process.

Table 2.6-1 summarizes the CPUC's tribal consultation and coordination to date. This will be ongoing during the CEQA (and NEPA) process.

Table 2.6-1 AB 52 Tribal Consultation

DATE	TRIBE	DESCRIPTION
11/4/16	Cabazon CRIT Torres Martinez Twenty-Nine Palms	Letter to tribes providing formal notification of the project.
7/17/17	Twenty-Nine Palms	Letter to tribe providing an update on status consultation and the project in general.
7/28/17	CRIT	Letter from tribe requesting an in-person meeting.
9/1/17	Twenty-Nine Palms	Letter from tribe expressing their continued interest in the project.

2.6.1 Thresholds and Methodology

Existing conditions described in Section 3.7 of the TES (BLM 2018) have been evaluated with regard to their potential to be affected by Project construction, operation, maintenance, and decommissioning activities. The potential impacts associated with the project are evaluated on a qualitative and quantitative basis through a comparison of the anticipated project effects on tribal resources. The evaluation of Project impacts is based on the significance criteria established by

Appendix G of the CEQA Guidelines, listed below. Additionally, this section responds to issues raised during the public scoping process, which are presented in Appendix 1 of the EIS.

The following are significance criteria identified specific to these issues of Native American concerns, as discussed in Section 4.7.2.3 of the TES (BLM 2018):

- Project-related changes that would restrict Native American access into traditional use areas and TCPs, and by direct extension, Tribal Cultural Resource (TCR)s under CEQA and CPUC's Tribal consultation.
- Project-related changes that result in new access into areas where access had previously been limited. This would be the result of new access roads that would open up areas to off-highway vehicle (OHV) traffic and could result in vandalism of cultural resource sites.
- Project ground disturbance that results in the loss or destruction of cultural resource sites and erases the connection between individual cultural resource sites on the landscape. (Specific information regarding potential effects to cultural resource sites are discussed in Section 4.6 of the TES.)
- Project-related changes that modify visual aspects of TCPs, TCRs, and the cultural landscape, especially specific to the Salt Song Trail.
- Project-related changes resulting in new disturbance in pristine environments that would affect the energy of a natural landscape.

The following assumptions underlie the Section 106 and CPUC's consultation process:

- Native American tribes may choose not to divulge particularly sensitive information outside of the tribal community
- Community members may have their own beliefs, which may not necessarily be shared by members of the Tribal council
- BLM and CPUC can only address Native American areas of concern that are made known
- Tribes may share new concerns during the Section 106 and NEPA process, and the CEQA process; the BLM and CPUC will attempt to address these in the Project and Resource-specific HPTPs, as identified in the PA.
- Some Tribes may defer to other Tribes in the decision-making process.

2.6.2 Applicant Proposed Measures and BLM Best Management Practices

Applicant Proposed Measures (APMs) have been identified and would be implemented by the Project applicant. In addition, BLM would require implementation of Best Management Practices (BMPs), which are intended to further minimize Project impacts. All Project APMs and BMPs are described in EIS Appendix 2A.

By giving consulting tribes information on resources that may be identified as CRHR- or NRHP-eligible, and hence meeting the AB 52 definition of a TCR, the following BMPs would apply to the portion of the Project located within California. They have, therefore, been incorporated into the Project for evaluation of significant impacts to concerns of Native American Tribes.

APM CULT-01: Cultural Resources Inventory. A cultural inventory would be conducted that would document cultural resources within the area of potential effects for the Project. Based on results of this inventory, a Historic Properties Treatment Plan would be developed to specifically address direct and indirect impacts that may result from Project construction.

APM CULT-02: Monitoring and Discovery Plan. DCRT's contractor would prepare a Monitoring and Discovery Plan that would describe procedures to be followed in the event of the discovery of cultural resources or human remains during implementation of the Project. The Draft Monitoring and Discovery Plan would be reviewed by BLM and consulting state and federal agencies, the California and Arizona SHPOs, and local tribes. Upon approval of the Monitoring and Discovery Plan, DCRT would follow the procedures set forth in that plan during implementation of the Project.

BMP CULT-03: Cultural Resources Avoidance and Stipulations. DCRT would follow the avoidance procedures and other stipulations outlined in the PA and in the appropriate State Historic Properties Treatment Plan for each historic property identified in the HPTP.

BMP CULT-04: Worker Cultural Resources Awareness Program. Before starting any work, including mowing, staging, sediment and erosion control installation, tree removal, construction, and restoration, all employees and contractors performing activities and construction would receive training on the National Historic Preservation Act, the Archaeological Resources Protection Act, and the Native American Graves Protection and Repatriation Act and the consequences of noncompliance with these acts. Training would also include cultural sensitivity to Native American concerns, since tribal monitors would be present during construction.

BMP CULT-06: Sensitivity Model. BLM would develop a sensitivity model for cultural resources using the DRECP geodatabase for the purpose of selecting Project footprints to minimize impacts to recorded historic properties and areas that are culturally sensitive to Tribes.

BMP CULT-07: Sample Survey. The BLM shall ensure that a statistically significant cultural resources sample survey is conducted for consideration in Project planning in locations within the CDCA boundary.

BMP CULT-08: Project Planning. DCRT would consider the results of the BLM's cultural resources sensitivity model in Project planning and provide justification if it is not considered to be feasible.

2.6.3 Conservation and Management Actions

The CDCA Plan, as amended, contains CMAs, which include a specific set of avoidance, minimization, and compensation measures. The applicability of those measures to the Project was determined using a CMA checklist (EIS Appendix 2C). The CMAs applicable to the Project related to Tribal Interests are listed below and Project compliance with CDCA CMAs is addressed in the analysis portion of this section.

LUPA-CUL-4. Cultural Resources and Tribal Interests. Design activities to minimize impacts on cultural resources including places of traditional cultural and religious importance to Federally recognized Tribes.

LUPA-TRANS-CUL-1: Cultural Resources and Tribal Interests. For transmission (and renewable energy) activities, require the applicant to pay all appropriate costs associated with the following processes, through the appropriate BLM funding mechanism:

- All appropriate costs associated with the BLM's analysis of the DRECP geodatabase and other sources for cultural resources sensitivity.
- All appropriate costs associated with preliminary sensitivity analysis.
- All appropriate costs associated with the Section 106 process including the identification and defining of cultural resources. These costs may also include logistical, travel, and other support costs incurred by tribes in the consultation process.
- All appropriate costs associated with updating the DRECP cultural resources geodatabase with project specific results.

LUPA-TRANS-CUL-4. For transmission (and renewable energy) activities, demonstrate that results of cultural resources sensitivity, based on the DRECP geodatabase, and other sources, are used as part of the initial planning pre-application process and to select of specific footprints for further consideration.

LUPA-TRANS-CUL-5. For transmission (and renewable energy) activities, provide a statistically significant sample survey as part of the pre-application process, unless the BLM determines the DRECP geodatabase and other sources are adequate to assess cultural resources sensitivity of specific footprints.

LUPA-TRANS-CUL-6. For transmission (and renewable energy) activities, provide justification in the application why the project considerations merit moving forward if the specific footprint lies within an area identified or forecast as sensitive for cultural resources by the BLM.

DFA-VPL-CUL-1. For renewable energy activities and transmission, require the applicant to pay all appropriate costs associated with the following processes, through the appropriate BLM funding mechanism:

- All appropriate costs associated with the BLM's analysis of the DRECP geodatabase and other sources for cultural resources sensitivity.
- All appropriate costs associated with preliminary sensitivity analysis.
- All appropriate costs associated with the Section 106 process including the identification and defining of cultural resources. These costs may also include logistical, travel, and other support costs incurred by tribes in the consultation process.
- All appropriate costs associated with updating the DRECP cultural resources geodatabase with project specific results.

DFA-VPL-CUL-4. For renewable energy activities and transmission, demonstrate that results of cultural resources sensitivity, based on the DRECP geodatabase, and other sources, are used as part of the initial planning pre-application process and to select of specific footprints for further consideration.

DFA-VPL-CUL-5. For renewable energy activities and transmission, provide a statistically significant sample survey as part of the pre-application process, unless the BLM determines the DRECP geodatabase and other sources are adequate to assess cultural resources sensitivity of specific footprints.

DFA-VPL-CUL-6. For renewable energy activities and transmission, provide justification in the application why the project considerations merit moving forward if the specific footprint lies within an area identified or forecast as sensitive for cultural resources by the BLM.

DFA-VPL-CUL-7. For renewable energy activities and transmission, complete the NHPA Section 106 Process as specified in 36 CFR Part 800, or via an alternate procedure, allowed for under 36 CFR Part 800.14 prior to issuing a ROD or ROW grant on any utility-scale renewable energy or transmission project. For utility-scale solar energy developments, the BLM may follow the Solar PA.

2.6.4 CEQA Significance Criteria

Appendix G of CEQA Guidelines (14 CCR 15000 et seq.) provides guidance on assessing whether a project would have significant impacts on the environment. Consistent with Appendix G, the Project would have significant hazards and hazardous materials impacts if it would:

a. Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:
    1. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k); or
    2. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

2.6.5 Tribal Cultural Resources Impact Analysis

Impact TCR 1 - Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

I. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k); or

II. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

Pursuant to Section 4.7.8 of the TES (BLM 2018), the construction of a new transmission line on the landscape, would likely have some residual effect on issues of Native American concern because of the permanence of the infrastructure for the life of the Project. In particular, the visual effects of the transmission line infrastructure would have a residual visual impact on the landscape and continue to contribute to the erasing the ancestral footprint of the Tribes from the landscape. The residual effect would be more pronounced in locations where the transmission line does not parallel existing infrastructure. While visual impacts, to the extent practicable, would be addressed through Project design and mitigation, but the changes to the landscape cannot be avoided.

Secondly, the access requirements for operations and maintenance leave the residual possibility of increasing recreational access into areas that may currently be visited infrequently. This increases the risk of inadvertent damage or vandalism to features important to Tribes. Access concerns may be addressed in the PA by including specific protocols to restrict access into sensitive areas by barrier placement or providing regular patrols to prevent damage or vandalism, but the effectiveness of these mitigation measures may not be as efficient as avoiding the introduction of any new access.

Segments p-17 and p-18 are of elevated tribal concern in terms of new and existing access, and areas of elevated spiritual importance. Segment p-17 additionally contains known human remains. These segments have also been identified as areas of high sensitivity for cultural resources and resources of tribal importance according to the Project's cultural resources sensitivity analysis (Kline 2018). The resources along these segments are considered by the tribes to be sensitive to both direct effects and indirect visual effects. These effects would require assessment by an indirect effects analysis. If effects are measurable beyond a small change, they would constitute a moderate to major long-term effect.

Segments cb-10, ca-04, i-08s, p-15e, p-15w, and x-11 cross the Colorado River. The CRIT, Quechan Tribe of the Fort Yuma Indian Reservation, and Twenty-Nine Palms Band of Mission Indians all expressed concern about the Colorado River, and its influence on their spiritual belief and cultural history. As such, the Colorado River crossing and the indirect and direct effects of its siting on the landscape and potential impact to historic properties are of great concern to the Native American tribes and should be addressed by an indirect effects analysis and continued government-to-government Section 106 consultation.

As noted in Section 4.7.9 of the TES (BLM 2018), if impacts to Native American concerns cannot be avoided by Project design, APMs, BMPs, and mitigation measures, changes to the landscape and access changes would be an unavoidable adverse effect.

Prior to construction, Class III cultural resource surveys would be conducted to identify sites that need to be avoided or mitigated through data recovery. Monitoring during construction would minimize the potential for inadvertent damage to intact subsurface deposits that could not be

identified during Class III surveys. However, if excavation damages cultural features, the damage done would be unavoidable.

Visual impacts on cultural sites that are sensitive to visual change would be assessed so that impacts could be minimized through analysis of the viewshed and tower placement. An unavoidable impact would occur to the extent that transmission line infrastructure can be seen from intaglios, petroglyphs, TCPs/TCRs, or other resources of elevated concern to Native Americans.

CMAs LUPA-CUL-4, LUPA-TRANS-CUL-1, LUPA-TRANS-CUL-4 through LUPA-TRANS-CUL-6, DFA-VPL-CUL-1, and DFA-VPL-CUL-4 through DFA-VPL-CUL-6 would apply to the Project (Section 2.6.3 of this appendix, as well as Appendix 2C of the EIS). DFA-VPL-CULT-7 would also apply to the Project (Appendix 2C of the EIS) and would be satisfied by information provided in Sections 3.6.1.1, 5.2.2, and 5.3 of the TES (BLM 2018), as well as Appendix 2D of the EIS.

LUPA-CUL-4 is specific to the Project design to minimize impacts on cultural resources, including those places of elevated cultural or spiritual significance to federally recognized tribes. Compliance with LUPA-CUL-4 would be satisfied with BMP-CULT-03, which states that the Proponent would follow avoidance and stipulations outlined in the PA and appropriate Historic Property Treatment Plans (HPTPs), and APM-CULT-01 and APM-CULT-02, in which the Proponent commits to following those stipulations.

LUPA-TRANS-CUL-1 and DFA-VPL-CUL-1 are specific to the responsibility of the Project Proponent to pay for costs associated with the Project's cultural resources compliance. Compliance with LUPA-TRANS-CUL-1 and DFA-VPL-CUL-1 would be satisfied by APM-CULT-01 and APM-CULT-02, in which the Proponent commits to conducting a cultural resources inventory of the direct and indirect APE, preparing HPTPs, and conducting cultural resource monitoring during Project construction, operations, and maintenance (as appropriate) to meet stipulations outlined in the PA (Appendix 2D).

LUPA-TRANS-CUL-4 and DFA-VPL-CUL-4 are specific to the development of a cultural resources sensitivity model based on existing cultural resources data in the CDCA for consideration in Project planning and alternative selection. Compliance with LUPA-TRANS-CUL-4 and DFA-VPL-CUL-4 would be satisfied with BMP-CUL-06. The BLM has prepared a sensitivity model (Kline 2017).

LUPA-TRANS-CUL-5 and DFA-VPL-CUL-5 are specific to the provision of a statistically significant cultural resources sample survey to be used in Project planning. Compliance with LUPA-TRANS-CUL-5 and DFA-VPL-CUL-5 would be satisfied by BMP-CULT-07, which requires cultural resources Class III survey of segments p-17 and p-18 to be conducted during the NEPA and CEQA analyses to meet the conditions of LUPA-TRANS-CUL-5 and DFA-VPL-CUL-5. The Class III survey of segments p-17 and p-18 has been conducted.

LUPA-TRANS-CUL-6 and DFA-VPL-CUL-6 is specific to the Proponent's justification to move areas identified as sensitive to cultural resources forward through NEPA and CEQA analyses. Compliance with LUPA-TRANS-CUL-6 and DFA-VPL-CUL-6 would be satisfied by BMP-CULT-08, which requires such justification from the Project proponent.

DFA-VPL-CUL-7 speaks to completion of the Section 106 process. Compliance with DFA-VPL-CUL-7 is satisfied in Sections 3.6.1.1, 5.2.2, and 5.3 of the TES (BLM 2018). Section 3.6.1.1 of the TES presents the regulatory requirement of the NHPA that includes Section 106. Section 5.2 of the EIS summarizes the process of drafting the PA. Section 5.3 of the EIS presents the efforts of consultation with Native American tribes. Appendix 2D of the EIS contains the draft PA for the Project.

2.6.6 Tribal Cultural Resources Mitigation

Mitigation measures for Native American concerns will be outlined in the PA and/or the ROD. The draft PA (Appendix 2D of the EIS) has been developed prior to the issuance of the Project ROD. Measures contained in the PA would be implemented prior to and during construction and post-construction during maintenance activities and operations.

In addition, APMs and BMPs in Appendix 2A of the EIS and stipulations that would be a part of the ROD outline specific protocols for Native American TCPs/TCRs. These APMs, BMPs, and stipulations address, but are not limited to, protocols specific to coordination and communication with Tribes, roads and access, compliance with applicable laws, and confidentiality, among other procedures that may mitigate effects.

2.7 GEOLOGY AND SOILS

This section describes the impacts to geology and soil resources that could potentially occur during construction, operation, and maintenance of the Project. Environmental impacts presented in Section 4.3 of the TES (BLM 2018) are discussed in terms of CEQA significance thresholds disclosed in Section 2.7.4. Additionally, this section responds to issues raised during the public scoping process, which are presented in Appendix 1 of the EIS.

2.7.1 Thresholds and Methodology

Section 4.3 of the TES (BLM 2018) discloses adverse environmental effects that may result from construction and operation of the Project. This CEQA analysis uses information and data from available published resources, including journals, maps, and government websites. This information was collected and reviewed to bolster the environmental impact analysis found in Section 4.3 of the TES within the context of the impact thresholds found in Appendix G of the CEQA Guidelines.

This analysis assumes that the applicant would comply with the following environmental factors and components of the Project Description (Chapter 2) when evaluating the effects of the Project on geology and soils:

- A geotechnical engineering study would be completed prior to final design and construction of the Project to identify site-specific geological conditions and potential geological hazards. The data collected from the study would be used to guide sound engineering practices, and foundation design would be consistent with geological conditions for each tower site.

- Existing fault lines, land subsidence areas, earth fissures, mining claims, oil/gas reserves, areas of mineral resources of economic value, and other pertinent geological and mineral-related features have been accurately mapped.
- Operation and maintenance of the Project, as it relates to geological and mineral resources, would primarily be the presence of transmission structures and transmission lines and how they could preclude access to underground resources in the immediate vicinity.
- Transmission lines typically have little impact to mining operations. Span lengths are such that access to minerals can be accomplished between spans. Should open pit mining be planned, structures can be left on 'islands,' or the mining interests can have the transmission line locally re-routed (personal communication, Mark Wieringa, Western, 2013).

2.7.2 Applicant Proposed Measures and BLM Best Management Practices

APMs have been identified and would be implemented by the project applicant. In addition, BLM would require implementation of Best Management Practices (BMPs), which are intended to further minimize Project impacts. All Project APMs and BMPs are described in EIS Appendix 2A. Of these, the following would apply to the portion of the Project located within California and have therefore been incorporated into the Project for evaluation of significant impact to geology and soils under CEQA.

- **APM WQ-01: SWPPP Development and Implementation.** Following Project approval, DCRT would prepare and implement a SWPPP or an amendment to an existing SWPPP to minimize construction impacts on surface water and groundwater quality. Implementation of the SWPPP would help stabilize graded areas and reduce erosion and sedimentation. The Plan would designate BMPs that would be adhered to during construction activities. Erosion and sediment control measures, such as straw wattles, covers, and silt fences, would be installed prior to ground disturbance, based on the anticipated volume and intensity of precipitation, the nature of stormwater runoff in the Project Area, and the soil types within the Project Area. Suitable stabilization measures would be used to protect exposed areas during construction activities, as necessary and final stabilization would be completed when construction materials, waste, and temporary erosion and sediment control measure have been removed. During construction activities, measures would be implemented to prevent contaminant discharge from vehicles and equipment, including complying with the Spill Prevention, Control, and Countermeasures requirements in 40 CFR 112.

  The Project SWPPP would include erosion control and sediment transport BMPs to be used during construction. BMPs, where applicable, would be designed by using specific criteria from recognized BMP design guidance manuals. Erosion-minimizing efforts may include measures such as the following:

  - defining ingress and egress within the Project site
  - implementing a dust control program during construction
  - properly containing stockpiled soils

Erosion control measures identified would be installed in an area before construction begins and would be properly maintained until construction is complete and final stabilization begins.

Temporary measures such as silt fences or wattles, intended to minimize sediment transport from temporarily disturbed areas, would remain in place until disturbed areas have stabilized.

The Plan would be updated during construction as required by the SWRCB and ADEQ. The Plan would include the following components, in accordance with ADEQ requirements for coverage under the General Permit:

- stormwater team qualifications and contact information
- identification of operators
- nature of construction activities
- sequence and estimated dates of construction activities
- site description
- site map(s)
- receiving waters
- control measures to be used during construction activity
- summary of potential pollutant sources
- use of treatment chemicals
- pollution prevention procedures, including spill prevention and response and waste management procedures

- **BMP SOIL-01.** During reclamation and revegetation efforts, a BLM soil scientist and/or botanist would assist reclamation crews with determining type and location of any scarification.
- **BMP SOIL-02.** During reclamation and revegetation efforts, the BLM would work with reclamation crews to determine where soil compaction would be appropriate, to avoid potential adverse conditions created by compaction.
- **BMP SOIL-03.** Covers for topsoil stockpiles would be of materials resistant to damage and/or degradation from exposure to ultraviolet light and other elements, and would be replaced (as needed) if they deteriorate, become worn, or damaged.
- **BMP SOIL-04.** The disruption of desert pavement shall be minimized to the extent feasible. Grading for new access roads or work areas in areas covered by desert pavement shall be avoided if possible. If avoidance of these areas is not possible, the desert pavement surface shall be protected from damage or disturbance from construction vehicles by use of temporary mats on the surface, or by other suitable means.
- **BMP SOIL-05.** Desert pavement in activity areas in California shall be assessed by biological monitors prior to construction. If disturbance from an activity is likely to exceed 10% of the desert pavement identified within the activity boundary, the BLM would determine whether the erosional and ecologic impacts of exceeding the 10% cap by the proposed amount would be insignificant and/or whether the activity should be redesigned to minimize desert pavement disturbance.

- **BMP SOIL-06.** Side-casting of soil during road construction shall be avoided.
- **BMP SOIL-07.** To the extent possible, avoid disturbance of desert biologically intact soil crusts, and soils highly susceptible to wind and water erosion.
- **APM BIO-12. Noxious and Invasive Species Control.** A Noxious Weed Control Plan that addresses specific requirements in CMA LUPA-BIO-11 would be developed, approved by the BLM, and implemented prior to initiation of ground disturbing activities. That Plan would identify noxious and invasive species to be addressed in the Project Area, describe measures to conduct pre-construction weed surveys, reduce the potential introduction or spread of noxious weeds and invasive species during construction, and monitor and control weeds during operation of the transmission line. It would be designed to minimize impacts on special status species to the extent practicable. Coordination with resource agencies regarding invasive plant species would be conducted before construction. BMPs would include use of weed-free straw, fill, and other materials; requirements for washing vehicles and equipment arriving on site; proper maintenance of vehicle inspection and wash stations; requirements for managing infested soils and materials; requirements and practices for the application of herbicides; and other requirements in applicable BLM Weed Management Plans.

2.7.3 Conservation and Management Actions

The CDCA Plan, as amended, contains CMAs, which include a specific set of avoidance, minimization, and compensation measures. The applicability of those measures to the Project was determined using a CMA checklist (EIS Appendix 2C). The CMAs applicable to the Project and related to geology and soils are listed below and Project compliance with CDCA CMAs is addressed in the analysis portion of this section.

- **CMA LUPA-SW-8**. As determined necessary on an activity specific basis, prepare a site plan specific to major soil types present (≥5% of footprint or laydown surfaces) in Wind Erodibility Groups 1 and 2 and in Hydrology Soil Class D as defined by the USDA Natural Resource Conservation Service to minimize water and air erosion from disturbed soils on activity sites.
- **CMA LUPA-BIO-9.** Implement the following general LUPA CMA for water and wetland dependent resources:
    - Implement construction site standard practices to prevent toxic chemicals, hazardous materials, and other fluids from entering vegetation type streams, washes, and tributary networks through water runoff, erosion, and sediment transport by, at a minimum, implementing the following:
        - On project sites, vehicles and other equipment will be maintained in proper working condition and only stored in designated containment areas where runoff is collected or controlled and that are located outside of streams, washes, and distributary networks to minimize accidental fluids and hazardous materials spills.
        - Hazardous material leaks, spills, or releases will be immediately cleaned and equipment will be repaired upon identification. Removal and disposal

of spill and related clean-up materials will occur at an approved off-site landfill.

- Maintenance and operations vehicles will carry the appropriate equipment and materials to isolate, clean up, and repair any hazardous material leaks, spills, or releases.

- Activity-specific drainage, erosion, and sedimentation control actions, which meet the approval of BLM and the applicable regulatory agencies, will be carried out during all appropriate phases of the approved project. These actions, as needed, will address measures to ensure the proper protection of water quality, site-specific stormwater and sediment retention, and design of the project to minimize site disturbance, including the following:

  - Identify site-specific surface water runoff patterns and implement measures to prevent excessive and unnatural soil deposition and erosion.
  - Implement measures to maintain natural drainages and to maintain hydrologic function in the event drainages are disturbed.
  - Reduce the amount of area covered by impervious surfaces through use of permeable pavement or other pervious surfaces. Direct runoff from impervious surfaces into retention basins.
  - Stabilize disturbed areas following grading in the manner appropriate to the soil type so that wind or water erosion is minimized.
  - Minimize irrigation runoff by using low or no irrigation native vegetation landscaping for landscaped retention basins.
  - Conduct regular inspections and maintenance of long-term erosion control measures to ensure long-term effectiveness.

- **CMA LUPA-SW-9.** The extent of desert pavement within the proposed boundary of an activity shall be mapped if it is anticipated that the activity may create erosional or ecologic impacts. Mapping will use the best available data and standards, as determined by BLM. Disturbance of desert pavement within the boundary of an activity shall be limited to the extent possible. If disturbance from an activity is likely to exceed 10% of the desert pavement mapped within the activity boundary, the BLM will determine whether the erosional and ecologic impacts of exceeding the 10% cap by the proposed amount would be insignificant and/or whether the activity should be redesigned to minimize desert pavement disturbance.
- **CMA LUPA-SW-10.** The extent of additional sensitive soil areas (cryptobiotic soil crusts, hydric soils, highly corrosive soils, expansive soils, and soils at severe risk of erosion) shall be mapped if it is anticipated that an activity will impact these resources. To the extent possible, avoid disturbance of desert biologically intact soil crusts, and soils highly susceptible to wind and water erosion.
- **CMA LUPA-SW-11.** Where possible, side casting shall be avoided where road construction requires cut- and-fill procedures.

2.7.4 CEQA Significance Criteria

Appendix G of CEQA Guidelines (14 CCR 15000 et seq.) provides guidance on assessing whether a project would have significant impacts on the environment. Consistent with Appendix G, the Project would have significant hazards and hazardous materials impacts if it would:

a. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death, involving:
    i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault?
    ii) Strong seismic ground shaking?
    iii) Seismic-related ground failure, including liquefaction?
    iv) Landslides? Violate any air quality standard or contribute substantially to an existing or projected air quality violation?
b. Result in substantial soil erosion or the loss of topsoil?
c. Be located on strata or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?
d. Be located on expansive soil, as defined in Table 18 1 B of the Uniform Building Code, creating substantial risks to life or property?
e. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?

2.7.5 Geology and Soils Analysis

Impact GEO 1 - Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death, involving:

i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault?

ii) Strong seismic ground shaking?

iii) Seismic-related ground failure, including liquefaction?

iv) Landslides?

Less than significant – no mitigation required

This impact evaluates potential exposure of the Project to seismic hazards, including fault rupture, strong ground shaking, ground failure and liquefaction, and landslides.

(i) Fault Rupture

Based on review of the 2015 Alquist-Priolo Earthquake Fault Zoning Map, there are no Alquist-Priolo Earthquake Fault Zones that underlie the project segments in Riverside County (CA Department of Conservation 2015). As discussed in Section 3.3.3.3 of the TES (BLM 2018), the

closest Alquist-Priolo Earthquake Fault Zone is about 70 miles west of the Project Area. In addition, no Quaternary-age active faults (active faults that have been recognized at the surface and that have evidence of movement in the past 1.6 million years) are mapped within the 20-mile study area for faults (HDR 2017a). Because there are no Alquist-Priolo Earthquake Fault Zones or other known active earthquake faults within the study area, impacts would be less than significant under this criterion.

(ii) Strong Ground Shaking

The seismic hazard is relatively low ("moderate to low" to "low") for the region that encompasses the Project. Seismic risk can be quantified by the motions experienced by the ground surface or structures during a given earthquake as expressed in terms of g (the acceleration due to gravity), or peak ground acceleration (PGA) [1]. The USGS has developed maps for the US that describe the likelihood for shaking of varying degrees to occur in a given area (USGS 2014). The seismic hazard potential in the study area, as determined from the USGS seismic hazard maps, is shown as the PGA for an earthquake with a 2 percent probability of exceedance in 50 years. Values range from a relatively low risk of 6 to 8 percent g at the Delaney Substation in Maricopa County, Arizona, to a moderate risk of 16 to 18 percent g at the Colorado River Substation in Riverside County, California.

Transmission structures in California are required to be designed in accordance with CPUC General Order (GO) 95, which requires overhead line construction to be capable of withstanding wind, temperature, and wire tension loads. Specifically, section IV of the GO 95 covers mechanical strength requirements for each class of line, either alone or involved in crossings, conflicts, or joint use of poles. The order specifies safety factors for electrical line construction that are the minimum allowable ratios of ultimate strengths of materials to the maximum working stresses. The order also specifies strength requirements for construction materials, and minimum wood pole setting depths for various site conditions. It should be noted that wind-loading design requirements for overhead lines generally result in far greather strength requirements than those necessary to address strong seismic ground shaking. The completion of a geotechnical engineering study prior to final design and construction of the Project is standard practice to identify site-specific geological conditions, so that such information can be used to guide sound engineering practices, and so that foundation design is consistent with geological conditions for each tower site.

In addition to the requirements of GO 95, foundations and structures for electrical substation and transmission facilities are constructed in accordance with applicable industry building codes and standards. For example, applicable industry building codes and standards require substations to be designed and equipped according to qualification requirements described in the Institute of Electrical and Electronics Engineers (IEEE) Standard 693-2005, Recommended Practice for Seismic Design of Substations. IEEE Standard 693-2005 exists to ensure that substations do not experience damage or loss of function during and after seismic events. Other applicable IEEE standards include (but are not limited to) IEEE 691-2001 (transmission structure foundation design

[1] The PGA for a given component of motion is the largest value of horizontal acceleration obtained from a seismograph. PGA is expressed as the percentage of the acceleration due to gravity (g), which is approximately 980 centimeters per second squared.

and testing) and IEEE 977-2010 (guide to installation of foundations for transmission line structures).

Given the seismic risk of the area is low, and the application of standard industry building codes and standards (inlcuding GO 95 and IEEE standards), the risk of seismic damage to the Project would be minimal. Furthermore, in the unlikely event of an extreme earthquake scenario, the consequence of damage to Project structures on public safety and the environmental would be low. None of the Project components would be used for human occupancy and the Project would not appreciably increase public exposure to seismic risks since the right-of-way consists of open space and/or agriculture. If a strong earthquake were to occur in the Project area, the operator would send crews to inspect the lines and repair any damage detected, in accordance with existing practice and procedures. The potential impact from strong ground shaking is to the project itself and would represent and inspection, repair, and maintenance issue for the Applicant rather than a significant impact to public safety or the surrounding environment. Accordingly, potential impacts associated with ground shaking would less than significant under this criterion.

(iii) Ground Failure and Liquefaction

Liquefaction occurs when saturated soil loses shear strength and deforms as a result of increased pore water pressure induced by strong ground shaking during an earthquake. As the excess pore pressure dissipates, volume changes are produced within the liquefied soil layer that can manifest at the ground surface as settlement of structures, floating of buried structures, and failure of retaining walls.

As discussed in Sections 4.3.4.3 through 4.3.4.5 of the TES (BLM 2018), the Project segment in California would cross an area mapped as having very high to moderate liquefaction potential (Figure 3.3-5 of the TES [BLM 2018]). Maps depicting liquefaction potential are based solely on the character of underlying soils and the prevailing depth to groundwater, i.e., whether the preconditions necessary for liquefaction to occur exist. Liquefaction potential is different from liquefaction hazard because liquefaction potential maps do not incorporate the likelihood that an earthquake with sufficient magnitude to trigger liquefaction effects would occur. Given the low to moderate seismicity of the Project area, as described above, the hazard from liquefaction is relatively low.

As discussed above under the discussion of strong ground shaking (item ii), the application of standard industry building codes and standards (inlcuding GO 95 and IEEE standards) means the risk of seismic damage to the Project, including earthquake-induced liquefaction, would be minimal. As outlined in Chapter 2 of the TES, the applicant would conduct a Project-specific geotechnical engineering study to identify site-specific geological conditions and potential geological hazards. The completion of a geotechnical engineering study prior to final design and construction of the Project is standard practice to identify site-specific geological conditions, so that such information can be used to guide sound engineering practices, and so that foundation design is consistent with geological conditions for each tower site. Additionally, the consequences of liquefaction within the study area would be minor, because the project does not involve structures for human occupancy and because the right-of-way consists of open space and/or agriculture, and is closed off to the public aside from public road crossings. Should liquefaction or seismically-induced ground movement (e.g., lateral spreading) cause damage to project components, it would be an inspection and repair issue for the operator rather than a safety risk to

the public or offsite property. For this reason, impacts from liquefaction would be less than significant.

(iv) Landslides

As discussed in Section 3.3.3.3 of the TES, the relative risk for landslides in the analysis area is low, with less than a 1.5 percent incidence. Locally there may be potential for slope movement in areas of steep topography (Table 3.3-2 of the TES) depending on site-specific conditions. The Project would be designed to avoid steep slopes where possible, and the portion within California would pass along the portion of the Palo Verde Valley at the base of the Mule Mountains, avoiding steep topography. Additionally, the Project would not involve blasting, road-cutting, ground disturbance, or other activities that would exacerbate the potential for landslides to occur. The Project would be constructed pursuant to preparation of a geotechnical report that may include recommendations for construction near any areas of potential landslide, if present. Given the relatively flat topography, aside from an ascent onto the Palo Verde Mesa, and the flexibility in siting of transmission tower bases, construction would be avoided where it would undercut slopes. In addition, construction would comply with the International Building Code and California Building Code. Given the application of appropriate engineering standards, the flexibility in siting transmission towers away from steep slopes, and the fact that the Project does not involve structures for human occupancy, the project's impacts on public exposure to landslide risks would be less than significant.

Impact GEO 2 - Result in substantial soil erosion or the loss of topsoil?

Less than significant – no mitigation required

Direct impacts to soil resources that may occur as a result of construction activities include the loss of soil productivity due to the removal of soils during new surface disturbance. Limited clearing of vegetation and topsoil, as well as grading, would be required during the construction phase of the Project, and these activities could result in newly exposed, disturbed soils that could be subject to accelerated erosion by wind and water. Any soil removal during the construction of the transmission structures would be permanent, resulting in a permanent loss of soil productivity.

One of the primary impacts of concern for construction is disturbance to soil biological crusts. It is expected that soils within the ROW have the ability to support soil biotic crust; therefore, it is expected that disturbance caused by excavation and compaction during construction may directly affect biological soil crusts. Clearing of the SCS site, ancillary facilities, and access roads could also adversely affect any soil biological crusts in the immediate vicinity. As described in Chapter 2 of the TES (BLM 2018), large portions of the Project have been routed to parallel existing linear infrastructure, thus reducing impacts to previously undisturbed soils. Additionally, during construction the use of roads already found within the ROW is expected to reduce impacts to soil resources within the ROW.

Old roads which are not maintained are more susceptible to erosion by wind and water; therefore, any improvements to these roads would be a benefit to the soil resources. However, the potential for wind induced soil erosion is rated as moderate to high west of Colorado River in Riverside County, California (Riverside County 2015). Potential for erosion would be increased on disturbed areas after soil salvage operations due to removal of the vegetative cover and the loss of surface

soil structure. Erosion of growth medium after redistribution on re-graded sites would also have a greater potential until the soil is stabilized by successful revegetation. Soil characteristics identified in Table 3.3-6 in the TES suggest that disturbed areas would experience low to high erosion potential either by wind or water. Windblown dust would result from the disturbance of fine-textured soils during construction and reclamation activities through the completion of the project.

As discussed in Section 4.3.4.1 in the TES, most impacts to soil resources would be temporary, although the actual footprints of the structures and new access roads would result in permanent impacts to the soil resource, for those disturbances left unreclaimed. Cutting of trees and removal of vegetation may occur; however, where practicable, downed vegetation and undisturbed low vegetation would be left in place within the disturbance areas to serve as soil protection and erosion control. Vegetation would only be cleared to the extent necessary, minimizing impacts to soil resources.

Indirect impacts associated with soil removal may include invasive plant colonization, soil erosion, and reduction of soil water retention. Construction activities may also cause disturbance to fragile biological crusts, which could increase wind and water erosion and delay reestablishment of plant communities post construction. Other indirect effects are associated with the sediment redistribution of the soil resource as a result of wind and water erosion, which could cause damages to WOUS, prime farmlands, and air quality.

The applicant would mitigate temporary impacts on soil resources by implementation of APMs and BMPs. Specifically, APM BIO-12 would require development of a Noxious Weed Control Plan, which would address potential invasive plant colonization. Implementation of APM WQ-01 would minimize soil erosion by requiring the applicant to obtain a NPDES Construction General Permit. As part of obtaining a NPDES Construction General Permit. The applicant would be required to design and implement a SWPPP, as outlined in APM WQ-01. The SWPPP would incorporate management practices for erosion and sedimentation controls that are designed to prevent soil particles from detaching and being transported off-site. Examples of erosion control measures include use installation of temporary silt fences and other containment features (including gravel bags and fiber rolls) surrounding work areas to prevent the loss of soil during rain events and other disturbances. Sedimentation controls are structural measures intended to complement and enhance the selected erosion control measures and reduce sediment discharges from active construction areas. Examples of sediment control measures include utilization of storm drain inlet protection, including sediment filters and ponding barriers, to retain sediments on site and prevent excess discharge into storm drains.

Additionally, the BLM would require implementation of the following BMPs during construction, operation and maintenance, and during decommissioning of the Project: SOIL-01, SOIL-02, SOIL-03, SOIL-04, SOIL-05, SOIL-06, and SOIL-07. Implementation of these BMPs would result in BLM working with the construction crews, reclamation crews, and soils scientists to determine where soil compaction would be appropriate in order to reduce the potential for adverse effects to biological crusts, water holding capacity, and permeability and porosity of the Project area. These BMPs would also include requirements for covering topsoil stockpiles, minimization of desert pavement, biological monitoring prior to construction, avoidance of side-casting of soil during road construction, and the avoidance of disturbance to desert biologically intact soil crusts. Implementation of these BMPs would reduce the potential for erosion or loss of topsoil and would

effectively minimize construction, operation, maintenance, and decommissioning soil erosion impacts.

The Project would also be in compliance with CDCA CMAs LUPA-SW-8, LUPA-SW-9, LUPA-SW-10, LUPA-SW-11, LUPA-BIO-9 with the implementation of the above APMs and BMPs. The LUPA CMAs applicable to desert pavement and biological soil crusts overlap in many respects with the BMPs, but tend to be more specific and stringent. For example, CMA LUPA-SW-8 and CMA LUPA-SW-10 address the same issue as BMP SOIL-07, i.e., biological soil crusts, but provide additional details on when protective measures should be implemented. Similarly, CMA LUPA-SW-9, BMP SOIL-04, and BMP SOIL-05 all address desert pavement in the same manner by indicating how biological monitors would identify sensitive soils and consult with BLM is such soils exceed 10% of the disturbance area for each phase of construction.

The implementation of APM WQ-01, along with measures identified in the SWPPP, BMPs SOIL-01 through SOIL-07, and compliance with the applicable CMAs during all ground-disturbing activities during from construction and/or operation of the Project would minimize or avoid substantial losses of topsoil and substantial losses of soils, including biological crusts through wind and water erosion. In practice, the aforementioned BMPs and CMAs applicable to soil impacts would be folded into the SWPPP to be prepared by the applicant per APM WQ-01 and the state-mandated Construction General Permit. Therefore, potential impacts under this criterion would be less than significant.

Impact GEO 3 -Be located on strata or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?

Less than significant – no mitigation required

As discussed in Sections 4.3.4.3 through 4.3.4.5 of the TES (BLM 2018), most cases of land subsidence in Riverside County are caused by excessive groundwater pumping and lower water tables. This type of subsidence occurs very slowly over decades and affects broad areas; as such, structures sink uniformly with the ground and are not damaged. Because he severity of subsidence increases from the edges to the center like a bowl, certain infrastructure like canals and sewers, which rely on slope, can be damaged or rendered inoperable (AZGS 1993). Transmission lines, however, are not slope-dependent and would not be affected in such a way. In addition, a geotechnical engineering study would be completed prior to final design and construction of the Project to identify site-specific geological conditions and potential geological hazards including subsidence. Since the project would not contribute to the over-pumping of groundwater basins that underlie the project, and would be designed to avoid areas where localized subsidence is occurring, impacts due to unstable soils would be less than significant.

Soil collapse typically occurs in recent (less than 10,000 years old) soils that were deposited in an arid or semi-arid environment. Collapsible soils are commonly associated with human-made fill, wind-laid sands and silts, and alluvial fan and mudflow sediments deposited during flash floods. They predominantly occur at the base of mountains or in wind deposits. These soils typically contain minute pores and voids and may be partially supported by clay or silt, or chemically cemented with carbonates. When saturated, collapsible soils undergo a rearrangement of their grains, and the water removes the cohesive (or cementing) material, causing rapid settlement

(Riverside County 2015a). Expansive, corrosive, or collapsible soil characteristics are identified locally through site-specific geotechnical testing. Associated hazards would be addressed through soil correction during construction or engineering design, therefore, this impact would be less than significant.

Impact GEO 4 - Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code, creating substantial risks to life or property?

Less than significant – no mitigation required

Expansive soils are those soils with a significant amount of clay particles that have the ability to take on water (swell) or give up water (shrink). When these soils swell, the change in volume exerts significant pressures on loads (such as buildings) that are placed on them. As discussed in Sections 4.3.4.3 through 4.3.4.5 of the TES (BLM 2018), the shrink swell potential in the project area varies from low to high. As discussed above under the discussion of strong ground shaking (item ii), the application of standard industry building codes and standards (inlcuding GO 95 and IEEE standards) means that structures would be designed in a manner that addresses expansive soils by either removing them and replacing them with clean fill, or designing foundations and pole depths to accommodate expansive soils without issue. As outlined in Chapter 2 of the TES, the applicant would conduct a Project-specific geotechnical engineering study to identify site-specific geological conditions and potential geological hazards. The completion of a geotechnical engineering study prior to final design and construction of the Project is standard practice to identify site-specific geological conditions, so that such information can be used to guide sound engineering practices, and so that foundation design is consistent with geological conditions for each tower site. Therefore, impacts resulting from construction on expansive soils would be less than significant.

Impact GEO 5 - Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?

No impact

The Project would not require the use of septic tanks or other permanent wastewater disposal facilities, therefore, there would be no impact.

2.7.6 Geology and Soils Mitigation

No mitigation measures are required.

2.8 HAZARDS AND HAZARDOUS MATERIALS

This section describes the potential impacts to human health and the environment from preexisting hazardous materials, hazardous materials used or generated during construction and decommissioning, and hazardous materials generated during operation and maintenance of the Project. Additionally, this section responds to issues raised during the public scoping process, which are presented in Appendix 1 of the EIS.

As disclosed in Section 4.13 of the TES (BLM 2018), the primary impact from hazards and hazardous materials would be the use of hazardous materials during construction, resulting from leaks and spills and potential effects to workers and the public, as well as potential contamination of surrounding soils, the atmosphere, surface waters, and groundwater.

2.8.1 Thresholds and Methodology

Existing conditions described in Section 3.13 of the TES (BLM 2018) have been evaluated with regard to their potential to be affected by Project construction, operation, maintenance, and decommissioning activities. The evaluation of Project impacts is based on Section 4.13 of the TES and the significance criteria established by Appendix G of the CEQA Guidelines.

2.8.2 Applicant Proposed Measures and BLM Best Management Practices

APMs have been identified and would be implemented by the project applicant. In addition, BLM would require implementation of Best Management Practices (BMPs), which are intended to further minimize Project impacts. All Project APMs and BMPs are described in EIS Appendix 2A. Of these, the following would apply to the portion of the Project located within California and have therefore been incorporated into the Project for evaluation of significant impact to hazards and hazardous materials under CEQA.

- **APM HAZ-01: Hazardous Substance Control and Emergency Response.** DCR Transmission would implement its hazardous substance control and emergency response procedures as needed in conjunction with a Hazardous Substance Control and Containment Plan and Emergency Response Plan for the Project. The procedures identify methods and techniques to minimize the exposure of the public and site workers to potentially hazardous materials during all phases of Project construction through operation. They address worker training appropriate to the site worker's role in hazardous substance control and emergency response. The procedures also require implementing appropriate control methods and approved containment and spill-control practices for construction and materials stored on site. If it were necessary to store chemicals on site, they would be managed in accordance with all applicable regulations. Material safety data sheets would be maintained and kept available on site, as applicable.
    - Project construction would involve soil surface blading/leveling and excavation. In the event that soils suspected of being contaminated (on the basis of visual, olfactory, or other evidence) are removed during site grading activities or excavation activities, the excavated soil would be tested and, if contaminated above hazardous waste levels, would be contained and disposed of at a licensed waste facility. The presence of known or suspected contaminated soil would require testing and investigation procedures to be supervised by a qualified person, as appropriate, to meet state and federal regulations.
    - All hazardous materials and hazardous wastes would be handled, stored, and disposed of in accordance with all applicable regulations by personnel qualified to handle hazardous materials. The hazardous substance control and emergency response procedures include, but are not limited to, the following:

- Proper disposal of potentially contaminated soils.
- Establishing site-specific buffers for construction vehicles and equipment near sensitive resources.
- Emergency response and reporting procedures to address hazardous material spills.
- Stopping work at that location and contacting the County Fire Department Hazardous Materials Unit immediately if visual contamination or chemical odors are detected; work would be resumed at this location after any necessary consultation and approval by the Hazardous Materials Unit.

DCR Transmission would complete its Emergency Action Plan Form as part of Project tailgate meetings. The purpose of the form is to gather emergency contact numbers, first aid location, work site location, and tailgate information.

- **APM T&T-01: Traffic Coordination.** Emergency service providers would be notified of the timing, location, and duration of construction activities. Traffic control devices and signs would be used as needed. These measures would be implemented in conjunction with a Traffic and Transportation Management Plan for the Project.
- **APM WQ-01: SWPPP Development and Implementation.** Following Project approval, DCRT would prepare and implement a SWPPP or an amendment to an existing SWPPP to minimize construction impacts on surface water and groundwater quality. Implementation of the SWPPP would help stabilize graded areas and reduce erosion and sedimentation. The Plan would designate BMPs that would be adhered to during construction activities. Erosion and sediment control measures, such as straw wattles, covers, and silt fences, would be installed prior to ground disturbance, based on the anticipated volume and intensity of precipitation, the nature of stormwater runoff in the Project Area, and the soil types within the Project Area. Suitable stabilization measures would be used to protect exposed areas during construction activities, as necessary and final stabilization would be completed when construction materials, waste, and temporary erosion and sediment control measure have been removed. During construction activities, measures would be implemented to prevent contaminant discharge from vehicles and equipment, including complying with the Spill Prevention, Control, and Countermeasures requirements in 40 CFR 112.

  The Project SWPPP would include erosion control and sediment transport BMPs to be used during construction. BMPs, where applicable, would be designed by using specific criteria from recognized BMP design guidance manuals. Erosion-minimizing efforts may include measures such as the following:

  - defining ingress and egress within the Project site
  - implementing a dust control program during construction
  - properly containing stockpiled soils

  Erosion control measures identified would be installed in an area before construction begins and would be properly maintained until construction is complete and final stabilization begins.

Temporary measures such as silt fences or wattles, intended to minimize sediment transport from temporarily disturbed areas, would remain in place until disturbed areas have stabilized.

The Plan would be updated during construction as required by the SWRCB and ADEQ. The Plan would include the following components, in accordance with ADEQ requirements for coverage under the General Permit:

  - stormwater team qualifications and contact information
  - identification of operators
  - nature of construction activities
  - sequence and estimated dates of construction activities
  - site description
  - site map(s)
  - receiving waters
  - control measures to be used during construction activity
  - summary of potential pollutant sources
  - use of treatment chemicals pollution prevention procedures, including spill prevention and response and waste management procedures

- **APM HAZ-02: Fire Avoidance and Suppression.** Per the Fire Prevention Plan for the Project: DCR Transmission would select a welding site that is void of native combustible material and/or would clear such material for 10 feet around the area where the work is to be performed. DCR Transmission would follow its standard practice for clearing in wildland areas. Project personnel would be directed to drive on areas that have been cleared of vegetation, park away from dry vegetation, and carry water, shovels, and fire extinguishers in times of high fire hazard. DCR Transmission would also prohibit trash burning. Additionally, fire-suppression materials and equipment would be kept adjacent to all areas of work and in staging areas and would be clearly marked.
- **BMP PH&S-02.** A Fire Prevention Plan would be developed for the Project.
- **APM T&T-01: Traffic Coordination.** Emergency service providers would be notified of the timing, location, and duration of construction activities. Traffic control devices and signs would be used as needed. These measures would be implemented in conjunction with a Traffic and Transportation Management Plan for the Project. This plan would also include measures/protocols for aviation, including helicopter use, coordination with local air traffic control, and a Congested Area Plan, pursuant to FAA regulations.
- **APM T&T-02: Structure Lighting in Military Training Routes (MTR).** Project structures that are located within MTRs would be fitted with night-vision compatible red lighting emitting an infrared energy between 675 and 900 nanometers.
- **APM WQ-02: Worker Environmental Awareness Program Development and Implementation.** The Project's worker environmental awareness program would communicate environmental issues and appropriate work practices specific to this Project. This awareness would include spill prevention and response measures and proper BMP implementation. The training would emphasize site-specific physical conditions to improve hazard prevention (such as identification of flow paths to nearest water bodies) and would include a review of all site-specific water quality requirements, including

applicable portions of erosion control and sediment transport BMPs, Health and Safety Plan, and Hazardous Substance Control and Emergency Response Plan.

- **BMP HAZ-03: Equipment & Material Inventory.** DCRT would provide the BLM with an inventory of equipment and materials to cover each hazardous material used at any time during the life of the Project, updating as additions to equipment and materials are made. Appropriate equipment and materials would follow specific recommendations for individual Haz Mat types in BLM Handbooks, EPA guidelines, and from the California Department of Toxic Substance Control (DTSC).
- **APM WQ-03: Vehicles and Equipment Fueling and Maintenance.** Vehicle and equipment fueling and maintenance operations would be conducted in designated areas only; these areas would be equipped with appropriate spill control materials and containment.
- **BMP HAZ-04.** DCRT would provide the BLM with a Pesticide/Herbicide Use Proposal, outlining the pesticides and herbicides that would be proposed for use on the project, demonstrating conformance with BLM requirements, and seeking preapproval before use. Only BLM-approved products from the approved California herbicide list would be used in California.

2.8.3 Conservation and Management Actions

The CDCA Plan, as amended, contains CMAs, which include a specific set of avoidance, minimization, and compensation measures. The applicability of those measures to the Project was determined using a CMA checklist (EIS Appendix 2C). The CMAs applicable to the Project and related to hazards and hazardous materials are listed below and Project compliance with CDCA CMAs is addressed in the analysis portion of this section.

- **CMA LUPA-SW-6.** In addition to the applicable required governmental safeguards, third party activities will implement up-to-date standard industry construction practices to prevent toxic substances from leaching into the soil.
- **CMA LUPA-SW-7.** Prepare an emergency response plan, approved by the BLM contaminant remediation specialist, that ensures rapid response in the event of spills of toxic substances over soils.
- **CMA LUPA-BIO-9.** Implement the following general LUPA CMA for water and wetland dependent resources:
    - Implement construction site standard practices to prevent toxic chemicals, hazardous materials, and other fluids from entering vegetation type streams, washes, and tributary networks through water runoff, erosion, and sediment transport by, at a minimum, implementing the following:
        - On project sites, vehicles and other equipment will be maintained in proper working condition and only stored in designated containment areas where runoff is collected or controlled and that are located outside of streams, washes, and distributary networks to minimize accidental fluids and hazardous materials spills.

        - Hazardous material leaks, spills, or releases will be immediately cleaned and equipment will be repaired upon identification. Removal and disposal of spill and related clean-up materials will occur at an approved off-site landfill.
        - Maintenance and operations vehicles will carry the appropriate equipment and materials to isolate, clean up, and repair any hazardous material leaks, spills, or releases.
    - Activity-specific drainage, erosion, and sedimentation control actions, which meet the approval of BLM and the applicable regulatory agencies, will be carried out during all appropriate phases of the approved project. These actions, as needed, will address measures to ensure the proper protection of water quality, site-specific stormwater and sediment retention, and design of the project to minimize site disturbance, including the following:
        - Identify site-specific surface water runoff patterns and implement measures to prevent excessive and unnatural soil deposition and erosion.
        - Implement measures to maintain natural drainages and to maintain hydrologic function in the event drainages are disturbed.
        - Reduce the amount of area covered by impervious surfaces through use of permeable pavement or other pervious surfaces. Direct runoff from impervious surfaces into retention basins.
        - Stabilize disturbed areas following grading in the manner appropriate to the soil type so that wind or water erosion is minimized.
        - Minimize irrigation runoff by using low or no irrigation native vegetation landscaping for landscaped retention basins.
        - Conduct regular inspections and maintenance of long-term erosion control measures to ensure long-term effectiveness.

- **CMA DFA-VPL-BIO-FIRE-1.** Implement the following standard practice for fire prevention/protection:
    - Implement site-specific fire prevention/protection actions particular to the construction and operation of renewable energy and transmission project that include procedures for reducing fires while minimizing the necessary amount of vegetation clearing, fuel modification, and other construction-related activities. At a minimum these actions will include designating site fire coordinators, providing adequate fire suppression equipment (including in vehicles), and establishing emergency response information relevant to the construction site.

2.8.4 CEQA Significance Criteria

Appendix G of CEQA Guidelines (14 CCR 15000 et seq.) provides guidance on assessing whether a project would have significant impacts on the environment. Consistent with Appendix G, the Project would have significant hazards and hazardous materials impacts if it would:

a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.
b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.
c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school.
d. Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would create a significant hazard to the public or the environment.
e. For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area.
f. For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area.
g. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.
h. Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?

2.8.5 Hazards and Hazardous Materials Analysis

Impact HAZ 1 - Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

Less than significant – no mitigation required

During both construction and operation of the Project components, hazardous materials including oils, lubricants, fuels, and other substances would be transported, used, and disposed as waste. Accidental releases or spills could result in exposure of the public to hazards. Larger quantities of hazardous materials would exist as fuel stored at staging yards. Fuels and other hazardous materials would be stored in designated areas at staging yards, away from drainage areas and ignition hazards, such as electrical outlets or overhead hazards, to the extent feasible. Fuels would be stored in 55-gallon drums or aboveground storage tanks with capacity up to 10,000 gallons. Fuel would also be stored and transported on mobile refuelers that would travel to individual work sites and staging yards to refuel equipment. Secondary containment would be provided for storage tanks containing 55-gallons or more, such as spill trays, lined basins, double-walled tanks, or other containment devices.

If a release were to occur, it would most likely result from an accidental spill or other unauthorized release during work site grading, pole installation, or during conductor pulling, splicing, and tensioning. A hazardous materials release could also occur during equipment and vehicle servicing and refueling. Although accidental spills would be unlikely, spilled or leaking hazardous materials would create a significant hazard to the public or the environment and would be a significant impact.

As discussed in Sections 4.13.5 and 4.13.6 of the TES (BLM 2018), during both construction and operation activities, hazardous materials and wastes would be handled, stored, recycled, and disposed of according to applicable manufacturer specifications as well as local, state, and federal regulations, and in accordance with the BMPs listed in the SWPPP, Spill Prevention, Control, and Countermeasures Plan (SPCC Plan), and hazardous materials management programs.

As part of project permitting and in accordance with APM WQ-01 and CMA LUPA-BIO-9, the applicant would be required to prepare and submit for approval a project-specific SWPPP to the Colorado River Basin Regional Water Quality Board (RWQCB) under the National Pollutant Discharge Elimination System (NPDES) permits for stormwater. The SWPPP would include provisions to conduct worker training related to storage, use, and handling of hazardous materials, including fueling and maintenance for vehicles, equipment, and helicopters. The project-specific SPCC Plan would be submitted to the Hazardous Materials Management Division of the Riverside County Department of Environmental Health. The approved SWPPP and SPCC Plans would be submitted to CPUC and BLM prior to the start of construction. In addition to APM WQ-01, SWPPP Development and Implementation, the Project includes APMs HAZ-01, Hazardous Substance Control and Emergency Response; WQ-02, Worker Environmental Awareness Program Development and Implementation; and WQ-03, Vehicles and Equipment Fueling and Maintenance to address potential impacts from handling and emergency release of hazardous materials. Collectively, APMs HAZ-01, WQ-02, and WQ-03 ensure that employees understand what to do in the event of an accidental spill or discovery of previously undiscovered contamination, and that the appropriate agencies are consulted and the applicable laws and regulations for protection of worker safety and the environment are complied with.

Additionally, BMPs identified by the BLM would be implemented including HAZ-03, Equipment & Material Inventory and HAZ-04 which includes the development of Pesticide/Herbicide Use Proposal. This Pesticide/Herbicide Use Proposal would demonstrate DCRTs conformance with BLM requirements regarding pesticide and herbicide use for the Project. This Proposal would allow only BLM approved products to be used during construction, including the use of approved herbicides from the California herbicide list. BMP HAZ-03 would require that DCRT provide the BLM with an inventory of equipment and materials to cover each hazardous material used at any time during the lifetime of the Project. The equipment used for the Project would be in conformance with individual hazardous materials types in the BLM Handbooks, EPA guidelines, and from the California Department of Toxic Substance Control (DTSC). Therefore, impacts related to the routine transport, use, or disposal of hazardous materials would be less than significant with the above mentioned APMs and BMPs incorporated.

The Project would also be in compliance with CDCA CMAs LUPA-SW-6, LUPA-SW-7, and LUPA-BIO-9 with the implementation of the above APMs and BMPs.

Impact HAZ 2 Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

Potentially significant (construction) – less than significant with mitigation

As described in greater detail above, potential impacts that may result from construction, operation, maintenance, and decommissioning of the Project. The Project could include the accidental release of hazardous materials such as fuels, oils, lubricants, and solvents if not managed appropriately. However, as required by the NPDES General Construction Permit, construction activities would be required to adhere to a SWPPP which would include BMPs for the safe handling and storage of hazardous materials during construction. As discussed previously in Impact HAZ-1, the applicant would also implement APMs and BMPs during operation and adhere to City, State, and federal regulations which would avoid or minimize the release of hazardous materials into the environment. Implementation of APM HAZ-01 would avoid or minimize the upset of hazardous materials through the excavation of impacted materials. These APMs and BMPs and compliance with the associated CMAs would address potential impacts from release of hazardous materials into the environment and would reduce these potential impacts from the hazardous materials.

There are numerous natural gas pipelines that cross segments in California. Pipeline damage or rupture could occur during construction of the Project by ground-disturbing activities (e.g., grading, trenching, auguring foundation holes, or blasting) which could result in the uncontrolled release of natural gas from a pipeline and/or cause a fire or explosion.

Prior to trenching in city streets, the applicant would coordinate with local jurisdictions to secure excavation and encroachment permits, as required.

Common industry construction procedures would reduce the likelihood of damaging subsurface utilities, and include notifying other utilities along the proposed alignment via Underground Service Alert prior to ground disturbing activities in the vicinity of a buried utility. Mitigation Measure HAZ-CEQA-1 requires DCRT to uncover or "pothole" existing utility pipelines within 10 feet of Project excavations, including tower structure foundations and underground duct bank or vaults, to ensure that excavation work does not damage the existing utility pipeline. Implementation of Mitigation Measure HAZ-CEQA-1 would reduce impacts associated with damage or rupture to buried utilities to a less than significant level.

Impact HAZ 3 - Emit hazardous emissions or handle hazardous or acutely-hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

No impact – no mitigation required

Project construction equipment emissions would include diesel particulate matter (PM2.5), a toxic air contaminant (TAC). Construction could also involve the use of coatings that contain VOCs, another TAC. The emission of VOCs or PM2.5 at concentrations that exceed air quality standards would be a significant impact with respect to this issue if such exceedances occurred within one-quarter mile of a school. The closest existing or proposed school to the Project route within California is Felix J Appleby Elementary School, which is located more than four miles north of the Project route (segment p-15w). Project construction is not expected to involve handling of

acutely hazardous materials, but may transport and/or store small quantities hazardous materials necessary in the course of construction activities (e.g., vehicle and/or generator fuels). However, similar to TACs and VOCs, this activity would not occur within one-quarter mile of an existing school. For this reason, the Project has no impact with respect to exposure of schools to hazardous emissions or hazardous materials.

Impact HAZ 4 - Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

Less than significant – no mitigation required

As discussed in Section 3.13.2 of the TES (BLM 2018), an Environmental Data Resources Inc. (EDR) was conducted for the project area that included over 50 databases including the EPA Hazardous Materials Incident Report System, the California "Cortese" Hazardous Waste and Substances Sites List, and the federal listing of Unexploded Ordnance Sites, among numerous others. As discussed in Section 3.13.3.2 (Colorado River and California Zone) and shown in Table 3.13-7 of the TES, no sites that meet the definition of Government Code Section 65962.5 were identified in the government database research within a one-mile wide study area for Segments p15w through p-18 in California. Therefore, impacts would be less than significant.

Operation and maintenance activities would not involve excavation activities near or on an open hazardous site; therefore, it would be very unlikely that a significant hazard to the public or the environment would occur as a result of operation and maintenance activities. Impacts would be less than significant.

Impact HAZ 5 - For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?

No impact

In California, the Project's segment p-16 is located approximately 6 miles south of Blythe Airport, a public airport. No impacts related to safety hazard for people residing or working in the project area would occur.

While the Project is not located within an existing airport land use plan, some segment alternatives fall within the Blythe Municipal Airport influence areas D and E and is subject to the Riverside County ALUCP. The ALUCP addresses four types of land use compatibility concerns: noise, safety, airspace protection, and overflight.

For safety planning purposes, the ALUCP uses the safety zones (i.e., zones within which potential hazards may occur) defined in the Air Installations Compatible Use Zones prepared by the U.S. Department of Defense for Blythe Municipal Airport. The Project is not located within any of these zones; therefore, there would be no safety hazard for people residing or working in the Project corridor as a result. There would be no impact. For airspace protection, the ALUCP requires evaluation of compatibility with airspace protection surfaces. Policies of the ALUCP "relies upon regulations enacted by the Federal Aviation Administration and the state of California. The ALUC policies are intended to help implement the federal and state regulations". The Project

is located within an area subject to Federal Aviation Regulation Part 77. To be compatible with the ALUCP and to comply with Part 77, the Project would require notification to the FAA through filing of a Form 7460-1: Notice of Proposed Construction or Alteration. The FAA completes an aeronautical study and issues a determination regarding the impact to air navigation. As identified in the required approvals and permits listed in Appendix 1 in the EIS, the applicant will consult with the FAA and incorporate all FAA recommendations to the Project, particularly regarding the use of helicopters and the placement of marker balls and tower lights. There would be no safety hazard for people residing or working in the project corridor because the applicant would comply with ALUCP and FAA airspace projection requirements.

Impact HAZ 6 - For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?

Less than significant – no mitigation required

In California, the Project's segment p-15w is located approximately 4 miles south of CYR Aviation, a private airstrip. The Project may require the use of more than one helicopter. The use of helicopters near these helipads and private airports could potentially create a hazard, resulting in a significant impact.

The applicant would implement APM T&T-01 as part of the Project, which requires helicopter use to comply with usage restrictions imposed by the FAA and Caltrans. In addition, APM T&T-01 requires DCRT and/or the construction contractor to coordinate with local air traffic control and comply with applicable FAA regulations regarding helicopter use to prevent conflict with air traffic generated by local airports. As required, a Congested Area Plan will be prepared, based upon actual helicopter usage, pursuant to FAA regulations. Impacts would be less than significant after implementation of APM T&T-01. No mitigation is required.

With the implementation of APM T&T-01, impacts related to safety hazard for people residing or working in the project area would be less than significant.

Impact HAZ 7 - Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

Less than significant – no mitigation required

Temporary road or lane closures may be necessary during Project construction to ensure safety of the public and workers. Temporary road or lane closures could impair implementation of an emergency response plan or evacuation plan or disrupt emergency vehicle traffic and access. Closure of these facilities for conductor stringing or installation of guard structures would cause a temporary interruption of traffic flow on the local highways. These temporary closures would potentially cause a significant impact on the routes available for emergency vehicles and emergency evacuation routes.

There are no adopted emergency response plans or emergency evacuation plans that are directly applicable to the Project. As discussed in Section 4.17 TES (BLM 2018), APM T&T-01 requires that the emergency service providers are notified of the timing, location, and duration of construction activities. With the implementation of this APM, impacts would be reduced to a level of less than significant.

Impact HAZ 8 - Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?

Less than significant with mitigation

As discussed in Section 3.14.3 of the TES (BLM 2018), the risk of wildfire in the Project Area is related to weather, fuels, ignition potential, and fire history (fire environment). In California, the Project is located within "moderate" and "un-zoned" fire hazard severity zones, as classified by CAL FIRE. Section 4.14.4 of the TES indicates that the Project Area has been subject to historical fires, largely caused by humans, and primarily located along the I-10 corridor and around Blythe. As discussed in Section 4.14.4.1 of the TES, Project-related increases in fire risk during construction activities are associated with potential ignitions resulting from certain construction activities (e.g., blasting, welding, refueling, and sparks from construction equipment). As discussed in Section 4.14.5 of the TES, Project-related increases in fire risk during operations are associated with potential equipment failures, operations and maintenance activities that could ignite flammable material (e.g., refueling, welding, blasting), electrical arcing, bird-strikes, or vandalism. Transmission line relays and circuit breakers that rapidly detect faults and cut off power to avoid shock and fire hazards help reduce fire risk during the operations phase. Section 4.14.5 of the TES also identifies increases in fire risk associated with the presence of transmission lines, which can hinder firefighting operations, and notes that fire risk increases during decommissioning activities would be similar to those during Project construction. Finally, Section 4.14.11.1 of the TES states that the Project presents an increased source of potential ignitions for the life of the Project.

DCRT has proposed implementation of APM HAZ-02 and BMP PH&S-02 (Fire Prevention Plan) to mitigate the risk of wildfires associated with construction of the Project. APM HAZ-02 identifies that DCRT will minimize ignitions through vegetation clearing, prohibition of trash burning, and carrying of fire suppression tools during high fire hazard periods. However, these measures do not commit DCRT to Fire Prevention Plan development and implementation and provide insufficient detail to determine whether the Fire Prevention Plan would adequately mitigate wildfire risk. Without implementation of fire prevention actions, Project-related impacts associated with wildland fires during construction, operations, and decommissioning would be considered significant. Therefore, Mitigation Measure (MM) HAZ-CEQA-3 has been provided to require preparation and implementation of a Project Fire Prevention Plan, to be developed in consultation with and approved by local fire agencies. With implementation of MM HAZ-CEQA-3, impacts related to wildland fire hazards due to Project construction, operations, and decommissioning activities would be less than significant with mitigation.

2.8.6 Hazards and Hazardous Materials Mitigation

HAZ-CEQA-1. Uncover or "pothole" existing utility pipelines within 10 feet of Project excavations, including tower structure foundations and underground duct bank or vaults, to ensure that excavation work does not damage the existing utility pipeline.

HAZ-CEQA-2. Prepare a Field Management Plan that will include, at minimum, the following: a project description, an evaluation of no-cost and low-cost magnetic field reduction measures, and

specific recommendations regarding magnetic field reduction measures to be incorporated into the transmission line and substation design.

HAZ-CEQA-3. DCRT shall develop a Project Fire Prevention Plan in consultation with the appropriate local fire agencies. The Plan shall cover the construction, operations/maintenance, and decommissioning phases of the Project. DCRT shall monitor Project-related activities to ensure implementation and effectiveness of the Plan. The final Plan will be approved by the consulted fire agencies prior to the initiation of construction activities and shall be implemented during all Project-related activities by DCRT. Information contained in the Plan and location of fire-suppression materials and equipment shall be included as part of the Worker Environmental Awareness Program discussed in APM BIO-01. At minimum, the Plan shall include the following:

- Procedures for minimizing potential ignition, including, but not limited to, vegetation clearing, parking requirements/restrictions, idling restrictions, smoking restrictions, proper use of gas-powered equipment, use of spark arrestors, hot work restrictions, and timing of vegetation treatment or maintenance. Where necessary, vegetation management or clearing necessary to mitigate fire risk shall supersede other measures for vegetation protection and avoidance. Applicable permitting, compensation, and mitigation resulting from such activity shall be the responsibility of DCRT.
- Proper use of construction, maintenance, and decommissioning equipment.
- Work restrictions during Red Flag Warnings and High to Extreme Fire Danger days.
- Fire coordinator and fire patrol roles and responsibilities.
- Worker training for fire prevention, initial attack firefighting, and fire reporting.
- Emergency fire suppression equipment/tools inventory and maintenance.
- Emergency communication, response, and reporting procedures.
- Coordination with local fire agencies to facilitate emergency access through the Project site.
- Emergency contact information.
- Compliance with applicable wildland fire management plans and policies established by state and local agencies.
- Other information as required by responsible and consulted agencies.

2.8.7 Electromagnetic Fields

Electromagnetic fields (EMF) is a term used to describe electric and magnetic fields that are created by electric voltage (electric field) and electric current (magnetic field). Power frequency EMF are a natural consequence of electrical circuits and can be either directly measured using the appropriate measuring instruments or calculated using appropriate information.

CPUC Decision 06-01-042 (January 27, 2006), affirmed the Commission's November 1993 CPUC Decision 93-11-013 that concluded that the potential health effects associated with EMF exposure are too speculative to allow the evaluation of impacts or the preparation of mitigation measures.

Given the uncertainty of EMF effects and the inability of scientific investigations to identify any unsafe level or component of EMF exposure, potential EMF impacts are appropriately addressed as speculative in accordance with the California Environmental Quality Act Guidelines, Section 15145:

> "If after thorough investigation a particular impact is found to be too speculative for evaluation, the conclusion shall be noted, and the discussion terminated."

While CPUC did not identify a significant scientifically verifiable relationship between EMF exposure and negative health consequences, CPUC Decision 06-01-042 directs the CPUC's Energy Division to pursue and review all available studies regarding EMF and to review scientific information and report on new findings. Should such studies indicate negative EMF health impacts, the Commission will reconsider its EMF policies, and open a new rulemaking if necessary.

Both the PUC's November 1993 decision and affirmed in the January 27, 2006 decision also ordered the following measure to be implemented by project applicants:

1) No-cost and low-cost steps to reduce EMF levels: When regulated utilities design new projects or upgrade existing facilities, approximately 4% of the project's budget may be used for reducing EMFs. The PUC did not set specific reduction levels for EMFs. It was inappropriate to set a specific numerical standard until a scientific basis for doing so exists.

To ensure project compliance with CPUC Decision 93-11-013, DCRT will incorporate “no cost” and “low cost” magnetic field reduction steps in the proposed transmission and substation facilities plans and designs to ensure that approximately 4% of the Project's budget may be used for reducing EMFs.

The following measures may be available to reduce the magnetic field strength levels from the regulated transmission lines and substations of the Project:

- Increase distance from conductors and equipment;
- Reduce conductor spacing;
- Minimize current, and;
- Optimize phase configuration.

2.8.8 EMF Mitigation

EMF-1. DCRT will prepare a field management plan (FMP) to show implementation of the no-cost/low-cost measures and will include the following project information:

- A description of the Project (cost, design, length, location, etc.), and enhanced by updated project designs and plans;
- A description of the surrounding land uses using EMF reduction priority criteria classifications;

- No-cost options to be implemented;
- Priority areas where low-cost measures are to be applied, and;
- Measures considered for magnetic field reduction, percent reduction and cost.

This FMP will define EMF reduction priority criteria classifications for the Project's alignment and which EMF reduction options were identified. Project EMF reduction design criteria will be presented, including a description of how the Project alignment is proposed to be treated equivalently or why low-cost measures cannot be applied to this project due to cost, percent reduction, equivalence, secondary environmental impacts, or other reasons. The ultimate cost of the EMF reduction elements incorporated into the Project will be qualified and compared to the CPUC's stated goal of approximately 4% of the Project's budget.

2.9 HYDROLOGY AND WATER QUALITY

This section describes the impacts to hydrology and water quality associated with the construction, operation, and maintenance of the proposed transmission line, substations, and ancillary facilities in terms of CEQA significance thresholds disclosed below in Section 2.9.4 below. As disclosed in Section 4.19 of the TES (BLM 2018), impacts to water quality have the potential to occur from a release of contaminants to surface waters and/or shallow groundwater during construction. Additionally, this section responds to issues raised during the public scoping process, which are presented in Appendix 1 of the EIS.

2.9.1 Thresholds and Methodology

Existing conditions described in Section 3.19 TES (BLM 2018) have been evaluated with regard to their potential to be affected by project construction, operation, maintenance, and decommissioning activities. The evaluation of Project impacts is based on Section 4.19 of the TES and the significance criteria established by Appendix G of the CEQA Guidelines.

Impacts to water resources would occur if the following were to occur, as discussed in Section 4.19.2.3 of the TES:

- Predicted violation of federal and/or state water quality standards due to contamination of surface water or groundwater due to erosion, storm water runoff, or spill.
- Predicted impacts to water rights or water usage by humans, aquatic wildlife, or plants, designated or otherwise.
- Physical alterations to channels, existing drainage patterns, floodplains, water conveyances, or wells, or indirect alterations to adjacent properties due to erosion or siltation.
- Impacts that would violate Section 404 of the Clean Water Act or Section 10 of Rivers and Harbors Act.
- Flooding or floodplain impacts from construction activities or structure placement.

2.9.2 Applicant Proposed Measures and BLM Best Management Practices

APMs have been identified and would be implemented by the project applicant. In addition, BLM would require implementation of Best Management Practices (BMPs), which are intended to further minimize Project impacts. All Project APMs and BMPs are described in EIS Appendix 2A. Of these, the following would apply to the portion of the Project located within California and have therefore been incorporated into the Project for evaluation of significant impact to hydrology and water quality under CEQA.

- **APM WQ-01: SWPPP Development and Implementation.** Following Project approval, DCRT would prepare and implement a SWPPP or an amendment to an existing SWPPP to minimize construction impacts on surface water and groundwater quality. Implementation of the SWPPP would help stabilize graded areas and reduce erosion and sedimentation. The Plan would designate BMPs that would be adhered to during construction activities. Erosion and sediment control measures, such as straw wattles, covers, and silt fences, would be installed prior to ground disturbance, based on the anticipated volume and intensity of precipitation, the nature of stormwater runoff in the Project Area, and the soil types within the Project Area. Suitable stabilization measures would be used to protect exposed areas during construction activities, as necessary and final stabilization would be completed when construction materials, waste, and temporary erosion and sediment control measure have been removed. During construction activities, measures would be implemented to prevent contaminant discharge from vehicles and equipment, including complying with the Spill Prevention, Control, and Countermeasures requirements in 40 CFR 112. The Project SWPPP would include erosion control and sediment transport BMPs to be used during construction. BMPs, where applicable, would be designed by using specific criteria from recognized BMP design guidance manuals. Erosion-minimizing efforts may include measures such as the following:

    - defining ingress and egress within the Project site
    - implementing a dust control program during construction
    - properly containing stockpiled soils

    Erosion control measures identified would be installed in an area before construction begins and would be properly maintained until construction is complete and final stabilization begins. Temporary measures such as silt fences or wattles, intended to minimize sediment transport from temporarily disturbed areas, would remain in place until disturbed areas have stabilized. The Plan would be updated during construction as required by the SWRCB and ADEQ. The Plan would include the following components, in accordance with ADEQ requirements for coverage under the General Permit:

    - stormwater team qualifications and contact information
    - identification of operators
    - nature of construction activities
    - sequence and estimated dates of construction activities
    - site description
    - site map(s)
    - receiving waters
    - control measures to be used during construction activity

- summary of potential pollutant sources
- use of treatment chemicals
- pollution prevention procedures, including spill prevention and response and waste management procedures

- **APM WQ-02: Worker Environmental Awareness Program Development and Implementation.** The Project's worker environmental awareness program would communicate environmental issues and appropriate work practices specific to this Project. This awareness would include spill prevention and response measures and proper BMP implementation. The training would emphasize site-specific physical conditions to improve hazard prevention (such as identification of flow paths to nearest water bodies) and would include a review of all site-specific water quality requirements, including applicable portions of erosion control and sediment transport BMPs, Health and Safety Plan, and Hazardous Substance Control and Emergency Response Plan.
- **APM WQ-03: Vehicles and Equipment Fueling and Maintenance.** Vehicle and equipment fueling and maintenance operations would be conducted in designated areas only; these areas would be equipped with appropriate spill control materials and containment.
- **BMP WQ-04: Non-petroleum Dust Palliatives**. Palliatives used for dust control would be non-petroleum products in addition to non-toxic, as specified in AQ-01.
- **BMP WQ-05: Water Use**. Water extracted or consumptively used for the construction, operation, maintenance, or remediation of the project shall be solely for the beneficial use of the project or its associated mitigation and remediation measures, as specified in approved plans and permits.
- **BMP WQ-06: Avoidance of Hydrologic Alterations**. Consideration shall be given to design alternatives that maintain the existing hydrology of the site or redirect excess flows created by hardscapes and reduced permeability from surface waters to areas where they would dissipate by percolation into the landscape. All hydrologic alterations shall be avoided that could reduce water quality or quantity for all applicable beneficial uses associated with the hydrologic unit in the project area, or specific mitigation measures shall be implemented that would minimize unavoidable water quality or quantity impacts, as determined by BLM in coordination with USFWS, CDFW, and other agencies, as appropriate.
- **BMP WQ-07: Structures in Floodplains.** No permanent structures would be placed in floodplains that are narrower at the ROW crossing than the typical span width of 1,200 feet (i.e., it is assumed that such floodplains could be spanned and avoided).

2.9.3 Conservation and Management Actions

The CDCA Plan, as amended, contains CMAs, which include a specific set of avoidance, minimization, and compensation measures. The applicability of those measures to the Project was determined using a CMA checklist (EIS Appendix 2C). The CMAs applicable to the Project and related to hydrology and water quality are listed below and Project compliance with CDCA CMAs is addressed in the analysis portion of this section.

- **CMA LUPA-SW-1.** Stipulations or conditions of approval for any activity will be imposed that provide appropriate protective measures to protect the quantity and quality of all water resources (including ephemeral, intermittent, and perennial water bodies) and any associated riparian habitat (see biological CMAs for specific riparian habitat CMAs). The water resources to which this CMA applies will be identified through the activity-specific NEPA analysis.
- **CMA LUPA-SW-5**. Exceptions to any of the specific soil and water stipulations contained in this section, as well as those listed below under the subheadings "Soil Resources," "Surface Water," and "Groundwater Resources," may be granted by the authorized officer if the applicant submits a plan, or, for BLM-initiated actions, the BLM provides documentation, that demonstrates:
    - The impacts are minimal (e.g., no predicted aquifer drawdown beyond existing annual variability in basins where cumulative groundwater use is not above perennial yield and water tables are not currently trending downward) or can be adequately mitigated.
- **CMA LUPA-SW-15.** Surface water diversion for beneficial use will not occur absent a state water right.
- **CMA LUPA-SW-18.** Water extracted or consumptively used for the construction, operation, maintenance, or remediation of the project shall be solely for the beneficial use of the project or its associated mitigation and remediation measures, as specified in approved plans and permits.
- **CMA LUPA-SW-20.** After application of applicable avoidance and minimization measures, all remaining unavoidable residual impacts to surface waters from the proposed activity shall be mitigated to ensure no net loss of function and value, as determined by the BLM.
- **CMA LUPA-SW-21**. Consideration shall be given to design alternatives that maintain the existing hydrology of the site or redirect excess flows created by hardscapes and reduced permeability from surface waters to areas where they will dissipate by percolation into the landscape.

2.9.4 CEQA Significance Criteria

Appendix G of CEQA Guidelines (14 CCR 15000 et seq.) provides guidance on assessing whether a project would have significant impacts on the environment. Consistent with Appendix G, the Project would have significant hazards and hazardous materials impacts if it would:

a. Violate any water quality standards or waste discharge requirements?
b. Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?

c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?
d. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?
e. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?
f. Otherwise substantially degrade water quality?
g. Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?
h. Place within a 100-year flood hazard area structures which would impede or redirect flood flows?
i. Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?
j. Inundation by seiche, tsunami, or mudflow?

2.9.5 Hydrology and Water Quality Analysis

Impacts to hydrology and water resources would be considered significant if the Project fulfills the CEQA impact statements listed below. Incorporating the APMs described above in Section 2.9.2 of this appendix would ensure compliance with existing water quality regulations, as well as implementation of standard operating procedures that prevent most potentially significant impacts. Potential hydrology impacts are summarized below.

Impact WQ 1 - Violate any water quality standards or waste discharge requirements?

No Impact

As discussed in Section 4.19.4.1 of the TES (BLM 2018), compliance with existing water quality standards and discharge requirements would be ensured by implementing APMs, BMPs, and standard control measures, to reduce the risk of accidental discharge of pollutants, including sediment. As described therein, the water quality standards applicable to the Project consist of the water quality objectives contained in the Water Quality Control Plan for the Colorado River Basin (Basin Plan), as well as those contained in NPDES permits and waste discharge requirements pertinent to construction activities and stormwater runoff. The existing Clean Water Act Section 303(d) impairment designation of the Colorado River (for toxicity) would not be affected by any of the proposed activities in Colorado River and California Zone, because the impairment listing is for toxicity from an unknown source or sources, and because the APMs and BMPs to be implemented as part of the Project would minimize the potential for discharge of toxic substances including construction-related fuels.

The primary construction-related pollutants of concern are sediment, trash/debris, and fuels/fluids used to maintain and refuel vehicles and equipment. Implementation of APM WQ-01 would minimize the potential for these pollutants to be present in stormwater runoff by requiring the applicant to obtain a NPDES Construction General Permit. As part of obtaining a NPDES Construction General Permit, the applicant would be required to design and implement a SWPPP, as outlined in APM WQ-01. The SWPPP would incorporate management practices for erosion and

sedimentation controls that are designed to prevent soil particles from detaching and being transported off-site. Examples of erosion control measures include use installation of temporary silt fences and other containment features (including gravel bags and fiber rolls) surrounding work areas to prevent the loss of soil during rain events and other disturbances. Sedimentation controls are structural measures intended to complement and enhance the selected erosion control measures and reduce sediment discharges from active construction areas. Examples of sediment control measures include utilization of storm drain inlet protection, including sediment filters and ponding barriers, to retain sediments on site and prevent excess discharge into storm drains. The SWPP would also include pollution prevention procedures, including spill prevention and response and waste management procedures.

In addition, APMs HAZ-01, WQ-02, and WQ-03 would collectively ensure that employees understand what to do in the event of an accidental spill or discovery of previously undiscovered contamination, and that the appropriate agencies are consulted and the applicable laws and regulations for protection of worker safety and the environment are complied with.

Therefore, no impacts are anticipated.

Impact WQ 2 - Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?

Less than significant – no mitigation required

As evaluated under Impact PUSVC 2 below, water may be obtained from municipal sources, trucked in by a water supply vendor, or derived from local wells. Even under the conservative assumption that the totality of construction water demand of 2,592,543 gallons, equivalent to about 8 acre-feet, would be sourced from groundwater wells in the local area, construction activities would not substantially deplete groundwater supplies or interfere with groundwater recharge. This is because these demands would be distributed across the length of the alignment, and over the 2-year period of construction. Furthermore, the applicant has committed to BMP WQ-04 which would employ non-petroleum-based dust palliatives. Palliatives used for dust control would be non-petroleum products in addition to non-toxic, as well as BMP WQ-05, which would prevent the wasteful use of water. These measures would further ensure that water use for construction remains minimal.

When distributed spatially and temporally, the amount of water required from any one source would be minimal and temporary. Compared to the volume of water stored within the groundwater basins, 8 acre-feet over a two-year period is negligible. The Palo Verde Valley Groundwater Basin (DWR Basin No. 7-38) and the Palo Verde Mesa Groundwater Basin (DWR Basin No. 7-39) are estimated to have an existing storage capacity of 4,960,000 acre-feet and 6,840,000 acre-feet, respectively. Furthermore, they are both classified by the Department of Water Resources as having a “low” priority with respect to sustainable groundwater management, based on the low population density, low or negative growth projections, and/or low numbers of private and public supply wells (DWR 2014). In other words, existing demands on groundwater underlying these basins are not causing significant and long-term groundwater overdraft. Any pumping depression

caused by withdrawal of groundwater to support construction would be minor, temporary, and recover once pumping ceases and construction begins on the next segment.

Finally, the project's impacts on groundwater recharge would be negligible. Impervious surfaces constructed for tower bases and/or substation equipment would be isolated from other impervious surfaces, disconnected from other impervious project components, and would not prevent the ability for stormwater runoff to percolate into the soils immediately adjacent to structures. CMA LUPA-SW-21 further ensures that impervious structures are designed in a manner that directs stormwater to areas that allow percolation into the underlying groundwater aquifer.

For these reasons, the impact of the project on groundwater resources would be less than significant.

Impact WQ 3 - Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?

Less than significant – no mitigation required

Section 4.19.7 of the TES (BLM 2018) discusses the variations in the number of canal/ditch and ephemeral drainage crossings, and variations in the lengths of non-wetland WOUS and high-risk floodplains among alternative routes (Table 4.19-5 of the TES). While as stated, there may be a greater likelihood of inadvertent impact where there are more such crossings, the design features, APMs, and BMPs are assumed to prevent impacts to the same degree. Specifically, the applicant has committed to implementing BMP WQ-06, BMP WQ-07, and CMA LUPA-SW-1 as part of the Project, which collectively avoid or substantially reduce the hydrologic alterations necessary for construction and operation of the project. Where it is feasible to do so, floodplain would be avoided, and in nearly all circumstances, alterations to the course or stream of a river or wash would not occur. The only location where a floodplain would be affected is the Colorado River floodplain. However, the presence of transmission structures with the floodplain of the Colorado River does not affect the probability, depth or extent of flooding. This is because the nature of flooding is shallow and slow-moving (i.e., overbank), and because the transmission structures would occupy an insufficient portion of the cross-sectional area of the floodplain to affect flow (i.e., flood water would go around the towers and/or poles). With regard to ephemeral washes, the typical span width of 1,200 feet is wide enough that permanent impacts to all of the small-scale washes could be avoided.

The ephemeral nature of almost all the streams study area would reduce the likelihood that an inadvertent impact would be sustained or conveyed downstream (i.e., reduced likelihood that flow would be present at the time of any release), and is therefore considered less than significant.

Impact WQ 4 - Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?

Less than significant – no mitigation required

Construction activities should not substantially alter the existing drainage pattern of the site or area, the course of a stream or river, or substantially increase the rate or amount of surface runoff

in a manner which would result in flooding on-site or off-site. Levees, dikes, and upstream dams control floods in developed areas of the Project and along the Colorado River Valley. While undeveloped desert environments are subject to seasonal flooding or ponding over extensive areas, the degree of development associated with transmission line structures and associated access roads would not alter the course of a stream or river. Impervious surfaces at the bases of transmission line structures would incrementally increase runoff, as could the compacted soils in the access roads. Neither of these alterations to ground cover would occur in a concentrated enough of a pattern to substantially alter the existing drainage pattern of the site or area. The impact is therefore considered less than significant.

Impact WQ 5 - Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?

No Impact

Construction-related ground disturbance and the resultant potential for increased erosion and sedimentation via stormwater runoff could impact nearby surface waters, as discussed in Section 4.19.4.1 of the TES (BLM 2018). The Project includes control measures, APMs, and BMPs (Appendix 2A) to minimize this risk. It is assumed that the Stormwater Pollution Prevention Plan(s) (SWPPP) would appropriately specify locations for these measures and verify proper implementation such that they would stabilize disturbed ground, control erosion from disturbed areas, and prevent sediment from entering surface waters. If so, they would effectively minimize risks associated with erosion and movement of sediment in stormwater. As such, there are no predictions that any violation of federal and/or state water quality standards, or any hindrance to any water users, would occur due to erosion or sedimentation. Furthermore, the project does not appreciably increase the volume of runoff and is primarily located in open space and agricultural areas that lack existing or planned stormwater drainage systems, which consist of engineered conveyances such as canals, storm drain pipes, culverts, etc.). Where the project crosses agricultural areas, which have informal (non-engineered) drains and ditches, such features would be spanned and pole//tower footings would not be located so as to affect their capacity. Therefore, no impacts are anticipated.

Impact WQ 6 - Otherwise substantially degrade water quality?

No Impact

As discussed in Impact WQ 1, the SWPPP(s) would appropriately specify locations for control measures, APMs, and BMPs and verify proper implementation such that they would stabilize disturbed ground, control erosion from disturbed areas, and prevent sediment from entering surface waters. This would effectively minimize risks associated with degradation of water quality, therefore no impacts are anticipated. Aside from the water quality issues addressed under Impact WQ-1, there are no other water quality issues pertinent to the Project.

Impact WQ 7 - Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?

No Impact

Housing is not a component of the Project, and therefore, no impacts would occur.

Impact WQ 8 - Place within a 100-year flood hazard area structures which would impede or redirect flood flows?

Less than significant – no mitigation required

During construction, equipment would operate in a FEMA designated 100-year flood hazard Area, but it is unlikely that construction activities would impede or redirect flood flows during a major storm event. The average span between transmission line poles would be 1,200 feet. Where it is feasible to do so, per APM WQ-07, floodplains would be avoided, and in nearly all circumstances, the impedance or redirection of flood flows due to Project components would not occur. The only location where a FEMA designated 100-year flood hazard area would be affected is the Colorado River floodplain. However, the presence of transmission structures with the floodplain of the Colorado River does not affect the probability, depth or extent of flooding. This is because the nature of flooding is shallow and slow-moving (i.e., overbank), and because the transmission structures would occupy an insufficient portion of the cross-sectional area of the floodplain to affect flow (i.e., flood water would go around the towers and/or poles).

FEMA has not mapped floodplains on the Palo Verde Mesa, and where washes cross the alignment. Nevertheless, with regard to ephemeral washes, the typical span width of 1,200 feet is wide enough that permanent impacts to all of the small-scale washes could be avoided. Construction disturbance and permanent access roads would also likely cross floodplains. These roads would not be hard-surfaced and appropriate controls on sediment and stormwater would be implemented during construction. It is assumed that any of these floodplain disturbances would be located in sheetwash areas where any potential flooding would be shallow and water velocities low. Project facilities would not impede flows, collect debris, or cause an increase in flooding area.

For these reasons, the impacts of the project on the probability, depth or extent of floodplains would be less than significant.

Impact WQ 9 - Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?

Less than significant – no mitigation required

During construction, workers could be subjected to potential risks associated with flash flooding in the desert during infrequent major storms. Due to the very low probability of occurrence, this potential impact is considered less than significant.

Transmission line structures and the substation could be exposed to flooding hazards. Transmission line structures and foundations are designed to withstand localized inundation. It is unlikely that transmission line structures would be damaged, and therefore, this impact would be less than significant.

Impact WQ 10 - Inundation by seiche, tsunami, or mudflow?

Less than significant – no mitigation required

The Project area is located along the California-Arizona border, several hundred miles from the Pacific Ocean. Thus, no tsunami hazard is present and there is no impact associated with a tsunami. The Project study area does not contain lakes which could be subject to seiche. Finally, the proposed alignment within California is not located in steep mountains that could be subject to mudflow. Even in the unlikely scenario of a mudflow originating from off-site, the presence of Project components would not exacerbate the consequences to public safety or the environment that such a mudflow would present. Project facilities are unmanned and located in undeveloped open space, presenting minimal risks of public safety regardless of the presence of pre-existing natural hazards such as mudflow. For these reasons, the impacts would be less than significant.

2.9.6 Hydrology and Water Quality Mitigation

No mitigation measures are required.

2.10 LAND USE AND PLANNING

This section describes the impacts to land uses that could potentially occur during construction, operation, maintenance, and decommissioning of the Project in terms of CEQA significance thresholds disclosed below in Section 2.10.4 below. As disclosed in Section 4.8 of the TES (BLM 2018), impacts from construction and operation of the Project would result in incompatible uses or conflict with a land use plan or policy. Additionally, this section responds to issues raised during the public scoping process, which are presented in Appendix 1 of the EIS.

2.10.1 Thresholds and Methodology

The Project's effects are compared to CEQA thresholds of significance to determine whether the Project would be consistent with the designated and allowable uses. The analysis is based on Section 4.8 of the TES (BLM 2018).

Local general plans and community plans, and zoning were reviewed for consistency with designated land uses. Geographic information system (GIS) data was used to determine land uses along the Project alignment. Land uses analyzed in this CEQA analysis are focused on those within 1,000 feet of the Project or its alternatives; those within one mile of the Project or its alternatives and are nationally, regionally, or locally important; and those that would be affected by the Project or its alternatives. Sensitive land uses addressed in this section include:

- Residences
- Educational institutions
- Day care centers
- Religious facilities
- Health care facilities

Sensitive receptors within 2,000 feet of the centerline of the Project segments are listed in Table 4.12-2 and illustrated on Figure 3.12-1a-w of the TES. As identified in Table 4.12-2 of the TES, there are eight sensitive receptors along Segment p-15w consisting of rural residences near Ripley. Ripley is a rural community and sparsely populated.

Within the State of California, the approximately 17-mile segment of the proposed transmission line alignment traverses a variety of land uses. While the majority of lands traversed consist of agricultural fields and open space/desert lands, the proposed alignment also spans or borders levees, roads (paved and dirt), rural residential and commercial/industrial development, and a commercial solar generating operation. The proposed alignment generally follows existing transmission lines from the Colorado River west to the Colorado River Substation, traversing both City of Blythe and Riverside County jurisdiction lands.

2.10.2 Applicant Proposed Measures and BLM Best Management Practices

APMs have been identified and would be implemented by the project applicant. In addition, BLM would require implementation of Best Management Practices (BMPs), which are intended to further minimize Project impacts. All Project APMs and BMPs are described in EIS Appendix 2A. There are no APMs or BMPs applicable to Land Use and Planning.

2.10.3 Conservation and Management Actions

The CDCA Plan, as amended, contains CMAs, which include a specific set of avoidance, minimization, and compensation measures. The applicability of those measures to the Project was determined using a CMA checklist (EIS Appendix 2C). The CMAs applicable to the Project and related to Land Use and Planning are listed below and Project compliance with CDCA CMAs is addressed in the analysis portion of this section.

- **LUPA-LANDS-4.** Nonfederal lands within the boundaries of BLM LUPA land use allocations are not affected by the LUPA.
- **LUPA-LANDS-5.** The MUCs used to determine land tenure in the CDCA Plan, as amended, will be replaced by areas listed in the CMAs below.
- **LUPA-LANDS-8.** The CDCA Plan, as amended, requirement that new transmission lines of 161kV or above, pipelines with diameters greater than 12 inches, coaxial cables for interstate communications, and major aqueducts or canals for interbasin transfers of water will be located in designated utility corridors or considered through the plan amendment process outside of designated utility corridors, remains unchanged. The only exception is that transmission facilities may be located outside of designated corridors within DFAs without a plan amendment. This CMA does not apply the Bishop and Bakersfield RMPs.

2.10.4 CEQA Significance Criteria

Appendix G of CEQA Guidelines (14 CCR 15000 et seq.) provides guidance on assessing whether a project would have significant impacts on the environment. Consistent with Appendix G, the Project would have significant impacts on land use and planning if it would:

a. Physically divide an established community.
b. Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to, the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect.

c. Conflict with any applicable habitat conservation plan or natural community conservation plan.

2.10.5 Land Use Impact Analysis

Impact LU 1 - Physically divide an established community?

Less than significant – no mitigation required

The construction and operation of the Project would not divide an established community because it would be located within existing utility corridors adjacent to existing transmission lines. The ROW would not be expanded, and there would be no development outside of the ROW. Operation and maintenance activities would be performed concurrently with operation and maintenance activities currently being performed on existing utility infrastructure in the area. There would be no impacts from the construction and operation of the transmission line. As discussed in the Section 4.8.4.1 of the TES (BLM 2018), ROW acquisition on BLM lands and other private lands would be negotiated with the landowner. The temporary impacts would be short term and would cease once construction activities are completed at a segment. No new access roads would be developed in the residential areas of the municipalities that occur within the project area. In addition, as described in Section 3.8.3.3 of the TES, none of the proposed route segments in the Colorado River and California Zone cross a proposed or approved, but not yet constructed, residential subdivision.

In Riverside County, California, the Project would span across farmlands and BLM lands. The transmission lines will be overhead but the associated transmission structures would require a permanent footprint. As mentioned in Chapter 2, Description of the Proposed Action and Alternatives, DCRT would attempt to match these structure locations adjacent to existing transmission line structures to the extent practicable. If unavoidable, the transmission structure may be located on agricultural lands. However, this would not sever any linkages or access roads between farmlands as the footprint of these structures would be small and placed to ensure that the farmland is not rendered unproductive.

As discussed in Section 4.8.4.5 of the TES, Project segments may cross the existing NextEra Energy Blythe Solar Energy Center and McCoy Solar Energy facility and the approved but not yet constructed Blythe Mesa Solar Project. In addition to the approved projects, First Solar Energy Desert Quartzite Solar Project and the Recurrent Energy Crimson Solar Project are pending applications within the land use study area. For segments that would cross a solar facility, the Project structures would be sited to avoid all solar energy facility components. However, the Project would have the potential to affect the performance of the solar array, due to shading from the Project structures. Micrositing of the poles, as well as pole type selection, would reduce the potential for this effect. Therefore, the project would not conflict with solar facilities or divide any established communities both in California and Arizona.

Substation work would be performed entirely within existing SCE property and no expansion of facilities would occur. Temporary use areas would be required for material staging, laydown yards, and batch plants during construction. These areas would be temporary disturbance and selected based upon the final alignment chosen for this Project; however, the work areas would not divide an established community because the proposed work areas would be located in an existing utility

corridor adjacent to existing transmission lines. The SCE ROW would not be expanded, and there would be no development outside of the ROW. Operation and maintenance activities would be performed concurrently with operation and maintenance activities currently being performed on existing SCE infrastructure in the area. No impacts would occur from the construction and operation of these Project components.

Staging yards are temporary work spaces that would be used only for construction and would not divide existing communities. There would be no potential to divide an established community from the use of the staging yards because they would be located in areas not being used for residential. Staging yards would be restored to their approximate pre-construction condition following Project completion. No impacts would occur.

Impact LU 2 - Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?

Less than significant – no mitigation required

As discussed in Section 4.8.5.2 of the TES (BLM 2018), none of the Proposed or Alternative Segments in California would be in compliance with CMA LUPA-BIO-PLANT-2, the intent of which is to protect the ecological process of special status plant species in order to sustain viable, healthy populations. This CMA would apply to Harwood's eriastrum which occurs in the biology study area. This CMA would be further amended in the CDCA Plan to authorize construction of the Ten West Link Project within 0.25-mile of occurrences of Harwood's eriastrum, provided that a Rare Plant Linear ROW Protection Plan for Harwood's eriastrum is developed and approved by the BLM California State Director. The effects of the amendment on Harwood's eriastrum populations is provided in Section 4.5.9 of the TES.

The amendment to the CDCA Plan to bring the Project into compliance with CMA LUPA-BIO-PLANT-2 would not result in any effects on current land uses in the study area. This amendment would not conflict with any other management direction in the CDCA Plan, as amended.

No local land use plans, policies, or regulations requiring discretionary approval would apply to the Project because, pursuant to GO No. 131-D, the CPUC has sole and exclusive jurisdiction over the siting and design of such facilities. Consequently, the Project would not conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project area. There would be no impact. The CPUC has consulted with local agencies regarding land use matters potentially affected by the Project.

The Project is located within several federal, state, and local planning areas. Approximately 72 percent of the Project on BLM land would be within designated utility corridors and thus be complying. As discussed in Section 4.8.4 of the TES, the Project would comply with BLM leases for ROW grants for locations outside the utility corridor. For non-BLM lands, ROWs would be obtained as easements or leases, as appropriate. For project alignments located within utility corridors, no impacts would occur.

As discussed in Section 4.8.4.1 of the TES, where the proposed segments would intersect private lands outside of existing ROWs, easements would be negotiated with the landowners. The issuance

of a CPCN would allow DCRT to site the project within residential areas, consistent with other transmission lines in the region (DPV1 and DPV2). Therefore, the Project would be compatible with the surrounding residential uses.

As discussed in Section 4.8.4.5 of the TES (BLM 2018), the land use analysis area in the Colorado River and California Zone would include the Colorado River special policy area designated under the Palo Verde Valley Area Plan. The land use concept for this plan intends to preserve the agricultural character of the analysis area. Because the Project would be located within existing utility corridors adjacent to existing transmission lines, the Project and more specifically, new poles and conductors, would not result in a significant change in the character of the analysis area. In addition, in Riverside County, the Project would be located on lands zoned as Agriculture and Rural Residential. Both these zoning districts allow for the installation of transmission facilities.

Table 4.8-2 in the TES outlines the plans that are applicable within the project area, land use goals and objectives therein, and the consistency with the project. Within the State of California, the following plans contain relevant objectives and policies related to land use however, as previously stated above, regional and local agencies do not have jurisdiction over the Project:

- Riverside County General Plan (Riverside County 2015a)
- Riverside County Palo Verde Area Plan (Riverside County 2015b)
- City of Blythe General Plan 2025 (City of Blythe 2007)

Table 2.10-1, below, list the relevant objectives and policies of the Riverside County General Plan, Riverside County Palo Verde Area Plan, and City of Blythe General Plan 2025 and demonstrates the Project's consistency with listed objectives and policies:

Table 2.10-1 Land Use Compliance with Relevant Land Use Plans

GOALS/OBJECTIVES/POLICY	COMPLIANCE DETERMINATION
Riverside County General Plan	
Policy LU 4.1: Require that new developments be located and designed to visually enhance, not degrade the character of the surrounding area.	As proposed, the Project would be located within existing utility corridors adjacent to existing transmission lines. New poles and conductors be constructed and would operate where existing poles and towers supporting high voltage transmission lines are currently installed and contribute to the baseline land use setting. By locating the Project within existing utility corridors and adjacent to existing transmission lines, the character of the Project area would not be substantially degraded. Therefore, the Project would be consistent with this policy.

GOALS/OBJECTIVES/POLICY	COMPLIANCE DETERMINATION
Policy LU 7.1: Require land uses to develop in accordance with the General Plan and area plans to ensure compatibility and minimize impacts.	Please refer to the Policy LU 4.1 Compliance Determination above. Due to its location within existing utility corridors and proximity to existing transmission lines, land use impacts would be minimized and the Project would be compatible with surrounding land uses. Therefore, the Project would be consistent with this policy.
Policy LU 7.2: Notwithstanding the Public Facilities designation, public facilities shall also be allowed in any other land use designation except for the Open Space-Conservation and Open Space- Conservation Habitat land use designations. For purposes of this policy, a public facility shall include all facilities operated by the federal government, the State of California, the County of Riverside, any special district governed by or operating within the County of Riverside or any city, and all facilities operated by any combination of these agencies.	Within Riverside County, the proposed alignment traverse several land use designations including open space, residential and agricultural (please refer to Figure 3.8-4 of the TES [BLM 2018]). Please refer to the Policy LU 4.1 Compliance Determination above. Because the Project is proposed within existing utility corridors and adjacent to existing transmission lines, the Project is consistent with this policy.
Policy LU 7.4: Retain and enhance the integrity of existing residential, employment, agricultural, and open space areas by protecting them from encroachment of land uses that would result in impacts from noise, noxious fumes, glare, shadowing, and traffic.	Please refer to the Policy LU 4.1 Compliance Determination above. The Project would be consistent with this policy.
Policy LU 14.1: Preserve and protect outstanding scenic vistas and visual features for the enjoyment of the traveling public.	Please refer to the Policy LU 4.1 Compliance Determination above. There are no officially designated scenic vistas or overlook in the Project Area (please refer to Section 2.1.5, Aesthetics Analysis, above). In addition, BMPs including BMP AES-08 would be implemented to minimize impacts to aesthetic resources such as scenic vistas. BMP AES-08 entails the avoidance of “skylining” transmission/communication towers such that these features would not be placed on ridgelines, summits, or other location where they would be silhouetted against the sky. With implementation of BMPs including BMP AES-08, aesthetic resources would be maintained to the extent practicable and the Project would be consistent with this policy.

GOALS/OBJECTIVES/POLICY	COMPLIANCE DETERMINATION
Policy LU 20.2: Protect agricultural uses, including those with industrial characteristics (dairies, poultry, hog farms, etc.) by discouraging inappropriate land division in the immediate proximity and allowing only uses and intensities that are compatible with agricultural uses.	Please refer to the Policy LU 4.1 Compliance Determination above. The Project would be consistent with this policy.
Policy LU 23.2: Require that structures be designed to maintain the environmental character in which they are located.	Please refer to the Policy LU 4.1 Compliance Determination above. The Project would be consistent with this policy.
Policy LU 31.6: Ensure that development and conservation land uses do not infringe upon existing essential public facilities and public utility corridors, which include Riverside County regional landfills, fee owned rights-of-way and permanent easements, whose true land use is that of Public Facilities. This policy will ensure that the public facilities designation governs over what otherwise may be inferred by the large-scale General Plan maps.	Please refer to the Policy LU 4.1 Compliance Determination above. The Project would be compatible with adjacent transmission lines and underlying land uses would not infringe upon the proposed transmission line (the Project would be located within existing transmission corridors). The Project would be consistent with this policy.
Riverside County General Plan Palo Verde Area Plan	
Policy PVVAP 4.1: Protect farmland and agricultural resources in Palo Verde Valley through adherence to the Agriculture sections of the General Plan Multipurpose Open Space and Land Use Elements.	Please refer to the Policy LU 4.1 Compliance Determination above. The Project would be consistent with this policy.
PVVAP 16.1: Protect ridgelines and slopes that provide a significant visual resource for the Palo Verde Valley area through adherence to the Hillside Development and Slope section of the General Plan Land Use Element	Please refer to the Policy LU 4.1 and Policy LU 14.1 Compliance Determination above. The Project would be consistent with this policy.
City of Blythe General Plan 2025	
Policy 1: Preserve the scale and character of established neighborhoods.	Please refer to the Policy LU 4.1 Compliance Determination above. The Project would be consistent with this policy.

As demonstrated in Table 2.10-1 above, the Project would be consistent with identified policies of the Riverside County General Plan, Riverside County Palo Verde Area Plan and City of Blythe General Plan 2025.

Since the Project would be consistent with applicable land use plans in California, impacts concerning inconsistencies with applicable land use plans, policies, or regulations would be less than significant.

Impact LU 3 - Conflict with any applicable habitat conservation plan or natural communities' conservation plan?

Less than significant – no mitigation required

Project transmission line temporary staging yards and the Substation work areas would be located either on SCE property, within SCE ROW or within roadway ROW (franchise agreement) within the applicable municipality, or on new sources of ROW. It is acknowledged that the DRECP supersedes any other MCSPs or HCPs for work conducted by the Project and as documented in Section 4.5 Biological Resources of the TES (BLM 2018), a plan amendment to the HCP would be required. Potential conflicts with applicable habitat conservation plans or natural community conservation plans are addressed in Section 4.5 of the TES. The proposed route and alternative segments in California do not cross any areas designated under the DRECP (BLM 2016) or other applicable BLM management plans (BLM 1980, 2002a) as Areas of Critical Environmental Concern or as other areas designated for the conservation or focused management of biological resources or their habitat. All areas on BLM-managed lands in California that are crossed by the proposed route and alternative segments are classified in the DRECP as Development Focus Areas (DFA). The DRECP allows the development of new transmission line infrastructure outside of utility corridors within DFAs. As stated above, the project does not conflict with any applicable habitat conservation plan or natural communities' conservation plan, therefore, no impact would occur.

2.10.6 Land Use Mitigation

No mitigation measures are required.

2.11 MINERAL RESOURCES

This section describes the impacts to mineral resources that could potentially occur during construction, operation, and maintenance of the Project. Environmental impacts presented in section 4.3 of the TES (BLM 2018) are discussed in terms of CEQA significance thresholds disclosed in Section 2.11.4. Additionally, this section responds to issues raised during the public scoping process, which are presented in Appendix 1 of the EIS.

2.11.1 Thresholds and Methodology

The project's effects are compared to CEQA thresholds of significance to determine whether the Project would result in a significant change to mineral resources. The analysis is based on Sections 3.3 and 4.3 of the TES (BLM 2018).

Section 4.3 of the TES discloses adverse environmental effects that may result from construction and operation of the Project. This CEQA analysis uses information and data from available published resources, including journals, maps, and government websites, were collected and reviewed to bolster the environmental impact analysis found in Section 4.3 of the TES within the context of the impact thresholds found in Appendix G of the CEQA Guidelines.

This analysis assumes that the applicant would comply with the following environmental factors and components of the Project Description (Chapter 2 of the TES) when evaluating the effects of the Project on geology and mineral resources:

- A geotechnical engineering study would be completed prior to final design and construction of the Project to identify site-specific geological conditions and potential geological hazards. The data collected from the study would be used to guide sound engineering practices, and foundation design would be consistent with geological conditions for each tower site.
- Existing fault lines, land subsidence areas, earth fissures, mining claims, oil/gas reserves, areas of mineral resources of economic value, and other pertinent geological and mineral-related features have been accurately mapped.
- Operation and maintenance of the Project, as it relates to geological and mineral resources, would primarily be the presence of transmission structures and transmission lines and how they could preclude access to underground resources in the immediate vicinity.
- Transmission lines typically have little impact to mining operations. Span lengths are such that access to minerals can be accomplished between spans. Should open pit mining be planned, structures can be left on 'islands,' or the mining interests can have the transmission line locally re-routed (personal communication, Mark Wieringa, Western, 2013).

2.11.2 Applicant Proposed Measures and BLM Best Management Practices

APMs have been identified and would be implemented by the project applicant. In addition, BLM would require implementation of Best Management Practices (BMPs), which are intended to further minimize Project impacts. All Project APMs and BMPs are described in EIS Appendix 2A. There are no APMs or BMPs applicable to Mineral Resources.

2.11.3 Conservation and Management Actions

The CDCA Plan, as amended, contains CMAs, which include a specific set of avoidance, minimization, and compensation measures. The applicability of those measures to the Project was determined using a CMA checklist (EIS Appendix 2C). There are no CMAs applicable to Mineral Resources.

2.11.4 CEQA Significance Criteria

Appendix G of CEQA Guidelines (14 CCR 15000 et seq.) provides guidance on assessing whether a project would have significant impacts on the environment. Consistent with Appendix G, the Project would have significant hazards and hazardous materials impacts if it would:

a. Result in the loss of availability of a known mineral resource classified MRZ-2 by the State Geologist that would be of value to the region and the residents of the State?
b. Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?

2.11.5 Mineral Resources Analysis

Impact MRZ 1 - Result in the loss of availability of a known mineral resource classified MRZ-2 by the State Geologist that would be of value to the region and the residents of the State?

Less than significant – no mitigation required

The project area west of Colorado River, in California, is within Mineral Resource Zone 4 (MRZ-4; California Department of Conservation 1994), which is defined as area where there is not enough information available to determine the presence or absence of mineral deposits. Given the lack of information for this area, impacts under this criterion are assumed to be less than significant.

Impact MRZ 2 - Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?

Less than significant – no mitigation required

As discussed in Section 4.3 of the TES (BLM 2018), there are mining operations in the project area. The Project would not affect these mines, prospects, or occurrences unless the presence of the line prevented access to develop the material, since none of the mines, prospects, or occurrences of mineral resources are being actively mined. The Project has the potential to indirectly impact mineral resources by encumbering the resource during the operational phase of the Project. As concluded in Section 4.3 of the TES, transmission lines typically have little impact to mining operations, as the spacing between transmission structures is large enough to accommodate access to mineral resource deposits. Should open pit mining be planned, though no such development is currently planned within the Project's ROW, structures can be left on 'islands,' or the mining interests can have the transmission line locally re-routed.

The project could temporarily disrupt access to mineral resources during the construction phase of the project. Since no active mining operations, claims, prospects, or occurrences of mineral resources are located within the project ROW, it is unlikely that the project would result in the loss of availability of important mineral resources. Therefore, impacts under this criterion would be less than significant.

2.11.6 Mineral Resources Mitigation

No mitigation measures are required.

2.12 NOISE

This section describes the noise and vibration impacts to sensitive receptor associated with the construction, operation, and maintenance of the proposed transmission line, SCS, and ancillary facilities in terms of CEQA significance thresholds disclosed below in Section 2.12.4 below. As disclosed in Section 4.12 of the TES (BLM 2018), construction activities may temporarily result in increased noise levels to visitors. Additionally, this section responds to issues raised during the public scoping process, which are presented in Section Appendix 1 of the EIS. However, impacts have been determined to be less than significant with APMs, BMPs and CMAs.

2.12.1 Thresholds and Methodology

Existing conditions described in Section 3.12 of the TES (BLM 2018) have been evaluated with regard to their potential to be affected by Project construction, operation, maintenance, and decommissioning activities. The potential impacts associated with the Project are evaluated on a qualitative basis by comparing Project effects on sensitive receptors reported in Section 4.12 of the TES with the significance criteria established by Appendix G of the CEQA Guidelines.

Construction of the Project would require a variety of equipment. During construction, noise levels generated by project construction activities would vary depending on the particular type, number, and duration of use of various pieces of construction equipment. Typical noise levels at 50 feet from the source for some of the heavy pieces of construction equipment that would be required to construct the Project are listed in Table 2.12-1. Helicopter use will not be required for construction of any Project segments within California.

Table 2.12-1 Typical Noise Levels from Construction Equipment

CONSTRUCTION EQUIPMENT	NOISE LEVEL (DBA, LEQ AT 50 FEET)
Front Loader	85
Backhoes, excavators	80
Tractors, dozers	85
Graders, scrapers	85
Trucks	88
Concrete pumps, mixers	82
Cranes (mobile)	83
Cranes (derrick)	88
Pumps	76
Generators	81
Compressors	81
Pneumatic tools	85
Jack hammers, rock drills	88 – 98
Pavers	89
Compactors	82

Source: U.S. Department of Transportation, 2006

As shown in Table 2.12-1, intermittent and continuous use of construction equipment would generate noise levels in excess of 85 dBA at 50 feet. However, noise levels associated with these types of construction equipment typically attenuate, or reduce, over relatively short distances. The noise analysis included in the Final EIR/EIS for the nearby Devers-Palo Verde 500 kV No. 2 transmission project (DPV2) assumed aggregated peak noise levels of up to 100 dBA within 50 feet from construction activity (CPUC and BLM 2006):

> *At 100 feet, the distance would attenuate these peak levels to about 94 dBA, and at 200 feet, 88 dBA. These short peaks would attenuate further to about 76 dBA for locations at 800 feet with an unobstructed line of sight. Over a typical day, average noise levels from construction would be lower than the intermittent peaks because most equipment would not be operated steadily or continuously at peak levels. At 50 feet, continuously steady construction noise levels would average approximately 77 dBA. At 100 feet, these average levels would attenuate to 71 dBA, and to 65 dBA at 200 feet. These noise levels would diminish over additional distance and would be reduced further by any intervening structures. At distances over one-quarter mile, steady construction noise would be under 50 dBA, which would begin to fade into quiet backgrounds.*

Table 4.12-1 in the TES (BLM 2018) identifies noise guidelines and requirements applicable to the Project. Those relevant to Riverside County are replicated here in Table 2.12-2.

Table 2.12-2 Project Noise Guidelines and Requirements in Riverside County

LEVEL	SOURCE	CRITERIA	NOTES
Local	Riverside County General Plan (2015a)	Noise attenuation measures required for land use exposed to levels greater than 65 CNEL	Requirement
Local	Riverside County General Plan (2015a)	Stationary source facility-related limits received by sensitive land uses: 45 dBA, 10minute -Leq between 10 p.m. and 7 a.m.	Requirement
Local	Riverside County General Plan (2015a)	Stationary source facility-related limits received by sensitive land uses: 65 dBA, 10minute -Leq between 7 a.m. and 10 p.m.	Requirement
Local	Riverside County General Plan (2015a)	Construction not to occur between 6 p.m.to 6 a.m.	Required June–September
Local	Riverside County General Plan (2015a)	Construction not to occur between 6 p.m. to7 a.m.	Required October–May

Notes: dB = decibels, L_{dn} = day-night sound level, dBA = A-weighted decibel, CNEL = Community Noise Equivalent Level, L_{eq} = equivalent sound level

The Riverside County Noise Ordinance (Riverside County 2007) specifies that exemptions from noise standards include private construction projects located within 0.25 of a mile from an inhabited dwelling, provided that construction does not occur between the hours of 6 p.m. and 6 a.m. during the months of June through September, and construction does not occur between the hours of 6 p.m. and 7 a.m. during the months of October through May.

Applicant Proposed Measures and BLM Best Management Practices

APMs have been identified and would be implemented by the project applicant. In addition, BLM would require implementation of Best Management Practices (BMPs), which are intended to further minimize Project impacts. All Project APMs and BMPs are described in EIS Appendix 2A. Of these, the following would apply to the portion of the Project located within California and have therefore been incorporated into the Project for evaluation of significant impact to noise under CEQA.

- **APM NO-01: Noise Minimization with Portable Barriers.** Compressors and other small stationary equipment used during construction would be shielded with portable barriers if located within 200 feet of a residence.
- **APM NO-02: Noise Minimization with Quiet Equipment.** Quiet equipment (for example, equipment that incorporates noise control elements into the design; quiet model air-compressors or generators can be specified) would be used during construction whenever possible.
- **APM NO-03: Noise Minimization through Direction of Exhaust.** Stationary equipment exhaust stacks and vents (i.e., on equipment like generators and lights) would be directed away from buildings where feasible.
- **APM NO-04: Blasting Mitigation.** If blasting is required, the timeframe that blasting activity would occur would be limited, in addition to limiting the number of blasts that occur per hour or per day.
- **BMP NO-05: County, State, and Federal Noise Regulations.** Project would be located far enough from residences, or include engineering and/or operational methods such that county, state, and/or federal regulations for noise are not exceeded.
- **BMP NO-06: Hours of Daily Activity**. The hours of daily activities would be limited and noise barriers would be constructed if needed and practicable. Coordination with nearby residents is recommended.
- **BMP NO-07: Sensitive Wildlife Protection.** To the extent feasible, locate stationary noise sources that exceed background ambient noise levels away from known or likely locations of and BLM sensitive wildlife species and their suitable habitat.

2.12.2 Conservation and Management Actions

The CDCA Plan, as amended, contains CMAs, which include a specific set of avoidance, minimization, and compensation measures. The applicability of those measures to the Project was determined using a CMA checklist (EIS Appendix 2C). The CMAs applicable to the Project and related to noise are listed below and Project compliance with CDCA CMAs is addressed in the analysis portion of this section.

- **CMA LUPA-BIO-12.** For activities that may impact Focus or BLM Special Status Species, implement the following LUPA CMA for noise:
    - To the extent feasible and determined necessary by BLM to protect Focus and BLM sensitive wildlife species, locate stationary noise sources that exceed background ambient noise levels away from known or likely locations of and BLM sensitive wildlife species and their suitable habitat.
    - Implement engineering controls on stationary equipment, buildings, and work areas including sound insulation and noise enclosures to reduce the average noise level, if the activity will contribute to noise levels above existing background ambient levels.
    - Use noise controls on standard construction equipment including mufflers to reduce noise

2.12.3 CEQA Significance Criteria

Appendix G of CEQA Guidelines (14 CCR 15000 et seq.) provides guidance on assessing whether a project would have significant impacts on the environment. Consistent with Appendix G, the Project would have significant impacts to agriculture and forestry if it would:

a. Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?
b. Exposure of persons to or generation of excessive ground-borne vibration or ground-borne noise levels?
c. A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?
d. A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?
e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport of public use airport, would the project expose people reside or working in the project area to excessive noise levels?
f. For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?

2.12.4 Noise Analysis

Impact NOI 1 - Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Potentially significant (construction) and unavoidable

Noise-sensitive receptors (NSR) identified within 2,000 feet of the centerline of the Project segments in California are listed in Table 4.12-2 and illustrated on Figure 3.12-1j-m of the TES (BLM 2018). Noise-sensitive receptors include residences, schools and day care facilities, hospitals, long-term care facilities, places of worship, libraries, and parks and recreational areas. As identified in Table 4.12-2 of the TES (BLM 2018), there are eight sensitive receptors along Segment p-15w consisting of rural residences near Ripley. Ripley is a rural community and

sparsely populated. The general land use character is predominantly rural residential areas and farmland.

2.12.4.1 Construction

As discussed in Section 4.12.5 of the TES, and shown in TES Table 3.12-8**,** the existing ambient noise levels in Ripley are 50 dBA. Construction noise levels are expected to generally be below 65 dBA within a few hundred feet of the limits of construction. As discussed in the DPV2 EIS/EIR, construction noise within 200 feet would not attenuate to less than 65 dBA (CPUC and BLM 2006). NSRs within 2,000 feet of the centerline of the Project, and construction noise may exceed 65 dBA at NSR properties. As discussed in the EIS, construction impacts would be of limited duration (short-term) and exemptions from noise standards include private construction projects located within 0.25 of a mile from an inhabited dwelling, provided that construction does not occur between the hours of 6 p.m. and 6 a.m. during the months of June through September, and construction does not occur between the hours of 6 p.m. and 7 a.m. during the months of October through May. Therefore, NSRs within 200 feet may experience noise that exceeds the Riverside County General Plan (Table 2.12-2). APM NO-01 through APM NO-03 would reduce construction-related noise through the use of portable noise barriers, quiet equipment, proper exhaust orientation. BMPs NO-4 through NO-07 would limit blasting, if required, seek to locate the project away from NSRs, limit the hours of daily activity, and consider wildlife protections.

After the implementation of APMs and BMPs, noise experienced at NSRs, especially those within 200 feet of a project work area, would likely exceed the County's 65 dBA threshold. Implementation of CEQA MM NO-1 through NO-04 would further reduce construction related noise by ensuring equipment is equipped with noise reduction features (e.g., mufflers and engine shrouds) that are no less effective than those originally installed by the manufacturer; construction traffic is routed away from residences and schools, where feasible; unnecessary construction vehicle use and idling time is minimized to the extent feasible; and construction staging and material laydown areas are located away from NSRs. After implementation of the APMs, BMPs, and CEQA MMs, it cannot be demonstrated that project-related construction noise levels at NSRs within 200 feet of a project work area would be within the County's 65 dBA threshold. Therefore, impacts under this criterion are considered significant and unavoidable.

2.12.4.2 Operation, Maintenance, Decommissioning

As with the Project segments in Arizona, the proposed segments in California would continue to follow existing utility corridors and would be co-located with the existing DPV1 line. Therefore, expected noise levels near NSR are expected to be similar to existing levels of noise.

As noted in the Section 4.12.5 of the TES (BLM 2018), the Project could result in Corona effect, that could result in noticeable noise particularly in unfavorable weather conditions. As shown in Table 4.12-4 of the TES, the project operations were predicted to have audible noise levels below US EPA guideline of 55 dBA during foul weather conditions.

These predicted project noise levels are in line with existing levels of ambient noise at the NSRs, which range from <45 to 65 dBA. During dry periods, the corona noise levels will be lower than during wet conditions, which were the conditions assessed with the modeling exercise. In the Project Area, the wettest months are typically July through September in Arizona (the monsoon

season), and December through January in California (U.S. Climate Data 2017, Arizona State Climate Office 2017).

Section 4.12.5 of the TES concludes that maintenance activities associated with substations and transmission lines would generate noise levels similar to construction-related activities, but would be anticipated to occur less frequently, include fewer individual noise point sources such as pieces of heavy equipment and/or OHVs and pickup trucks used along the ROW, and would be of shorter duration. Indeed, these activities are predicted to result in maximum noise levels in the 55 to 58 dBA range at a distance of 0.25 mile from the centerline of the ROW. Thus, the expected maximum noise levels are in the range of ambient levels (i.e., <35 dBA to 65 dBA). This is consistent with conclusions made in the DPV-2 EIR/EIS related to potential impacts from construction noise.

It is expected that impacts resulting from the decommissioning process would be like the impacts during construction of the Project. As discussed above, with implementation of APMs, compliance with County of Riverside, and City of Blythe (as necessary) local ordinances, noise impacts from construction, operation, and maintenance of the Project would be less than significant.

Impact NOI 2 - Exposure of persons to or generation of excessive ground-borne vibration or ground-borne noise levels?

No impact – no mitigation required

As noted in Section 4.12.4.1 of the TES (BLM 2018), ground-borne vibration impacts are only expected to occur during pile-driving activities. At this time, no pile driving is associated with the construction of the Project. Therefore, no impacts would occur.

Impact NOI 3 - A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?

Less than significant – no mitigation required

As discussed in Section 4.12.5 of the TES, corona noise associated with the Project would result in a 0.1 decibel increase above the existing noise levels in the Project Area. This increase would be inaudible to the human ear and less than significant. As such, the permanent increase in noise levels along the Project would be classified as a less than significant impact.

Impact NOI 4 - A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?

Less than significant – no mitigation required

As discussed in Section 4.12.5 of the TES and Impact NOI 1 above, the existing ambient noise level at the Ripley NSRs is 50 dBA as shown in Table 3.13-8. Construction noise levels are expected to generally be below 65 dBA within a few hundred feet of the limits of construction. Construction impacts would be of limited duration (short-term) and comply with local noise ordinances. In addition, expected noise levels near NSR are expected to be similar to existing levels of noise; and construction of the transmission line would primarily be limited to daytime hours so it is unlikely that construction equipment noise levels would cause sleep disruption for residents at the determined NSR. There may be some instances during construction were noise

levels may exceed ambient noise levels in the project vicinity at NSRs; however, due to the short term linear nature of construction, the number of NSRs exposed to noise levels in excess of the ambient noise levels will be limited. The Applicant will implement applicant committed APMs related to noise minimization, and the BLM required BMPs would further reduce temporary construction impacts to less than significant level, such as limiting hours of daily activity, constructing noise barriers if needed, and coordinating with nearby residents.

Impact NOI 5 - For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport of public use airport, would the project expose people residing or working in the project area to excessive noise levels?

No impact

In California, the Project's segment p-16 is located approximately six miles south of Blythe Airport, the only public airport along the California portion of the Project. No impacts would occur.

Impact NOI 6 - For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?

No impact

In California, the Project's segment p-15w is located approximately four miles south of CYR Aviation, a private airstrip, the only private airstrip within the California portion of the Project. No impacts would occur.

2.12.5 Noise Mitigation

- **CEQA MM NO-01: Effectiveness of Noise Reduction Features.** Construction equipment shall use noise reduction features (e.g., mufflers and engine shrouds) that are no less effective than those originally installed by the manufacturer.
- **CEQA MM NO-02: Construction Traffic.** Construction traffic shall be routed away from residences and schools, where feasible.
- **CEQA MM NO-03: Construction Vehicle Use.** Unnecessary construction vehicle use and idling time shall be minimized to the extent feasible.
- **CEQA MM NO-04: Construction Staging and Material Laydown Areas.** To the extent feasible, construction staging and material laydown areas shall be located away from noise-sensitive receivers.

2.13 POPULATION AND HOUSING

This section presents the environmental setting and impact analysis for population and housing resulting from the Project and its alternatives. This section addresses existing population and housing information for the Project area, applicable regulations, environmental impacts, and mitigation measures to reduce or avoid significant effects. Additionally, this section responds to issues raised during the public scoping process, which are presented in Appendix 1 of the EIS.

2.13.1 Thresholds and Methodology

The following analysis uses baseline conditions established in Section 3.15 of the TES (BLM 2018) and evaluates the potential for impacts associated with the Project. CEQA Guidelines Section 15131(a) states, economic or social effects of a project will not be treated as significant effects on the environment. CEQA analysis may trace a chain of cause and effect from the proposed decision on a project through anticipated economic or social changes resulting from the project to physical changes caused in turn by the economic or social changes. The intermediate economic or social changes need not be analyzed in any detail greater than necessary to trace the chain of cause and effect. The focus of the analysis therefore, will be on the physical changes triggered by impacts to socioeconomic resources that would be introduced by the Project.

Population estimates and projections were determined using data from the United States Census Bureau and Western Riverside Council of Governments Housing estimates and projections were determined using data from Western Riverside Council of Governments.

This impact analysis considers whether implementation of the Project would result in significant impacts to population and housing. The analysis focuses on reasonably foreseeable effects of the Project as compared with baseline conditions. The analysis uses significance criteria based on the CEQA Appendix G Guidelines. The potential direct and indirect effects of the Project and alternatives are addressed. Effects that would result from operation and maintenance of the Project and alternatives are also addressed. The applicant did not identify any APMs or BMPs to avoid or reduce significant impacts to population and housing.

2.13.2 Applicant Proposed Measures and BLM Best Management Practices

APMs have been identified and would be implemented by the project applicant. In addition, BLM would require implementation of Best Management Practices (BMPs), which are intended to further minimize Project impacts. All Project APMs and BMPs are described in EIS Appendix 2A. There are no APMs or BMPs applicable to Population and Housing.

2.13.3 Conservation and Management Actions

The CDCA Plan, as amended, contains CMAs, which include a specific set of avoidance, minimization, and compensation measures. The applicability of those measures to the Project was determined using a CMA checklist (EIS Appendix 2C). There are no CMAs applicable to Population and Housing.

2.13.4 CEQA Significance Criteria

Appendix G of CEQA Guidelines (14 CCR 15000 et seq.) provides guidance on assessing whether a project would have significant impacts on the environment. Consistent with Appendix G, the Project would have significant impacts on population and housing if it would:

a. Induce substantial population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure).
b. Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere.
c. Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere.

2.13.5 Population and Housing Analysis

Impact POP 1 - Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

Less than significant – no mitigation required

Construction of the Project is anticipated to take approximately 2 years and as shown in Table 2.13-1, construction is projected to support approximately 160 direct short-term construction jobs.

Table 2.13-1 Impacts to Jobs and Employment

JOBS	DIRECT	INDIRECT	INDUCED	TOTAL
Transmission Line	120	54.1	85.5	259.6
Substation	40	9.0	14.3	43.3
Total	**160**	63.1	99.8	302.9

Source: BLM 2018

Construction of the Project is not anticipated to induce substantial population growth or result in impacts on population and housing. Even with the assumption that half of the construction-related positions will be filled by workers moving into the area, 158 housing units would be required. Based on the vacancy rates are shown in Table 2.13-2, project's impact on available housing would be less than significant. It is anticipated that the Project would primarily employ workers who are living within project area because the Project is located within a rural urban area with easy access from nearby communities. Because the workforce would be drawn from the regional metropolitan area, the population in the area would not be affected. There would be no impact to the population due to construction workers. No mitigation is required.

Table 2.13-2 Project Impacts on Existing Housing Units

AREA	2014 HOUSING UNITS (TABLE 3.15-1)	SCENARIO ONE		SCENARIO TWO	
		HOUSING UNITS INCREASE	HOUSING UNITS INCREASE (%)	HOUSING UNITS INCREASE	HOUSING UNITS INCREASE (%)
La Paz County	16,113	77	0.478%	158	0.981%
Maricopa County	1,657,753	77	0.005%	158	0.010%
Riverside County	810,426	77	0.010%	158	0.019%
Three-County Study Area	2,484,292	77	0.003%	158	0.006%
Block Group Study Area	13,750	77	0.560%	158	1.149%

Source: BLM 2018

Operations and maintenance activities of the Project would be similar to the existing conditions for the existing transmission line facilities. Existing utility companies currently operate and maintain similar transmission facilities along all of the Project transmission alignment except for areas where new ROW is needed for the transmission line. The frequency and intensity of operations and maintenance would only increase by the additional work needed for maintenance of the alignment, which includes maintenance of the new transmission line and supporting facilities. This additional work would occur daily across the entire project, therefore, be minimal. The Project would result in an increase in operations or maintenance staff; however, as discussed in Section 4.15.4 of the TES (BLM 2018), they would be hired from the regional talent pool and therefore, there would be no impact to population growth from Project operation and maintenance.

Impact POP 2 & 3 - Displace substantial numbers of existing housing or people, necessitating the construction of replacement housing elsewhere?

No impact – no mitigation required

The Project includes both new and replacement and relocation of existing electric transmission and power line facilities. All proposed and relocated facilities would primarily be located within existing ROW. As demonstrated above in Table 2.13-2, the Project's impact on available housing during construction would be less than significant and the Project does not include any features that would displace existing housing. Service interruptions to communities served by the transmission lines would be temporary (only during construction) and minimal. The Project would not displace people or housing. Therefore, there would be no impact.

2.13.6 Population and Housing Mitigation

No mitigation measures are required.

2.14 PUBLIC SERVICES AND UTILITIES

This section describes the public services and utilities impacts associated with the construction, operation, and maintenance of the Project in terms of CEQA significance thresholds disclosed below in Section 2.14.4 below. Additionally, this section responds to issues raised during the public scoping process, which are presented in Appendix 1 of the EIS. Impacts have been determined to be less than significant with APMs, BMPs and CMAs.

2.14.1 Thresholds and Methodology

Baseline conditions for the impact analysis were established in Section 3.14 of the TES (BLM 2018). The baseline conditions were evaluated based on their potential to be affected by construction, operation, or maintenance of the Project. No quantitative thresholds apply to the analysis of potential impacts on public services and utilities under CEQA. Qualitative impact criteria set forth in Appendix G of the CEQA Guidelines are used for the analysis presented in this section.

2.14.2 Applicant Proposed Measures and BLM Best Management Practices

APMs have been identified and would be implemented by the project applicant. In addition, BLM would require implementation of Best Management Practices (BMPs), which are intended to further minimize Project impacts. All Project APMs and BMPs are described in EIS Appendix 2A. Of these, the following would apply to the portion of the Project located within California and have therefore been incorporated into the Project for evaluation of significant impact to noise under CEQA.

- **BMP PH&S-01.** Portable toilets would be provided at work sites to assure that adequate facilities are available for the duration of the Project and potential exposure to human waste is avoided.
- **APM T&T-01: Traffic Coordination.** Emergency service providers would be notified of the timing, location, and duration of construction activities. Traffic control devices and signs would be used as needed. These measures would be implemented in conjunction with a Traffic and Transportation Management Plan for the Project.
- **BMP PH&S-02.** A Fire Prevention Plan would be developed for the Project.
- **BMP MISC-02**. All cleared and graded material to be removed from the Project area would be disposed of in compliance with local ordinances.

2.14.3 Conservation and Management Actions

The CDCA Plan, as amended, contains CMAs, which include a specific set of avoidance, minimization, and compensation measures. The applicability of those measures to the Project was determined using a CMA checklist (EIS Appendix 2C). Of these, the following would apply to the portion of the Project located within California and have therefore been incorporated into the Project for evaluation of significant impact to public services and utilities under CEQA.

- **CMA DFA-VPL-BIO-FIRE-1**. Implement the following standard practice for fire prevention/protection:
    - Implement site-specific fire prevention/protection actions particular to the construction and operation of renewable energy and transmission project that include procedures for reducing fires while minimizing the necessary amount of vegetation clearing, fuel modification, and other construction-related activities. At a minimum, these actions will include designating site fire coordinators, providing adequate fire suppression equipment (including in vehicles), and establishing emergency response information relevant to the construction site.

2.14.4 CEQA Significance Criteria

Appendix G of CEQA Guidelines (14 CCR 15000 et seq.) provides guidance on assessing whether a project would have significant impacts on the environment. Consistent with Appendix G, the Project would have significant hazards and hazardous materials impacts if it would:

a. The Project would have a significant impact if it would cause substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or cause a need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of these public services:
    (i) fire protection,
    (ii) police protection,
    (iii) schools,
    (iv) parks, or
    (v) other public facilities
b. Project would temporarily increase water use, and project operation would contribute to increased long-term water consumption and require new entitlements?
c. Project construction and operations would result in increase in wastewater or wastewater treatment?
d. Project construction and operations would result in new storm drainage facilities or expansion of existing facilities?
e. Project construction and operations would result in solid waste generated during construction of the project that exceeds landfill requirements?

2.14.5 Public Services and Utilities Analysis

Impact PUSVC 1 - The Project would have a significant impact if it would cause substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or cause a need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of these public services:

(i) fire protection,

(ii) police protection,

(iii) schools,

(iv) parks, or

(v) other public facilities

Less than significant with mitigation (fire protection; less than significant (all others)

2.14.5.1 Fire Protection

As discussed under Section 3.14.3.1 in the TES (BLM 2018), in California, the City of Blythe Fire Department and the Riverside County Fire Department (RCFD)/California Department of Forestry provide local fire protection and in Arizona, the Project area is within the Southwest Coordination Center (SWCC) that coordinates and mobilizes resources for wildland fires, prescribed fires, and other incidents.

Section 4.14.4.1 of the TES discusses potential impacts associated with construction and operation of the Project documenting the Project-specific fire risks from temperature, humidity, wind, and lightning as well as Project conditions that could trigger fire hazards. As concluded in the TES, the implementation of APMs, BMPs, and mitigation measures would reduce the potential impacts that could result from fires associated with the Project to negligible or minor in magnitude. As such, substantial adverse physical impacts associated with providing fire protection would be less than significant since the Project would not result in increased service ratios, decreased response times, or impact to other performance objectives of fire protection services.

Additionally, construction, operation, and maintenance of the Project could increase demand for emergency services in the Project area. To limit potential impacts on emergency response services, the applicant would implement APMs HAZ-01 and T&T-01, which would reduce the risk of potential hazards and continue to provide access to emergency responders. In addition, an as discussed in detail in Section 2.8 of this appendix, Hazards and Hazardous Materials, MM HAZ-CEQA-3 would be implemented and consists of the development of a Project Fire Prevention Plan in consultation with appropriate local fire agencies. Further discussion of the MM HAZ-CEQA-3 is provided in Section 2.8 of this appendix. APM T&T-01 consists of traffic coordination that would ensure that fire, police and other first responders are notified of the timing, location, and duration of construction activities. Further discussion of APM T&T-01 and potential impacts on emergency response services is provided in Section 2.9 of this appendix, Traffic and Transportation. The Project would be designed in accordance with various reliability standards promulgated through implementation of NERC policies and procedures. Additionally, DCRT is governed by WECC standards that may be in addition to or more stringent than those put forth by NERC. Therefore, the Project would not result in the need for new or physically altered fire protection facilities in order to maintain acceptable service ratios, response times, or other performance objectives. Impacts would be less than significant with mitigation (MM HAZ-CEQA-3) and implementation of APM T&T-01.

2.14.5.2 Police Protection

In California, the Project Area is within the jurisdiction of the Riverside County Sheriff's Department, Colorado River Station located at 260 North Spring Street in Blythe (Riverside

County 2016). The sheriff's office nearest to the proposed SCE Colorado River Substation site is in Blythe, approximately 13 miles east of the substation. In Arizona, the Project area is within the jurisdiction of the La Paz County Sheriff's Department. Stations are located at 8500 Riverside Drive in Parker, Arizona and 305 N. Plymouth Avenue in Quartzsite, Arizona.

The Project construction is not anticipated to permanently increase the local population, no new or expanded law enforcement facilities or increased staff levels within the Project regional or local study area would be required. An addition of up to 140 construction personnel would be temporary in nature and would not significantly alter the existing service levels when considered in the context of the entire population served. The additional volume of traffic associated with workers commuting to the Project sites during construction would be temporary and the California Highway Patrol (CHP) and local police departments would be sufficient to respond to incidents in the Project area. In addition, Project construction has been designed to incorporate APMs HAZ-01 and T&T-01 and as such Project construction would not adversely affect emergency response during construction. As discussed in Section 2.2.7.2 of the TES (BLM 2018), seven-foot tall security fencing would be installed around the entire perimeter of the SCS to protect equipment and prevent accidental contact with energized electrical equipment by authorized or unauthorized personnel. The incorporation of security measures and the temporary and minimal increase of construction workers supports the determination the Project would not result in the need for new or physically altered police or sheriff protection facilities in order to maintain acceptable service ratios, response times, or other performance objectives. Therefore, impacts would be less than significant and no mitigation would be required.

2.14.5.3 Schools

The Project area is located within the Palo Verde Unified School District. Palo Verde Unified serves the Project site, Blythe and other remote areas of Riverside County and consists of three elementary schools, two middle schools, one high school, and a continuation high school. In Arizona, there are no school districts within one mile of the Project and the Project is primarily located on BLM lands.

The Project would not increase the demand for housing or induce population growth during construction, operation, or maintenance. As noted in Section 2.2.7.5 of the TES, 140 workers are anticipated during construction of the Project. Demolition activities would require a similar number of workers as the construction phase. Permanent employees needed for operational activities such as vegetation and infrastructure maintenance would be available locally and not result in new population growth. Construction workers would be expected to commute to the area or reside in the area temporarily. Since construction would be limited to approximately 18-24 months, it is unlikely that the workers would relocate to their families in the Project area. Therefore, the Project would not increase demand for school services or facilities.

2.14.5.4 Parks and Recreation

Park and other recreational facilities are discussed in Sections 3.10 and 4.10 of the TES. Most of the Project resides in BLM land thus, the Project area is a hot spot for recreational activities. Recreation activities in the Project area include camping, nature viewing, amateur geology (i.e., rockhounding), team sports, water sports, OHV use, hiking and backpacking, rock climbing, and hunting. OHV use in Johnson Canyon would need to be closed for the duration of Project

construction and dispersed recreation activities would be temporarily affected. Appendix 2A of the EIS describes the APMs for temporary signs directing vehicles to alternative park access and parking. Since construction is anticipated to last approximately 18-24 months, and the Project area is relatively large, the impacts to recreation are less than significant.

Based on the individual less than significant impacts to fire and police protection, schools, parks and recreation, and other public services the Project would have an overall less than significant impact on public services.

Impact PUSVC 2 - Project would temporarily increases water use, and project operation would contribute to increased long-term water consumption and require new entitlements?

Less than significant

The proposed project would not generate permanent change in water demand that could result in a need for new or expanded water entitlements. As further detailed in Section 2.13, Population and Housing above, construction is projected to support approximately 160 direct short-term construction jobs over an anticipated 2-year period. Further, the Project is located within a rural urban area with easy access from nearby communities. Therefore, the Project would primarily employ construction workers who are already living within local area. The non-local workforce would stay at existing hotels in the vicinity of the project that are served by existing water service from existing entitlements.

As discussed in Section 2.2.7 of the TES (BLM 2018), "Project Construction," the applicant has estimated that 2,592,543 gallons of water would be needed for the construction phase of the Project. As stated in the TES section, this water usage during construction would be needed for concrete structure foundation and dust control. The Project would use water that may come from a permitted source associated with a water right. The Project will not contribute to depleting the water sources associated with the water right. Water trucks, typically with a capacity of approximately 4,000 gallons, would support construction activities and demand. The applicant would not require or seek expanded entitlements to water for temporary construction-related purposes. Rather, the applicant would purchase such water from the nearest feasible and available source of suitable quality. Construction water may be obtained from local municipal sources, trucked in by a water supply vendor, or derived from local wells. Considering they would occur over a 2-year period, construction water demand would be would be minimal and periodic/episodic in nature and would cease following the completion of construction activities.

Operations and maintenance water usage would be minimal. Any water use needed for long term maintenance and operations would be covered by the private wells and/or municipal supplies, as described above.

The Project's water use from construction and long-term operation of the electric system are considered less than significant.

Impact PUSVC 3 – Project construction and operations would result in increase in wastewater or wastewater treatment?

Less than significant – no mitigation required

The Project would build a transmission line and would not generate any additional wastewater or water demand from Project operation. There will be minimal to no impacts associated with an increase in wastewater or wastewater treatment. During construction, limited wastewater would be generated (portable toilets would be provided at work site; see BMP PH&S-01). The capacity of Blythe Regional Wastewater Reclamation Facility in the City of Blythe has a capacity of 2.4 MGD. This capacity is enough to cover any of the minimal construction and operation wastewater generated by the Project. The impacts from construction and operations would not result in an increase in wastewater or need for wastewater treatment and therefore are found to be less than significant.

Impact PUSVC 4 - Project construction and operations would result in new storm drainage facilities or expansion of existing facilities?

Less than significant – no mitigation required

The Project would not require or result in the construction of new storm water drainage facilities since the introduction of impervious surfaces would be minimal and any site runoff would be localized to each individual structure. Since the Project would not increase storm water runoff or require new drainage facilities or expansion of existing facilities the Project would not have a significant impact. Therefore, potential impacts are considered less than significant with no mitigation required.

Impact PUSVC 5 - Project construction and operations would result in solid waste generated during construction of the project that exceeds landfill requirements?

Less than significant – no mitigation required

Section 2.2.7.2 of the TES (BLM 2018) discusses the solid waste that would be generated from construction. Approximately 10 dumpsters-full per month would be generated at each active staging site. All waste will be cleaned up and brought to local landfills in accordance with local ordinances. La Paz County Regional Landfill located at 26999 Highway 95, Milepost 128 in Parker Arizona has a capacity of 3,269,877 cubic yards (2.5 million cubic meters) and 2.5 million megagrams. The Blythe Sanitary Landfill, located at 100 Midland Road in Blythe, California has a capacity of 6,229,670 cubic yards. These facilities, along with various other privately owned and local landfills would provide the necessary space to accommodate the approximate Project use of 10 dumpsters of solid waste needed per month. Daily clean-up of individual's trash at each Project site would be disposed of properly and is not seen to have a substantial impact. In addition, BMP MISC-02 would implemented during construction and would require that all cleared and graded material removed from the Project area would be disposed of at a licensed facility with available capacity in compliance with local ordinances.

Operations and maintenance of the Project would generate solid waste such as packaging and replaced parts. The solid waste generated from routine inspections, replacement of parts, and crew waste would be minimal and would not exceed landfill capacity.

Potential impacts from Project construction and operations regarding solid waste is thus found to be less than significant and no mitigation would be required.

2.14.6 Public Services and Utilities Mitigation

No mitigation measures are required.

2.15 RECREATION

This section describes the impacts to recreation resources that could potentially occur during construction, operation, and maintenance of the Project in terms of CEQA significance thresholds disclosed below in Section 2.15.4 below. As disclosed in Section 4.10 of the TES (BLM 2018), impacts from construction and operation of the Project would result in less-than-significant impacts to recreational areas. Additionally, this section responds to issues raised during the public scoping process, which are presented in Appendix 1 of the EIS.

2.15.1 Thresholds and Methodology

Existing conditions and recreational resources described in Section 3.10 of the TES were evaluated regarding their potential to be affected by project construction, operation, maintenance, and decommissioning activities. The Project's effects were evaluated by CEQA thresholds of significance to determine whether the Project would result in a significant impact to recreational resources. The analysis is based on Sections 3.10 and 4.10 of the TES.

2.15.2 Applicant Proposed Measures and BLM Best Management Practices

APMs have been identified and would be implemented by the project applicant. In addition, BLM would require implementation of Best Management Practices (BMPs), which are intended to further minimize Project impacts. All Project APMs and BMPs are described in EIS Appendix 2A. Of these, the following would apply to the portion of the Project located within California and have therefore been incorporated into the Project for evaluation of significant impact to Recreation under CEQA.

- **BMP REC-01: Alternative Access and Parking Signs.** Signs directing vehicles to alternative park access and parking would be posted in the event construction temporarily obstructs parking areas near trailheads.
- **BMP REC-02: Recreation Users Signs.** Signs advising recreation users of construction activities and directing them to alternative trails or bikeways would be posted on both sides of all trail intersections or as determined through DCR Transmission coordination, with the respective jurisdictional agencies. A schedule of construction activities would be posted near entrances to recreational areas as well as on the Project website. Signs would be installed near access roads notifying the public of construction activities in the area and the presence of permanent transmission facilities.
- **BMP REC-03: Guy Wire Marking.** Plastic mesh or paint would be used to mark guy wires in areas used for recreation. Permanent high visibility guy markers would be installed during construction.
- **BMP REC-04: Alternate Route Signage.** Provide alternate route(s) of equal or greater standard and access to specially designated areas if roads, primitive roads, or trails used for

recreation are temporarily closed or otherwise significantly affected. The alternate route(s) would be clearly identified on signage.

2.15.3 Conservation and Management Actions

The CDCA Plan, as amended, contains CMAs, which include a specific set of avoidance, minimization, and compensation measures. The applicability of those measures to the Project was determined using a CMA checklist (EIS Appendix 2C). The CMAs applicable to the Project and related to Recreation are listed below and Project compliance with CDCA CMAs is addressed in the analysis portion of this section.

- **DFA-REC-1.** Retain, to the extent possible, the identified recreation setting characteristics: physical components of remoteness, naturalness and facilities; social components of contact, group size and evidence of use; and operational components of access, visitor services and management controls (see recreation setting characteristics matrix).
- **DFA-REC-2.** Avoid large-scale ground disturbance within one-half mile of Level 3 Recreation facility footprint including route access and staging areas. If avoidance isn't practicable, the facility must be relocated to the same or higher standard and maintain recreation objectives and setting characteristics.
- **DFA-REC-4**. When considering large-scale development in DFAs, retain to the extent possible existing, approved recreation activities.
- **DFA-REC-5.** For displacement of dispersed recreation opportunities, commensurate compensation in the form of enhanced recreation operations, recreation facilities or opportunities will be required. If recreation displacement results in resource damage due to increased use in other areas, mitigate that damage through whatever measures are most appropriate as determined by the Authorized Officer.
- **DFA-REC-7.** If designated vehicle routes are directly impacted by activities (includes modification of existing route to accommodate industrial equipment, restricted access or full closure of designated route, pull outs, and staging areas to the public, etc.), mitigation will include the development of alternative routes to allow for continued vehicular access with proper signage, with a similar recreation experience. In addition, mitigation will also include the construction of an "OHV touring route" which circumvents the activity area and allows for interpretive signing materials to be placed at strategic locations along the new touring route, if determined to be appropriate by BLM.

REC-03, applies where new transmission structures are proposed to include guy wires; however, no such transmission structures are proposed within the portion of the Project within California.

2.15.4 CEQA Significance Criteria

Appendix G of CEQA Guidelines (14 CCR 15000 et seq.) provides guidance on assessing whether a project would have significant impacts on the environment. Consistent with Appendix G, the Project would have significant impacts to agriculture and forestry if it would:

a. Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?
b. Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

2.15.5 Recreation Analysis

Impact REC 1 - Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

Less than significant – no mitigation required

Recreational activities in the Project area west of and including the Colorado River include boating, hiking, bicycling, golf, camping (including Recreational Vehicle facilities), nature and wildlife viewing, and activities associated with playgrounds and school and regional parks (City of Blythe 2007a; Riverside County, 2015b). The Project would not result in new population growth that would increase the use of existing recreational facilities. Impacts to existing recreational facilities could, however, occur during the Project's construction phase, during which certain recreational facilities could be inaccessible. Specifically, the Project ROW crosses three existing or planned linear facilities associated with recreational uses: a planned Class I bike path extending south from Blythe along Lovekin Boulevard through Riverside County lands toward the Colorado River; an existing regional trail from Blythe to Ripley; and the Southern Immigrant Trail / Juan Bautista De Anza National Historic Trail. Passage along each of these routes at the point of ROW crossing may be inaccessible for the duration of the construction. However, given the availability of alternative routes or temporary detours, and given implementation of BMPs REC-01, REC-02, and REC-04, any dispersal of recreation activities would not lead to overcrowding in other unaffected recreational areas.

As discussed in the Section 4.10.4.1 of the TES (BLM 2018), impacts to various recreational activities in all the zones include construction noise, visual disturbances, vehicle and equipment travel, route closures/detours, and short-term over-crowding at other recreational areas. These impacts would be temporary and would not permanently preclude the use of or access to any existing recreation opportunities or activities. During construction BMPs REC-01, REC-02, and REC-04 would be implemented to ensure adequate notification is provided to the users. Jack Marlowe Park, in Ripley, is within one mile of the Project ROW, and Peter McIntyre County Park, along the Colorado River, is within 1.5 miles of the ROW. Project construction would not result in population dispersal affecting either of these parks, and neither would require temporary closure. Therefore, impacts to recreational resources would be less than significant.

Impact REC 2 - Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

No Impact

The Project includes construction of transmission lines and related infrastructure and within a ROW. No new recreational facilities or expansion of existing recreational facilities which might have an adverse physical effect on the environment are included as part of the Project. Therefore, there would be no impact related to construction or expansion of recreational facilities.

2.15.6 Recreation Resources Mitigation

No mitigation measures are required.

2.16 TRAFFIC AND TRANSPORTATION

This section describes the potential impacts to roadways and aviation facilities related to the construction, operation, maintenance, and decommissioning of the Project. As disclosed in Section 4.17 of the TES (BLM 2018), impacts to roadways were analyzed to be less than significant with implementation of APMs and BMPs. Additionally, this section responds to issues raised during the public scoping process, which are presented in Appendix 1 of the EIS.

2.16.1 Thresholds and Methodology

Existing conditions described in Section 3.17 of the TES have been evaluated regarding their potential to be affected by project construction, operation, maintenance, and decommissioning activities. The evaluation of Project impacts is based on Section 4.17 of the TES and the significance criteria established by Appendix G of the CEQA Guidelines.

2.16.2 Applicant Proposed Measures and BLM Best Management Practices

APMs have been identified and would be implemented by the project applicant. In addition, BLM would require implementation of Best Management Practices (BMPs), which are intended to further minimize Project impacts. All Project APMs and BMPs are described in EIS Appendix 2A. Of these, the following would apply to the portion of the Project located within California and have therefore been incorporated into the Project for evaluation of significant impact to traffic under CEQA.

- **APM T&T-01: Traffic Coordination.** Emergency service providers would be notified of the timing, location, and duration of construction activities. Traffic control devices and signs would be used as needed. These measures would be implemented in conjunction with a Traffic and Transportation Management Plan for the Project. This plan would also include measures/protocols for aviation, including helicopter use, coordination with local air traffic control, and a Congested Area Plan, pursuant to FAA regulations.
- **BMP T&T-03: Public Access, Marking, and Public Information for Closed Access.** The BLM would determine if new access routes would be retained for public access through approval of the Access Plan for the Project. If any routes of travel are not accessible and/or closed, Carsonite posts and signing would note the closures. Where routes are closed, kiosks with information panels would be posted providing public information.
- **BMP T&T-04: Access Plan.** An Access Plan would be required to identify all routes where new disturbance and/or cross-country travel is proposed. Existing access would be

used to the maximum extent practicable; new access would only be created when there is no other reasonable or practicable means of access.

- **BMP T&T-05: Using Open and Designated Routes.** The Access Plan for the Project would maximize use of open and designated access routes to the extent practicable.
- **BMP T&T-06: Access Roads in Dune Habitat**. Access Roads would be unpaved and constructed at grade in dune habitat. No berms or application of rock would be allowed on the California public lands portion of the Project. Should adaptive access measures be required, those measures would be formulated in concert with the BLM and contained in the Access Management Plan (Appendix 2B)
- **BMP T&T-07: Routes of Travel**. Routes of travel for the Project on BLM-managed lands outside established roadways would be limited to those routes on the approved Access Plan.
- **BMP T&T-08: Prohibit Cross-Country Vehicle Use Outside Designated Work Areas**. Within Project boundaries, prohibit cross- country vehicle and equipment use outside of approved designated work areas to prevent unnecessary ground and vegetation disturbance.
- **BMP T&T-09: Repairs to Local Roads.** Local roads would be restored if road damage occurred as a result of Project construction.

2.16.3 Conservation and Management Actions

The CDCA Plan, as amended, contains CMAs, which include a specific set of avoidance, minimization, and compensation measures. The applicability of those measures to the Project was determined using a CMA checklist (EIS Appendix 2C). There are no CMAs applicable to traffic and transportation.

2.16.4 CEQA Significance Criteria

Appendix G of CEQA Guidelines (14 CCR 15000 et seq.) provides guidance on assessing whether a project would have significant impacts on the environment. Consistent with Appendix G, the Project would have significant hazards and hazardous materials impacts if it would:

a. Conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?
b. Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways.
c. Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?
d. Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

e. Result in inadequate emergency access?
f. Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?

2.16.5 Traffic and Transportation Analysis

Impact TRANS 1 - Conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?

Less than significant – no mitigation required

As discussed in section 3.17.1 of the (BLM 2018), plans applicable to establishing effectiveness for circulation system that apply to the Project include: the BLM California Desert Conservation Area Plan which limits use of motorized vehicles within the plan area; the Riverside General Plan which establishes a level of service (LOS) category C to all development proposals not within the boundaries of an Area Plan; the Palo Verde Valley Area Plan which applies to Blythe and surrounding area and states general roadway improvements are needed to support future conditions; and the City of Blythe General Plan which establishes LOS B on residential streets and a LOS C on arterials and collectors. As stated in section 3.17.3, there are many two-lane paved farm field roads over private property in the Colorado River and California Zone of the Project Area, including Intake Boulevard, Broadway Boulevard, and Lovekin Boulevard near Blythe and in general the Project crosses mainly uninhabited farmland where public roads. As discussed in Section 4.17.4.5 of the TES, the Project would add new "unclassified roads and trails" which would help alleviate congestion and level of service problems discussed in the relevant planning documents since they would approximately 18 miles of access roads to areas currently without roads.

As discussed in Section 4.17.4.1 of the TES, construction of the Project would temporarily generate additional traffic congestion adding approximately 140 additional personal vehicles to the roadway network in a worst-case scenario before and after each shift construction shift. The cumulative additional volume would represent a volume increase of one percent or less on various segments of I-10 and US 95, and would not cause a change in the LOS. As noted in Section 3.17.3 of the TES, LOS for both I-10 and US 95 was LOS B or better during the busiest month. Traffic on other local roads, many of which cross through farmlands, is low. As the construction workers would be dispersed throughout the project area and would not typically be working at the same place at any one time, only minimal traffic increases would occur on the study area roadway network relative to construction workers. Similarly, the construction-related traffic would be dispersed throughout the project route and throughout the workday. Additionally, APM T&T-01, will further coordinate construction traffic and road closures to further dissipate potential congestion areas. Based on the rural nature of the Project area, the high operating LOS of roads in the Project area, and the minimal traffic increases the Project would not conflict with applicable congestion management plans related to traffic and roadways. Therefore, the potential for construction traffic to conflict with applicable management plans is less than significant.

Pedestrian routes, trails on BLM lands, OHV routes, and bicycle lanes in Riverside County, governed by the Riverside County General Plan as detailed in section 3.17.1 of the TES could be affected by construction activities. However, construction activities would not be expected to impede movements in these remote areas where no suitable alternative routes would be available. Further, as discussed in Section 3.17.1 of the TES, there are no active rail operations near the Project and as such no applicable plans related to railways. Since the likelihood of impeding trails and bicycle lanes is minimal and alternative routes would be available or trail closures would be temporary, the Project would not conflict with pedestrian, bike, or OHV congestion management plans. Therefore, the potential for Project traffic to conflict with applicable management plans is less than significant.

As discussed in Section 4.17.5 of the TES (BLM 2018), traffic generated by operation and maintenance activities would be intermittent, and require a small number of vehicles, and occasional deliveries. The number of trips generated during operations would be minimal, and less than the number of construction trips. As such, trips generated during operation would not result in a substantial amount of congestion that could conflict with applicable traffic management plans. Operation and maintenance traffic would not increase traffic on primary roads, and, subsequently, would not decrease the level of service for any primary roads. Therefore, the potential for operational traffic to conflict with applicable management plans is less than significant.

Decommissioning of the Project would result in similar impacts as construction activities and would be less than significant.

Since the Project would not conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system. Impacts would be less than significant.

Impact TRANS 2 - Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways.

Less than significant – no mitigation required

As described above, the Project would result in potential temporary construction impacts and no operational impacts. Riverside County is the Congestion Management Agency (CMA) for the Project segment located in California. As discussed above, the construction and decommissioning activities associated with Project would generate the highest amount of traffic; however, the increase in traffic from these activities would be temporary, occurring intermittently for a period of approximately two years as discussed in Section 2.2.7.5 of the TES (BLM 2018). Project construction and decommissioning traffic would not exceed a LOS standard established by the county or conflict with an applicable congestion management program on these roadways. Impacts would be less than significant.

Impact TRANS 3 - Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?

Less than significant

As discussed in Section 3.17.3.2 of the TES, a majority of the aviation facilities within the Project Area are used for general aviation and non-primary commercial service airports. The Blythe Airport is the primary airport in the Colorado River and California Zone of the Project Area serving Blythe, California. It is open to the public and is owned by Riverside County. The airport's primary use is for general aviation, but it does not receive any commercial air traffic. As evaluated in Section 4.17.4.1 of the TES, construction could cause a hazard to aviation if helicopters were used in the vicinity of aviation facilities. However, this access method would not be necessary in the vicinity of any aviation facilities, and the ground construction equipment used would not be high enough to affect aviation. Therefore, aviation impacts from construction of the Project would be less than significant.

Operation of the Project would result in a change in air traffic patterns if a Project component such as a tower exceed a certain height with an airport influence area or interfere with flight paths. As discussed in Section 4.17.4.5 of the TES (BLM 2018), tower heights will be limited in Project sections where there is potential for collision hazards, including areas within the Blythe Airport influence area. As discussed in Section 4.17.4.5 of the TES, the FAA has determined that structures under 100-feet would not constitute a hazard. Implementation of APM T&T-01 (traffic notification and coordination) would require development of a Traffic and Transportation Management Plan, which would include coordination with FAA prior to construction and operation for review and approval of any helicopter flights. No project segment lies within a military training route or within influence area of any other aviation facility in California.

Therefore, the potential to result in a change in air traffic patterns that results in substantial safety risks is considered less than significant.

Impact TRANS 4 - Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

Less than significant – no mitigation required

As discussed in Section 2.2.3.11 of the TES, the Project would use existing access roads for construction and maintenance to the extent feasible, minimizing new disturbance. Existing roads would not be altered unless improvements are needed for the Project (including maintenance) or future use. Section 4.17.5 of the TES identifies new Type C and Type D roads that would be needed for the Project. As discussed in Section 2.2.3.11 of the TES, these roads would go directly from structure to structure, except on hillsides, ridgebacks, rock outcrop areas, wash crossings, treed areas, or in areas where sensitive environmental resources can be avoided. In such cases, the road would follow suitable topography from structure to structure and would be built in areas that generally cause the least amount of overall disturbance.

As described in Section 3.17.1 of the TES, access roads sited on BLM lands will be constructed in compliance with BLM Manual 9100. Other access roads not subject Access roads not on BLM lands would utilize existing rural roads and farm roads to the extent feasible and the additional approximately 18 miles of new access roads would be constructed in accordance to local design criteria for rural roads. Additionally, public agencies require an encroachment permit or other such agreement for each location where the Project would interface with a roadway or other transportation facility and would ensure no increase in design feature hazards would occur as part of the encroachment permit process. Complying with local permits and agreements would ensure

that hazards and incompatible uses would be avoided or minimized. Therefore, impacts would be less than significant, and no mitigation measures would be required.

Impact TRANS 5 - Result in inadequate emergency access?

Less than significant – no mitigation required

As discussed in Section 4.17.4.1 of the TES (BLM 2018), construction activities could potentially interfere with emergency response due to temporary, short-term traffic delays at locations where transmission lines cross roads or where improvements might be needed at local roads, intersections, and bridges to accommodate overweight or oversize delivery vehicles. The temporary road and lane closures associated with construction activities could lengthen the response time required for emergency vehicles passing through the construction zone. APM T&T-01 is incorporated into the Project to ensure that protocols are in place for coordinating with emergency services providers. As such, emergency service providers would be notified of the timing, location, and duration of construction activities on the roadways, and traffic control devices and signs would be used as needed. Therefore, impacts to emergency access would be less than significant.

Impact TRANS 6 - Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?

Less than significant – no mitigation required

As discussed under Impact TRANS-1 above, operation of the Project would not conflict with any adopted policies for various modes of transportation. Construction of the Project could impact access to pedestrian facilities, bike lanes, bus routes for a short-term but is not anticipated to significantly disrupt access or decrease the performance or safety of such facilities since facilities access would only be temporarily restricted and returned to normal operations once construction in that area was complete. Additionally, due to the rural farmland nature of the Project corridor very few bus routes or public transit facilities are encountered, and recreation facilities would only have short-term temporary closures. With incorporation of APMs the potential to conflict with adopted policies, plans, or programs or otherwise decrease the performance or safety of such facilities is considered a less than significant impact.

2.16.6 Traffic and Transportation Mitigation

No mitigation measures are required.

3.0 CUMULATIVE RESOURCE ANALYSES

CEQA defines cumulative impacts as "two or more individual effects which, when considered together are considerable," and suggests that cumulative impacts may "result from individually minor but collectively significant projects taking place over a period of time" (CEQA Guidelines Section 15355). CEQA documents are required to include a discussion of potential cumulative effects when those effects are significant and the CEQA Guidelines suggest two possible methods for assessing potential cumulative effects (CEQA Guidelines Section 15130). The first method is a list-based approach, which considers a list of past, present, and reasonably foreseeable future projects producing related or cumulative impacts. The analysis of potential environmental effects in Chapter 4 of the TES (BLM 2018) included discussions of potential cumulative effects for each resource area.

NEPA regulations developed by the federal Council on Environmental Quality (CEQ) require that the cumulative impacts of the Project be addressed in an EIS (40 CFR Part 1508.25). Cumulative impacts on the environment are those that result from the incremental impact of the proposed action when added to other past, present, and reasonably foreseeable future actions (40 CFR Part 1508.7). These impacts can result from individually minor impacts of multiple actions over time. Chapter 3 of the TES lists that past, present, and reasonably foreseeable future actions for the Cumulative Effects Study Areas by resource. Cumulative impacts are then addressed by resource in Chapter 4 of the TES.

Since the cumulative impacts analysis conforms to the CEQA regulations, that is, it includes a list of reasonably foreseeable projects whose impacts may exacerbate adverse impacts resulting from the implementation of the Project; this section seeks to summarize the cumulative impacts discussion in each of the EIS resource sections. Of the BLM-authorized and other known projects listed in Table 3.20-5 in the TES (BLM 2018) the following remain in stages of development and were therefore considered in the evaluation of potential cumulative effects:

- Blythe Energy Power Plant and Sonoran Energy Project (Blythe Energy Project Phase II)
- Blythe Mesa Solar Project
- Crimson Solar Project
- Desert Quartzite Solar Project

Aside from the identification of cumulative effects to Tribal Resources (Section 4.7 of the TES [BLM 2018]), no major or significant cumulative effects were identified in the TES for the portions of the Project area within the Colorado River and California Zone.

No cumulative effects from the Project were identified for Special Designations (TES Section 4.11).

Negligible effects from the Project were identified for: Air Quality and Climate Change (TES Section 4.2); Geology, Mineral and Soil Resources (TES Section 4.3); Cultural Resources (TES Section 4.5); Land Use (TES Section 4.8); Grazing and Rangeland (TES Section 4.9); Recreation (TES Section 4.10); Hazardous and Hazardous Materials (TES Section 4.13); Environmental Justice (TES Section 4.16); Water Resources.

Negligible to minor cumulative effects to were identified for topography (discussed in TES Section 4.3 Geology, Mineral and Soil Resources); Paleontological Resources (TES Section 4.4); Traffic and Transportation (TES Section 4.17); Visual Resources (TES Section 4.18).

Negligible to moderate cumulative effects were identified for Socioeconomics (TES Section 4.15).

Minor cumulative effects were identified for Noise (TES Section 4.12) and Public Health and Safety (TES Section 4.14).

Long-term minor cumulative impacts "where the proposed segments would be collocated or near past/present disturbances and/or existing linear facilities with some exceptions" were identified for Biological Resources (TES Section 4.5).

Minor to moderate, short-term noise impacts would result if the Project were built concurrently with other reasonably foreseeable projects (TES Section 4.12).

4.0 ALTERNATIVES

This alternatives analysis compares potential environmental impacts that may result through construction, operation, and decommissioning of portions of the Project located in the state of California with other alternative route segments located in California. The chapter relies on analysis contained in Chapter 2 of the TES (BLM 2018). Chapter 2 of the TES (BLM 2018) provides a detailed description of the Proposed Action (Section 2.2), a summary of the No Action Alternative (Section 2.3), a description of the 55 alternative route segments, and Alternative and Subalternative routes (Section 2.4.10).

The California Environmental Quality Act (CEQA) requires, state and local agencies in California to implement the CEQA before issuing a discretionary permit. Because California agencies do not have jurisdiction over Project-related activities in other states, this alternatives analysis is limited to alternative route segments located in California and does not analyze route segments in Arizona. This analysis bolsters the alternatives analysis conducted in the TES with a California Public Utilities Commission (CPUC) – specific alternative, the non-wires alternative. A non-wires scenario as statutorily required under the CPUC's Certificate of Public Convenience and Necessity (CPCN) regulations (PUC Section1002.3) and is therefore included in this analysis. This chapter also provides the environmentally superior alternative identified by the CPUC, similar to Section 2.9 of the TES.

The EIS considers both "route segments" (Section 2.4.5 of the TES [BLM 2018]) and "alternatives" (full routes from Delany Substation to the Colorado River Substation) which span all four zones identified in the EIS: The East Plains and Kofa Zone, the Quartzsite Zone, the Copper Bottom Zone, and the Colorado River and California Zone. As mentioned above, this analysis focuses on route segments within the California portion of the Colorado River Zone and California Zone, and relies on the EIS illustrate how segments in California would be integrated into a full-route alternative that cross Arizona.

The purpose of an alternatives analysis pursuant to CEQA is to identify feasible options for attaining most of the basic objectives of the Project while reducing its significant effects. Provisions of the California Environmental Quality Act (CEQA) Guidelines (Section 15126.6) that address project alternatives in an EIR state the following:

- The range of alternatives required in an EIR is governed by a "rule of reason." Therefore, the EIR must evaluate only those alternatives necessary to permit a reasonable choice. The alternatives will be limited to those that would avoid or substantially lessen any of the significant effects of the Project.
- A No Project Alternative will be evaluated, along with its impacts. The purpose of describing and analyzing a No Project Alternative is to allow decision-makers to compare the effects of approving the Project with the effects of not approving the Project.
- An EIR does not need to consider an alternative whose effects cannot reasonably be ascertained and whose implementation is remote and speculative.

This alternatives analysis relies on the alternatives discussion in the TES (Chapter 2) screen feasible alternatives (Section 2.4) and describe a no project scenario (Section 2.3). Since the TES established a process for screening alternatives that and evaluates a no project alternative as required by the CEQA Guidelines, this analysis focuses on comparing adverse environmental effects that are found to be significant under CEQA for the Project with potentially feasible route segments identified in the TES. Specifically, this analysis addresses the CEQA requirement to assess alternatives to the Project that have the potential to avoid or substantially lessen potentially significant impacts or are capable of eliminating or reducing significant environmental effects even though they may "impede to some degree the attainment of project objectives or would be more costly" (Section 15126.6(b)).

4.1 PROPOSED ACTION AND ACTION ALTERNATIVE SEGMENTS IN CALIFORNIA

Section 2.2.1 of the TES (BLM 2018) describes the route segments that comprise the Project. A description of each segment, the underlying jurisdiction, and its total length is presented in Table 2.2-1 of the TES. The segments of the Proposed Action considered in this analysis include Segments p- 15w through p- 18. Section 2.4.7.4 of the TES describes each of the segments from the Colorado River crossings through the remainder of the Project alignment in California.

Section 2.4.10 of the TES describes the four full Alternative Routes (Alternative Routes 1 through 4) to the Project (Figure 2.4-10), which were developed by selecting proposed and alternative segment combinations within each zone that linked together logically and also met certain objectives of the BLM, cooperating agencies, and stakeholders, and potentially addressed public concerns with the Project. Subalternatives within each zone consisting of one or more segments were also developed that could replace a portion of one of the full Alternative Routes. The Subalternatives provide localized variations to the full Alternative Routes that could be used to reduce impacts or address issues with the full Alternative Routes.

Table 4-1 provides determinations that indicate whether the portions of the Alternative segments located in the Colorado River and California Zones would be more or less impactful than the Project with respect to each environmental factor for which a significant and unavoidable impact would occur during construction or operation. Information for potential impacts in Arizona is included to help describe impacts and benefits that are relevant to the determination of an Agency Preferred/Environmentally Superior Alternative, where appropriate. Impacts that would be less than significant without mitigation or for which feasible mitigation exists to reduce the impact to less than significant levels are not the focus of the comparison of alternatives presented. Where the analysis determines that impacts would be similar to the Project, the Project is selected as environmentally superior for that resource area. Table 4.1-1 provides a summary of the impacts determinations for the Project and Alternatives for the segments in California, based on the analysis provided in Table 2.6-4a, Table 2.6-4b, Table 2.6-4c, and Table 2.6-4d of the TES.

Table 4.1-1 Summary of CEQA Impact Determinations for the Proposed Action and Action Alternatives

RESOURCE	PROPOSED ACTION	ALTERNATIVE 1: I-10 ROUTE	ALTERNATIVE 1: I-10 ROUTE SUB-ALTERNATIVE 1E	ALTERNATIVE 2: BLM UTILITY CORRIDOR ROUTE	ALTERNATIVE 2: BLM UTILITY CORRIDOR ROUTE SUB-ALTERNATIVE 4D	ALTERNATIVE 3: AVOIDANCE ROUTE	ALTERNATIVE 3: AVOIDANCE ROUTE SUB-ALTERNATIVE 3M	ALTERNATIVE 4: PUBLIC LANDS EMPHASIS ROUTE	ALTERNATIVE 4: PUBLIC LANDS EMPHASIS ROUTE SUB-ALTERNATIVE 4K, 4L, 4M, 4N, 4P	NO ACTION ALTERNATIVE
California Segments	p-15w, p-16, p-17, p-18	ca-04, ca-05, ca-06, ca-07, ca-09, x-09 and x-19	ca-01, ca-04, ca-06, ca-07, ca-09, x-09, x-10, x-12, and x-19	x-15 and x-16, ca-07, ca-09, x-19	x-13, x-15, ca-02, ca-07, ca-09, x-19	ca-01, ca-06, ca-07, ca-09; cb-10, x-11, x-12, x-19	ca-06, ca-07, ca-09; x-12, x-13, x-19	ca-06, ca-07, ca-09; x-12, x-13, x-19	i-08s, ca-04, x-09 cb-10 and x-11 ca-01 x-10 p-16, p-17, p-18	
Figure in TES (BLM 2018)	Figure 2.4-10	Figure 2.4-11 Alternative 1: I-10 Route	Figure 2.4-14 Alternative 1: I-10 Route Subalternatives – Colorado River and California Zone	Figure 2.4-15 Alternative 2: BLM Utility Corridor Route	Figure 2.4-18 Alternative 2: BLM Utility Corridor Route Subalternatives – Colorado River and California Zone	Figure 2.4-19 Alternative 3: Avoidance Route	Figure 2.4-23 Alternative 3: Avoidance Route Subalternatives – Colorado River and California Zone	Figure 2.4-24 Alternative 4: Public Lands Emphasis Route	Figure 2.4-28 Alternative 4: Public Lands Emphasis Route Subalternatives – Colorado River and California Zone	
Aesthetics	LS	LSMM	LS	LSMM Impacts in Arizona along the eastern portion (Segments i-01 through i-05) would be the same as Alternative 1. The large lattice H-frame structures would be a major modification and would dominate the views for travelers on SR 95, particularly in conjunction with the existing utility infrastructure. Would avoid Kofa NWR in Arizona.	LS Impacts to views from SR 95 reduced for portions of the line in Arizona. Would avoid Kofa NWR in Arizona.	LSMM Under Alternative 3, impacts to the I-10 corridor in the eastern portion of the Project Area would be the same as the Proposed Action. Alternative 3 would avoid any impacts to the SR 95 corridor. Impacts to the remainder of this route would the same as Alternative 2 in Arizona. Would avoid Kofa NWR in Arizona.	LS Would avoid Kofa NWR in Arizona.	LSMM Alternative 4 would remain south of and not impact the visual resources along the I-10 until Segment i-04; impacts were previously described as follows: Segment in-01 – Subalternative 1C Segments ca-06, ca-07, ca-09, x-19 – Alternative 3. All other segments would not impact views along I-10. Would avoid Kofa NWR in Arizona.	LS Would avoid Kofa NWR in Arizona.	NI

RESOURCE	PROPOSED ACTION	ALTERNATIVE 1: I-10 ROUTE	ALTERNATIVE 1: I-10 ROUTE SUB-ALTERNATIVE 1E	ALTERNATIVE 2: BLM UTILITY CORRIDOR ROUTE	ALTERNATIVE 2: BLM UTILITY CORRIDOR ROUTE SUB-ALTERNATIVE 4D	ALTERNATIVE 3: AVOIDANCE ROUTE	ALTERNATIVE 3: AVOIDANCE ROUTE SUB-ALTERNATIVE 3M	ALTERNATIVE 4: PUBLIC LANDS EMPHASIS ROUTE	ALTERNATIVE 4: PUBLIC LANDS EMPHASIS ROUTE SUB-ALTERNATIVE 4K, 4L, 4M, 4N, 4P	NO ACTION ALTERNATIVE
Agriculture	LS	LSMM	LSMM	LS	LS .	LSMM	LSMM	LSMM Would not cross Kofa NWR; passes through an avoidance area for renewable energy. Inconsistent with La Paz County Zoning Plan. Affects more NRCS-class farmland & solar facilities than Proposed Action. Five RMP amends for ROW and for VRM for seven segments.	LSMM	NI
Air Quality, Greenhouse Gases, and Climate Change	LS	LS	LS	LS	LS	LS	LS	LS	LS	NI
Biological Resources	Potentially Significant – LSMM Crosses Kofa NWR in Arizona.	Potentially Significant – LSMM	Potentially Significant – LSMM	Potentially Significant – LSMM If selected, the State Director will approve the Harwood's eriastrum Rare Plant Linear ROW Protection Plan and Fringe-toed Lizard Linear ROW Protection Plan to reduce or avoid impacts in CA. Avoids Kofa NWR in Arizona.	Potentially Significant – LSMM If selected, the State Director will approve the Harwood's eriastrum Rare Plant Linear ROW Protection Plan and Fringe-toed Lizard Linear ROW Protection Plan to reduce or avoid impacts in CA. Avoids Kofa NWR in Arizona.	Potentially Significant – LSMM	Potentially Significant – LSMM	Potentially Significant – LSMM	Potentially Significant – LSMM	NI

RESOURCE	PROPOSED ACTION	ALTERNATIVE 1: I-10 ROUTE	ALTERNATIVE 1: I-10 ROUTE SUB-ALTERNATIVE 1E	ALTERNATIVE 2: BLM UTILITY CORRIDOR ROUTE	ALTERNATIVE 2: BLM UTILITY CORRIDOR ROUTE SUB-ALTERNATIVE 4D	ALTERNATIVE 3: AVOIDANCE ROUTE	ALTERNATIVE 3: AVOIDANCE ROUTE SUB-ALTERNATIVE 3M	ALTERNATIVE 4: PUBLIC LANDS EMPHASIS ROUTE	ALTERNATIVE 4: PUBLIC LANDS EMPHASIS ROUTE SUB-ALTERNATIVE 4K, 4L, 4M, 4N, 4P	NO ACTION ALTERNATIVE
Cultural Resources	Potentially Significant – LSMM Segments p-17 and p-18 cross areas with known cultural resources.	LSMM	LSMM	LSMM Avoids Segments p-17 and p-18 in California.	LSMM Avoids Segments p-17 and p-18 in California. Subalternative 2D would result in a greater visual impact in AZ but a reduced potential to affect cultural resources by ground disturbance compared to Alternative 2.	LSMM	LSMM	LSMM	LSMM	NI
Tribal Resources	Potentially Significant – LSMM	Potentially Significant – LSMM	Potentially Significant – LSMM	Potentially Significant – LSMM	Potentially Significant – LSMM	Potentially Significant – LSMM	Potentially Significant – LSMM	Potentially Significant – LSMM	Potentially Significant – LSMM	NI
Geology and Soils	LS	LS	LS	LS	LS	LS	LS	LS	LS	NI
Hazards and Hazardous Materials	Potentially Significant – LSMM	Potentially Significant – LSMM	Potentially Significant – LSMM	Potentially Significant – LSMM	Potentially Significant – LSMM	Potentially Significant – LSMM	Potentially Significant – LSMM	Potentially Significant – LSMM	Potentially Significant – LSMM	NI
Hydrology and Water Quality	LS	LS	LS	LS	LS	LS	LS	LS	LS	NI
Land Use	LS Plan Amendment Needed to establish new utility corridor. Crosses Kofa NWR in Arizona.	LS	LS	LSMM Similar to the Proposed Action except CDCA Plan amendment would be required as specified in the Biological Resource Section. Within a BLM-designated utility corridor. Avoids Kofa NWR in Arizona.	LSMM Similar to the Proposed Action except CDCA Plan amendment would be required as specified in the Biological Resource Section. Additionally, this alternative would require six VRM RMP amendments in AZ. Otherwise similar to Alternative 2.	LS	LS	LS	LS	NI

RESOURCE	PROPOSED ACTION	ALTERNATIVE 1: I-10 ROUTE	ALTERNATIVE 1: I-10 ROUTE SUB-ALTERNATIVE 1E	ALTERNATIVE 2: BLM UTILITY CORRIDOR ROUTE	ALTERNATIVE 2: BLM UTILITY CORRIDOR ROUTE SUB-ALTERNATIVE 4D	ALTERNATIVE 3: AVOIDANCE ROUTE	ALTERNATIVE 3: AVOIDANCE ROUTE SUB-ALTERNATIVE 3M	ALTERNATIVE 4: PUBLIC LANDS EMPHASIS ROUTE	ALTERNATIVE 4: PUBLIC LANDS EMPHASIS ROUTE SUB-ALTERNATIVE 4K, 4L, 4M, 4N, 4P	NO ACTION ALTERNATIVE
					Within existing BLM-designated utility corridor. Avoids Kofa NWR in Arizona.					
Mineral Resources	LS	LS	LS	LS	LS	LS	LS	LS	LS	NI
Noise	S	S	S	S	S	S	S	S	S	NI
Population and Housing	LS	LS	LS	LS	LS	LS	LS	LS	LS	NI
Public Services	LS	LS	LS	LS	LS	LS	LS	LS	LS	NI
Recreation	LS Crosses Kofa NWR and wilderness area in Arizona.	LS	LS	LS Avoids Kofa NWR and wilderness area in Arizona.	LS Avoids Kofa NWR and wilderness area in Arizona.	LS	LS	LS	LS	NI
Transportation and Traffic	LS	LS	LS	LS	LS	LS	LS	LS	LS	NI

LS – All impacts under this environmental factor are less than significant
LSMM – Impacts under this environmental factor would be reduced to Less than Significant Levels after mitigation is implemented
NI – No Impact would occur under this environmental factor
S – Significant environmental impacts would occur under this environmental factor

4.1.1 Agriculture

Alternative 1, Subalternative 1E, Alternative 3, Subalternative 3M, Alternative 4, and Alternative 4 Subalternatives all are more impactful than the Project, as they would affect more residential land and NRCS-classified farmland in California. Alternative 2 would impact the same amount of agricultural land as the Project in California. Therefore, the Project and Alternative 2 would be the environmentally superior alternatives with respect to agricultural resources.

4.1.2 Biological Resources

Segments x-19, ca-9, and ca-07 cross known occurrences of Harwood's eriastrum and fringe-toed lizard habitat. The same sand dune vegetation community is found on the Project ROW; however, there are no known occurrences of Harwood's eriastrum on Segments p-17 and p-18. Alternatives that include Segment x-19 could have significant direct and indirect impacts on Harwood's eriastrum and fringed-toed lizard habitat and individuals. These potential impacts would be minimized through implementation of various APMs and BMPs, including avoidance measures included in the DRECP. Therefore, the Project is the environmentally superior alternative with respect to biological resources.

4.1.3 Cultural Resources

All of the Alternatives are less impactful than the Project for cultural resources in California prior to the implementation of mitigation measures and BMPs, as the routes would avoid Project segments p-17 and p-18, which could have significant impacts on cultural resources. A total of 11 sites previously recommended or determined eligible for inclusion in the NRHP have been previously recorded within the 200-foot analysis corridor of Segment p-17. One of these sites contains known human remains and is within an existing access road. One NRHP-listed archaeological district and TCP containing petroglyphs and intaglios (the Mule Mountains Petroglyph and Intaglio Site) is potentially sensitive to indirect visual impacts and is located within line of sight of Segment p-17. The types of sites located along Segment p-18 are similar to those described for Segment p-17, thus the impact analysis is the same as well. Depending on the viewshed and tower placement, indirect visual impacts to these sites could range between moderate and major. Therefore, the Alternatives would all be less impactful than the Project with respect to cultural resources in California.

4.1.4 Tribal Resources

None of the Alternatives are less impactful than the Project for Tribal resources in California. Therefore, there is no environmentally superior alternative with respect to Tribal resources in California.

4.1.5 Hazards and Hazardous Materials

None of the Alternatives are less impactful than the Project for hazards and hazardous materials in California. Rather, there are a number of cleanup site database listings crossed by or within 1-mile of the Action Alternative Segments (ca-01, ca-02, ca-04 through ca-07, ca-09, cb-10, i-08s, x-09 through x-13, x-15, x-16, and x-19) that are not present for the Proposed Action Segments (p-15e through p-18). Therefore, there is no environmentally superior alternative with respect to hazards and hazardous materials.

4.1.6 Land Use

None of the Alternatives would be less impactful than the Project for land use in California; all Alternatives would have a less-than-significant impact. However, mitigation (implementation of BMP-BIO-31, which would apply to Harwood eriastrum suitable habitat) would be required in order to reduce impacts to a less-than-significant level for Alternative 2 and Alternative 2 with Subalternative 4D. This mitigation would require an amendment to the CDCA Plan. Alternative 2 would site a larger portion of the Project within a BLM-designated utility corridor and would avoid the Kofa NWR in Arizona. Subalternative 4D would not conform with BLM VRM classes and would require six separate RMP amendments.

4.1.7 Noise

None of the Alternatives would reduce construction related noise levels at NSRs when compared to the Project. Therefore, there is no environmentally superior alternative with respect to noise impacts in California.

4.1.8 Recreation

None of the Alternatives would be less impactful than the Project for land use in California; all Alternatives would have a less-than-significant impact. Alternative 2 would avoid the Kofa NWR in Arizona, where a number of recreational activities are available, including wildlife watching, hiking, camping, photography, and hunting.

4.1.9 Other Resources

The Alternatives all have slightly greater impacts to Aesthetics resources because it would be a new development added to a view that contains very little development, and it would be a moderate to major impact on the views of nearby residents because the routes are all located closer to the I-10 corridor.

4.2 NO PROJECT ALTERNATIVE

Like NEPA, CEQA requires an analysis of a No project alternative (Section 15126.6(e)) that considers the results of not implementing the Proposed Action or any of the action alternatives. Analysis of a no project alternative is intended to allow state and local agencies to compare the impacts and benefits of the Proposed Action and its alternatives to with the impacts and benefits

on not implementing the project. Section 2.3 of the TES (BLM 2018) outlines the BLM's analysis of the No Action Alternative and is summarized below.

Under the No Project Alternative, the following actions related to implementing the Proposed Action or its alternatives would not occur:

- The BLM would not issue a ROW, and the CPUC would not consider using this document to grant the Applicant a Certificate of Public Convenience and Necessity.
- The CDCA Plan, as amended, would not be amended to allow project construction.
- Adverse environmental impacts outlined in this appendix, and Chapter 4 of the TES would not occur.
- The CAISO-identified interconnection between the Delaney and Colorado River Substation would not be built, and the benefits of allowing new renewable energy resources in Arizona contribute to achieving California's Renewable Portfolio Standards would not be realized.
- Enhancements to the reliability and efficacy of the western transmission system would not occur.

4.3 NON-WIRES ALTERNATIVES

Assessment of the feasibility of a non-wires scenario is a statutorily required element of the CPUC's Certificate of Public Convenience and Necessity (CPCN) (PUC Section1002.3). Because CEQA requires the full range of alternatives to be assessed for their environmental impact, it is the CPUC's practice to assess the feasibility of the non-wires alterative as part of the CEQA environmental review.

The non-wires solution under consideration would require the installation of 2800 GWh of lithium ion batteries capable of charging during off-peak hours and discharging during expensive peak hours, thus accruing economic benefits by competing to reduce peak energy costs. These batteries would be installed in two locations where supply of energy is expensive during peak demand due to lack of competition between suppliers, specifically, near Alamitos and Huntington Beach combined cycle as plants.

Revenue requirements for the Project are estimated at $491 million over the 40-year life of the project2. The minimum estimated revenue requirement for a lithium ion storage alternative would cost $768 million, with a life span of no more than 20 years. Given that the cost of the Project was explicitly capped by the CAISO, in order to deliver the purported economic benefits, and the non-wires alternative is significantly more expensive, it fails to satisfy the primary objective of the Project.

Furthermore, a storage solution would fail to deliver numerous system reliability benefits including the following: 1) current storage is not yet capable of delivering congestion reduction benefits for extended power transmission maintenance outages; 2) there is no additional power transmission

[2] Revenue requirement is the amount of money that a utility/developer must receive to cover its costs, operating expenses, taxes, interest paid on debts owed to investors and, if applicable, a reasonable return (profit).

capacity for the Arizona California intertie; 3) there is no congestion relief for the Imperial Valley intertie; and 4) storage is inflexible with regard to delivery of energy or capacity to other parts of the CASIO system. In conclusion, the non-wires solution fails to satisfy the primary objective of the Project and would be inefficient when compared to the potential reliability benefits derived from the Project.

4.3.1 Analysis Supporting the Determination of the Feasibility of a Non-wires Alternative

As discussed above, the EIS did not include a non-wires alternative as part of the alternatives screening process. Therefore, the CPUC conducted the following analysis to support the findings outlined in this section. The assessment of the feasibility of a non-wires scenario is a statutorily required element of the CPUC's CPCN (PUC Section1002.3). PUC Section 1002.3 states that the "Commission shall consider cost effective alternatives to transmission facilities" the solution may include "demand-side alternatives such as…energy efficiency, ultra clean distributed generation and other demand reduction resources". It is the CPUC's practice to assess the feasibility of the non-wires alterative as part of the CEQA environmental review, because CEQA requires the full range of alternatives to be assessed for their environmental impact, assessing the non-wires alterative later in the process may lead to an inadequate environmental review.

In developing a non-wires alternative, it was assumed that any alternative that could displace large amounts of energy (like the Project) and satisfy the "ultra–clean" standard would require the deployment of energy storage, or a combination of storage and renewable energy. The operation and delivery of demand side programs (such as demand response and energy efficiency) that could displace large quantities of energy over and above existing LTPP[3] planning assumptions cannot be guaranteed for the 40-year life cycle of the Project; they were therefore not considered for this alternative.

DCRT proposes to deliver the following hierarchy of benefits:

- Provide economic benefit to the CASIO ratepayers;
- Provide reliability benefits to the wider system; and
- Reduce GHG emission.

A non-wires alternative needs to demonstrate broadly similar characteristics, with the economic benefits and costs determining an alternative's ultimate viability. Given that the Project seeks to positively affect CAISO ratepayers in the broadest terms, the CAISO Balancing Authority area was considered the scale at which the non-wires scenario needs to demonstrate positive effects.

Further, the non-wires scenario does not need to exactly mimic the Project, but should bring broadly similar benefits to the ratepayers. The most parsimonious solution does not have to offset energy equivalent to the energy displaced by the line at each location identified in Data Request No. 3, but only offset the total equivalent energy. Since the market behavior of a non-wires solution may be very different from the Project, any combination of locations may deliver a viable scenario.

[3] LTPP – Long Term Procurement Plan - the biennial CPUC energy procurement planning proceeding.

Therefore, the primary driver used to identify a potential non-wires alternative was the ability of an alternative to deliver similar energy benefits to the CASIO system. It was estimated that when in service, the line would displace 853 GWh[4] of energy within California with cheaper Arizona based electricity[5]; any non-wires would need to deliver similar amounts of energy and be capable of displacing the most expensive electricity.

4.3.1.1 The Scenario

To develop the non-wires alternative the annual generation profiles for the power generation sites that are most likely to be affected by the Project were reviewed[6]. In the 2026 simulation profiles, both Huntington Beach and Alamitos are operating close to full capacity for more than 80% of the year between 18:00 and 21:00 in the evening[7]. This generation profile provides the best opportunity for a storage solution to efficiently compete with existing generation, because it would maximize the likelihood for the use of the storage.

[4] DCRT Response to Data Request 3 - List of locations where generation would be displaced.
[5] Draft Cost Benefits and Policy Benefits of the DCRT – Brattle 2017.
[6] DCRT Response to Data Request 4 – Baseline Annual Generation Profiles.
[7] IBID.

A plausible lithium-ion storage solution that could provide similar capacity (700MW) and potentially displace a similar amount of energy (up to 975.1GWh) was identified. The minimum storage scenario would install 2,800 MWh of Li ion storage split equally between the two locations identified as benefiting most from the Project; no smaller solution that satisfied the energy parameters could be identified. For context, 400 MW of storage have been deployed in the United States between 2011 and 2015[8].

4.3.1.2 Analysis

The development of a non-wires scenario that satisfies energy displacement criteria highlights the contrast between a non-wires scenario and the Project for other crucial performance parameters, such as capital cost, capacity benefits, and operational value (including longevity and lifetime cost), as well as GHG reduction benefits and reliability improvement to the system.

4.3.1.3 Cost

Revenue requirements for the proposed line are estimated at $494 million over the 40-year life span of the line[9]. Since the Project is a cost capped line, any non-wires solution should demonstrate similar life time costs to ensure a like-for-like comparison. Based on assumptions developed in the Lazard 2016 white paper, a lithium ion storage-based alternative would have revenue requirements[10] of between 1.6-3.4 times those for the Project. The minimum estimated revenue requirement for a lithium ion storage-based non-wires alternative, that could deliver the equivalent energy and capacity would cost from $768 million-$1,673 million, with a life span of no more than 20 years[11]. Other available estimates put the cost at 5-6 times greater[12]. Given that the Project was explicitly cost capped by the CAISO[13] in order to deliver the economic benefits, the non-wires solution performs extremely poorly with respect to potential economic benefits.

4.3.1.4 Reliability

Furthermore, the non-wires alterative would have limited contribution to the overall reliability across the CAISO system. While the non-wires solution may improve reliability in specific locations, it would not deliver system-wide reliability benefits, nor would it provide CAISO with the operational flexibility of the Project. The Project would provide additional capacity during scheduled prolonged outages on the Arizona – California transmission pathway. The non-wires alternative would not provide the following reliability benefits:

- Additional capacity for import/export from/to Central California (PG&E) and from/to the Pacific Northwest are not realized.
- Lower benefit on congestion relief for Arizona-California and Nevada-California paths.

[8] Deployment of Grid-Scale Batteries in the United States – David Hart and Alfred Sarkissian for DOE 2016.
[9] Ten West Link Economic and Public Benefits Cost Analysis, July 31, 2017 Brattle Group
[10] Revenue requirement is the amount of money that a utility/developer must receive to cover its costs, operating expenses, taxes, interest paid on debts owed to investors and, if applicable, a reasonable return (profit).
[11] Based on assumptions in Lazard's Levelized Cost of Storage—Version 2.0 December 2016.
[12] Battery Cost Research, November 2017, Brattle Group
[13] CAISO 2013-2014 Transmission Plan.

- Transmission system reinforcement is not provided. Vulnerability for outages is greater, increase probability of load or generation dropping.
- Ten-West Link transmission capacity is 5-6 times greater than the alternative storage capacity. New generation in Arizona and Nevada could not get to market in Southern California.
- New line support of transmission voltages not provided.
- Less contribution to spinning reserve requirements of Southern California.
- No contribution to intertie scheduling constraints.

4.3.1.5 Greenhouse Gas Emissions

The GHG emissions of the non-wires alternative is determined by the net difference between the energy profile during battery recharge and the energy profile of the displaced energy. Battery discharge would likely compete with peak gas generation usage, which would typically be between 18:00 hours and 21:00 hours, and recharge would occur between 0:00 hours and 16:00 hours[14]. Battery re-charge would use the cheapest available generation during any 24-hour cycle, this could be either excess solar that would otherwise be curtailed during day time peak generation, or displaced gas generation available during off peak. Given the wide range of potential recharge opportunities it is not possible to determine whether the batteries would shift the time of use or displace gas generation. Consequently, it is not possible to determine whether use of batteries would reduce GHG emissions by simply out competing gas plants.

4.3.1.6 Analysis

In conclusion, for the above economic and system reliability reasons, a non-wires solution was screened out and not carried forward for analysis.

4.4 ENVIRONMENTALLY SUPERIOR ALTERNATIVE (CEQA)

CEQA Guidelines Section 15126.6(e)(2) requires the identification of an "environmentally superior alternative." As discussed in Section 4.2, selection of the No Project alternative would avoid all of the adverse impacts disclosed in Section 4 of the TES (BLM 2018), as well as those identified in this appendix. Therefore, the No Project Alternative is the environmentally superior alternative. Section 4.2 also discloses that if the No Project Alternative were to be selected, none of the Project's benefits would be realized.

To balance the projects benefits with its potential adverse effects, the CEQA Guidelines Section 15126.6(e)(2) indicates that "if the environmentally superior alternative is the 'no project' alternative, the EIR shall also identify the environmentally superior alternative among the other alternatives." Based on the environmental analysis, Alternative 2, the BLM Utility Corridor Route, utilizing Subalternative 4D has been identified as the environmentally superior Alternative. This is consistent with the BLM's finding that Alternative 2, utilizing Subalternative 4D, is the Agency Preferred Alternative in the EIS.

[14] DCRT Response to Data Request 4 – Baseline Annual Generation Profiles.

A description of Alternative 2, the BLM Utility Corridor Route, utilizing Subalternative 4D, is outlined in the EIS. Subalternative 4D, that would be utilized in conjunction with Alternative 2, is located in Arizona, and is included to reduce adverse impacts on visual and recreation resources and that would occur if the Project or Alternative 2 were selected. Therefore, environmental impacts in California would be the same under Alternative 2 and Alternative 2 with Subalternative 4D included. As stated in the EIS, under the Agency Preferred Alternative/Environmentally Superior Alternative, the BLM would approve a total of 21.8 miles of 200-foot wide ROW within existing designated utility corridors along the following segments in California: p-15 through p-16; x-15 and x-16; ca-07 and ca-09; and x-19.

In California, the Agency Preferred/Environmentally Superior Alternative is comprised of segments selected to:, emphasize the use of BLM utility corridors; consolidate development and disturbance with existing disturbance, such as along portions of the already impacted DPV1 transmission line route; avoid residential and other development east and south of Blythe; consolidate development along the existing DPV1 transmission line route across private lands in California; and avoid the culturally sensitive area in the vicinity of the Mule Mountains southwest of Blythe (Segments p-17 and p-18).

While the use of alternative Segments x-19, ca-9, and ca-07, in lieu of Segments p-17 and p-18, provides the advantages listed above, the alternative segments cross known occurrences of Harwood's eriastrum and fringe-toed lizard habitat that would not be crossed by the Project; however, habitat for these species also exists with the Project ROW. To further reduce and avoid potentially significant impacts to biological resources resulting from the implementation of the Agency Preferred/Environmentally Superior Alternative, the BLM would amend the CDCA Plan to state:

> The Ten West Link Project is authorized to include construction within 0.25 mile of occurrences of Harwood's eriastrum, provided that a Linear Right-of-Way Rare Plant Protection Plan for Harwood's eriastrum is developed and approved by the California State Director. The Rare Plant Linear ROW Protection Plan would meet the DRECP goal of promotion of the ecological processes in the BLM Decision Area that sustain vegetation types of Focus and BLM Special Status Species and their habitat. The Rare Plant Linear ROW Protection Plan would have the objectives of:
>
> 1. Avoidance of take of Harwood's eriastrum individuals to the maximum extent practical[1]; and
> 2. Avoidance of impacts to Harwood's eriastrum suitable habitat to the maximum extent practical.

If Alternative 2 is selected, the California State Director will approve the Harwood's eriastrum Rare Plant Linear ROW Protection Plan and Fringe-toed Lizard Linear ROW Protection Plan prior to ground or vegetation disturbing activities commencing on public lands in California. Doing so will avoid impacts to known populations of Harwood's eriastrum located within the proposed ROW for Alternative 2, reducing potential project-related impacts to less than significant.

[1] See definition of maximum extent practical in the Glossary of Terms, EIS Appendix 6.

While Alternative 2 crosses known occurrences of Harwood's eriastrum and fringed-toed lizard habitat, it would also avoid impacts to sensitive cultural resources located along Segments p-18 and p-17, when compared to the Project. Additionally, Alternative 2 is located within a BLM-designated utility corridor in California and, like the Project, is mostly located adjacent to existing utility lines. Alternative 2 would reduce impacts on cultural resources and visual resources in Arizona (by avoiding the Kofa NWR), while impacts on land use, tribal resources, hazards, noise, and visual resources would be similar, when compared to the Project. Alternative 2, Subalternative 4D would also reduce visual resource impacts (though amendments to the Yuma RMP would be required) and avoid biological, recreation, and land use impacts associated with crossing the Kofa National Wildlife Refuge in Arizona, when compared to the Project. Therefore, Alternative 2, the BLM Utility Corridor Route, utilizing Subalternative 4D would be the environmentally superior alternative under CEQA.

A comparison of Alternative 2 with Subalternative 4D is provided in the EIS, including environmental impacts and associated benefits.

5.0 OTHER CEQA

This section describes other statutorily required topics, including growth-inducing impacts. It also provides a discussion of energy conservation as required by Section 15126.4 of the CEQA Guidelines.

5.1 GROWTH INDUCING IMPACTS

A project could induce growth if it results in additional development, such as an increase in population, employment, and/or housing above and beyond what is already anticipated in local and regional land use plans or in projections made by regional planning authorities, irrespective of the Project. As detailed in the EIS, the project is responding to CAISO power demands. Under CEQA (Section 15126.2(d)), a project would be growth inducing if it:

- Directly or indirectly fosters economic or population growth or the construction of additional housing;
- Taxes community facilities to the extent that the construction of new facilities would be necessary;
- Removes obstacles to population growth; or
- Encourages or facilitates other activities that cause significant environmental effects.

Typical growth-inducing factors may include the extension of urban services or transportation infrastructure to a previously unserved or under-served area or the removal of major barriers to development. As described in Section 4.15 of the TES (BLM 2018), the project would not build or induce housing or otherwise result in growth or secondary development. This section evaluates the Project's potential to create such growth inducements. It should "not be assumed that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment" (CEQA Section 15126.2(d)).

The CPUC's CEQA objectives for the Project are as follows:

- Construct and operate an economically and technically feasible 500kV electric transmission line and associated infrastructure with conductor capacity of approximately 3,200 MW between the Colorado River Substation and the Delaney Substation that meets CAISO-specified electrical characteristics.
- Complete construction and achieve commercial operation in accordance with the terms of the Approved Project Sponsor Agreement with CAISO.
- Provide new transmission infrastructure to facilitate development and interconnection to the bulk transmission system for new renewable energy resources in the region.
- Develop, construct, maintain, and operate transmission infrastructure that is consistent with the laws, regulations, orders, guidelines, standards, and criteria of the NERC, WECC, Federal Energy Regulatory Commission (FERC), CAISO, ACC, and CPUC and that meets the substation interconnection requirements of APS and SCE and in-compliance with Project permits, licenses, and approvals.

- Utilize existing utility corridors, roads, and infrastructure to the extent feasible to meet the other above-listed Project objectives wherever consistent with minimizing impacts.

The Project responds to growth and demand trends identified by CAISO, and state and federal reliability standards require continuous availability of reliable power. It accommodates anticipated growth – including renewable energy facilities in the vicinity of Colorado River Substation – and no significant project-related growth-inducing impacts are anticipated.

Further, the applicant would hire a local construction workforce, and outside contractors would only be required if local contractors were not available. Due to the temporary nature of the employment, workers are not expected to relocate to the area in numbers that would result in a significant impact (Section 2.13 of the TES [BLM 2018]). In the event that a small number of workers did relocate to the area, the number would be very minor compared to the area's total population, and numerous temporary lodging facilities, such as hotels and motels, would be available. New housing facilities would not be required.

The Project would not indirectly induce growth as any increases in housing associated with additional electric capacity would be subject to local approvals and permits.

5.2 ENERGY CONSERVATION

Public Resources Code Section 21100(b)(3) requires EIRs to describe, where relevant, the wasteful, inefficient, and unnecessary consumption of energy caused by a project. The Project would accommodate nearby renewable energy generation facilities, helping to offset the use of nonrenewable resources and contribute to an overall reduction of nonrenewable resources currently used to generate electricity. APM AQ-02 would implement measures encouraging use of natural gas- or electric-powered vehicles for light-duty trucks where feasible and available.

The USEPA regulates non-road diesel engines. The USEPA has no formal fuel economy standards for non-road (e.g., construction) diesel engines but does regulate diesel emissions, which indirectly affect fuel economy. In 1994, the USEPA adopted the first set of emissions standards (Tier 1) for all new non-road diesel engines greater than 37 kilowatts (50 hp). The Tier 1 standards were phased in for different engine sizes between 1996 and 2000, reducing NOx emissions from these engines by 30 percent. The USEPA has since adopted more stringent emission standards for NOx, hydrocarbons, and particulate matter from new non-road diesel engines. This program includes the first set of standards for non-road diesel engines that are less than 37 kW. It also phases in more stringent Tier 2 emission standards from 2001 to 2006 for all engine sizes and adds yet more stringent Tier 3 standards for engines that are between 37 and 560 kW (50 and 750 hp) from 2006 to 2008. These standards will further reduce non-road diesel engine emissions by 60 percent for NOx and 40 percent for PM from Tier 1 emission levels. In 2004, the USEPA issued the Clean Air Non-road Diesel Rule. This rule, which took effect in 2008 and was fully phased in by 2014, will cut emissions from non-road diesel engines by more than 90 percent. These emission standards are intended to promote advanced clean technologies for non-road diesel engines that improve fuel combustion, but they also result in slight decreases in fuel economy.

Construction activities associated with the Project would result in the consumption of petroleum-based fuels. There are no unusual project characteristics that would necessitate the use of construction equipment that would be less energy efficient than at comparable construction sites in other parts of the state.

Construction operations are expected to last 17 months in total. Fuel consumption would occur from off-road vehicles such as backhoes and scrapers, as well as from on-road commuter and delivery traffic. All fuel usage calculations were derived by establishing the liters per machine hour (LMPH). LMPH equals the kilogram of fuel used per brake horsepower/hour (K) x gross horsepower (GHP)_x load factor (LF)/ weight of fuel (KPL).

All equipment was established for each construction element of the Project beginning with geotechnical investigation and ending with substation equipment installation. The LMPH value for each piece of equipment was determined and converted to gallons per hour. Note the K and KPL values were established for both diesel and gasoline (used for pickups) from Table 3.3 of the Cost Control in Forest Harvesting and Road Construction Manual developed by the Food and Agriculture Organization of the United Nations (FAO 1992). The total number of each piece of equipment was tallied along with hours per day of operation and the total number of days for each construction phase.

During the 17-month construction, it is estimated that 8.94 million gallons of off-road diesel fuel and 264,802 gallons of gasoline would be consumed. Various stages of construction would utilize more equipment than others. Therefore, fuel consumption is not proportional by month and would vary based on intensity of each phase.

On-road fuel usage associated with construction was determined from the Air Quality Baseline Report (HDR 2017b). The report estimated that each commuting worker would travel 100 miles each work day. Based on total number of crew days, the estimated commuter mileage over 17 months was 2.6 million miles. It was also assumed that the ratio for passenger cars to light duty trucks was 1:1 or 50% of each. Delivery trucks were also assumed to travel 100 miles during each trip. The total daily average fuel consumption estimated is 591 gallons and 301,659 gallons over 17 total months (mostly from delivery vehicles).

It is expected that construction fuel consumption associated with the Project would not be any more inefficient, wasteful, or unnecessary than at other construction sites in the region.

Vehicle fuel efficiency is regulated at the federal level. Pursuant to the Federal Energy Policy and Conservation Act of 1975, the National Highway Traffic and Safety Administration is responsible for establishing additional vehicle standards and for revising existing standards. The fuel economy standard for new passenger cars has been 27.5 miles per gallon since 1990. The fuel economy standard for new light trucks (gross vehicle weight of 8,500 pounds or less) has been 20.7 miles per gallon since 1996. Heavy-duty vehicles (i.e., vehicles and trucks over 8,500 pounds gross vehicle weight) are not currently subject to fuel economy standards. Compliance with federal fuel economy standards is not determined for each individual vehicle model; rather, compliance is determined on the basis of each manufacturer's average fuel economy for the portion of its vehicles produced for sale in the United States.

Operations and maintenance activities would occur at two different time cycles. Typical procedures would occur annually while more extensive operations would result every five years. It is estimated that 85,628 gallons from off-road activities would be consumed annually. Every five years would see an additional 63,745 gallons of fuel consumed.

On-road activities associated with operations and maintenance would also occur annually and once every five years. Commuter travel is estimated to consumed 431 gallons of gasoline each year and approximately 3.4 gallons per day. During the five year cycle an additional 371 gallons of gasoline

would be consumed; as would 656 gallons of diesel fuel from delivery trucks. As such, it would be expected that vehicular fuel consumption associated with the Project would not be any more inefficient, wasteful, or unnecessary than for any other similar land use in the region.

Once operational, the Project would facilitate development and interconnection to the bulk transmission system for new renewable energy resources in the region and facilitate development of new renewable energy. Interconnection of utility-scale renewable energy projects would offset the Project's construction-related fossil fuel consumption and help California, and other states in the California Independent System Operator balancing authority network, further reduce their reliance on energy sources with higher carbon footprint.

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Appendix 2 Tabular and Other Data for Chapter 2

Table of Contents

List of Tables

2.1 INTRODUCTION

See Chapter 2.

2.2 PROPOSED ACTION AND ALTERNATIVES

2.2.1 ROW Actions

See Chapter 2.

2.2.2 Proposed Action

Table 2.2-1 provides descriptions of the individual Proposed Action segments.

Table 2.2-1 Proposed Action Segment Descriptions

SEGMENT NAME	DESCRIPTION	JURISDICTION MILES	TOTAL LENGTH
p-01	Begins at the Delaney Substation, heads north across I-10 and the CAP, then heads generally west, crossing the CAP again and then paralleling the CAP, turning southwest, and crossing I-10 again. Crosses BLM-administered land, Arizona State Land Department-managed land (Arizona State), and privately-owned land. Located within a utility corridor on BLM-administered land, skirts southern end of the Big Horn Mountains Wilderness Area.	BLM - 12.6 Private – 7.8 AZ State – 5.9	26.3
p-02	From Segment p-01, heads southwest, across privately owned and Arizona State land.	Private – 0.6 AZ State - 0.5	1.1
p-03	From Segment p-02, segment heads southwest across Arizona State and BLM-administered land within a utility corridor.	AZ State – 1.1 BLM – 1.0	2.1
p-04	From Segment p-03, heads generally west through Arizona State and BLM-administered land, just north of Eagletail Mountains Wilderness Area.	BLM - 5.0 AZ State – 0.5	5.5
p-05	From Segment p-04, segment continues generally west through BLM-administered land within a utility corridor.	BLM – 2.0	2.0
p-06	From Segment p-05, this segment continues generally west through BLM-administered land and then through the Kofa NWR. The segment is within a utility corridor on BLM-administered land that borders the Plomosa and New Water Mountains to the north and the Kofa Mountains to the south. It crosses through the northern portion of the Kofa NWR.	BLM – 10.9 USFWS – 24.9	35.8
p-07	From Segment p-06, this segment crosses BLM-administered land within a utility corridor, west of the Kofa NWR, heads west-northwest towards SR 95.	BLM – 2.1	2.1

SEGMENT NAME	DESCRIPTION	JURISDICTION MILES	TOTAL LENGTH
p-08	From Segment p-07, heads west-northwest to and across SR 95 on BLM-administered land south of the BLM's La Posa LTVA.	BLM – 0.7	0.7
p-09	From Segment p-08, heads west-northwest across SR 95 and through BLM-administered land within a utility corridor south of the BLM's LTVA; then clips the northeast corner and passes to the north of the YPG.	BLM – 6.7 DOD – 0.2	6.9
p-10	From Segment p-09, traverses through BLM-administered land southeast of Copper Bottom Pass, which is narrow and contains steep rocky terrain.	BLM – 1.2	1.2
p-11	From Segment p-10, follows Copper Bottom Pass, southwest and upslope from the existing DPV1 line crossing BLM- and Reclamation-managed lands and within a utility corridor on BLM-administered land	BLM – 4.0 Reclamation – <0.1	4.0
p-12	From Segment p-11, heads southwest from Copper Bottom Pass through BLM- and Reclamation-managed lands.	Reclamation – 1.5 BLM – 1.1	2.6
p-13	From Segment p-12, heads southwest through BLM-administered land.	BLM – 3.5	3.5
p-14	From Segment p-13, heads southwest crossing BLM-administered land.	BLM – 0.9	0.9
p-15e	From Segment p-14, heads west through BLM-administered land and Arizona State land, then ends at the Colorado River.	BLM – 1.5 AZ State – 1.3	2.8
p-15w	From Segment p-15e and the Colorado River, heads west. California State Lands Commission administers land beneath water; Colorado River itself controlled by State Water Resources Control Board (SWRCB) with Federal oversight. From east to west, crosses a combination of California State and private agricultural land (CPUC jurisdiction).	Private – 6.6 CA State – 0.1	6.7
p-16	From Segment p-15w, heads west across private agricultural land, up the bluff at the edge of the Colorado River floodplain, then onto BLM-administered land, turning northwest for a short distance.	Private – 4.1 BLM – 0.7	4.8
p-17	From Segment p-16, heads northwest across a combination of BLM-administered land and private land along the southwest boundary of the Desert Quartzite Project. Would parallel the southwestern boundary of the proposed Desert Quartzite LLC solar facility.	Private – 1.0 BLM – 2.1	3.1
p-18	From Segment p-17, heads generally northwest toward the SCE Colorado River Substation southwest of Blythe, where it terminates. Crosses a combination of BLM-administered land and undeveloped private land. Would cross the proposed Bright Source Energy Sonoran West and Crimson Solar Facility.	Private – 1.4 BLM – 1.0	2.4

AZ = Arizona; CA = California

2.2.2.1 Amendment of the Yuma RMP

See Chapter 2.

2.2.2.2 Amendment of the CDCA Plan

See Chapter 2.

2.2.3 Alternatives and Subalternatives

Alternatives to the Proposed Action take the form of assorted segments within the Project Area that could be assembled to form a number of complete routes between the Delaney and Colorado River substations. In order to effectively evaluate route alternatives, the Action Alternative routes are divided where route segments intersect. Segments are generally numbered numerically east to west from the APS Delaney Substation to the SCE Colorado River Substation; north-south interconnects are generally numbered from north to south. A total of 45 Action Alternative segments were identified, in addition to the 19 Proposed Action segments in the Project Area. Alternative segments to the Proposed Action segments are identified as follows:

- The APS Delaney Substation segment carries the letter “d”;
- I-10 segments carry the letter “i”;
- The segment north of I-10 carries the letters “in”;
- Segments north of Quartzsite carry the letters “qn”;
- Segments south of Quartzsite carry the letters “qs”;
- Segments through the Copper Bottom Pass area carry the letters “cb”;
- East-west segments in California carry the letters “ca”;
- Cross connectors providing north-south connections roughly between the Proposed Action and east-west alternative segments carry the letter “x”; and
- Segments that break across the Colorado River carry the same segment numbering but are identified as “east” and “west”.

In addition, the route alternative segments were sited to address issues raised by land management agencies, local government, individuals, and organizations.

The following considerations were used to further evaluate alternatives:

- Would the alternative segment meet the underlying Project stated objectives for the proposed Project?
- Is the alternative segment consistent with the policy objectives for the management of the area (e.g., in conformance with land use plans) and if not, would an amendment be required?
- Is the alternative segment substantially similar in design or does it have substantially similar effects as an alternative segment that is already being analyzed?

- Would the alternative segment address and resolve resource conflicts and/or identified issues?
- Would the alternative segment cause fewer adverse environmental effects (fewer detrimental effects, less severe effects, or shorter-term effects) than the proposed route for at least some resources?

The Project Area is divided into four zones, where the segments within each zone are geographically similar and could be alternatives to each other:

- East Plains and Kofa Zone
- Quartzsite Zone
- Copper Bottom Zone
- Colorado River and California Zone

Zones were established based on the relationship of alternative segments to each other, geography, common resource issues, and interconnection points. By delineating zones, existing conditions and impacts common to all segments within a zone can be identified and then conditions and impacts specific to each zone and alternative segment can be identified. Alternative segments in a zone are alternatives to each other and can be organized into alternative routes through the zone. Alternative routes (usually made up of more than one segment) in each zone can then be connected with routes in other zones to form complete alternative routes for the Project.

All alternative segments carried forward for detailed analysis were found to meet the underlying Project stated objectives for the Project and to be consistent with the policy objectives for the management of the area. While many of the alternative segments were determined to address and resolve resources conflicts and/or identified issues, a number of alternative segments are being carried forward for detailed analysis to provide a broad range of available alternatives, should analysis in the EIS or other factors render some alternative segments infeasible.

Table 2.2-2 provides alternative segment descriptions by zone.

Table 2.2-2 Summary of Alternative Segments

SEGMENT	DESCRIPTION	ALTERNATIVE TO	BENEFIT	JURISDICTION MILES	TOTAL LENGTH (MILES)
East Plains and Kofa Zone					
d-01	Leaving APS Delaney Substation, goes directly west through Arizona State and private land then turns northwest to parallel the Kinder Morgan natural gas line located in Arizona State land and within a utility corridor on BLM-administered land until it intersects with the Proposed Action.	p-01, p-02, and p-03	Avoids two crossings of I-10 and the CAP and joins with a utility corridor on BLM managed lands.	Private – 14.7 BLM – 7.3 Arizona State – 3.2	25.2
i-01	From the intersection of Segments p-01 and p-02, heads west-northwest and parallels I-10 to the south, as it traverses private and Arizona State land, crossing the CAP two times. Portions would be within a utility corridor on BLM managed lands.	p-02, p-03, and a portion of p-04	In conjunction with other segments would avoid Segment p-06 crossing the Kofa NWR; and could be assembled with other segments to constitute a route within BLM utility corridors.	Arizona State – 5.3 Private – 2.8 Reclamation – 0.1 BLM – 0.1	8.3
i-02	From the intersection of Segments i-01 and x-01, heads west-northwest and parallels I-10 to the south, as it traverses BLM-administered land, and would be wholly within utility corridors.	p-04, p-05	In conjunction with other segments would avoid Segment p-06 crossing the Kofa NWR; and could be assembled with other segments to constitute a route within BLM utility corridors.	BLM – 3.3	3.3
i-03	From the intersection of Segments i-02 and x-03, heads west-northwest and parallels I-10 to the south, as it traverses BLM-administered, private, and Arizona State land, crossing the CAP twice at the eastern end of the segment. It is wholly within utility corridors on BLM-administered land.	A portion of p-06 and x-04	In conjunction with other segments would avoid Segment p-06 crossing the Kofa NWR; and could be assembled with other segments to constitute a route within BLM utility corridors.	BLM – 10.7 Arizona State – 6.0 Private – 3.3	20.0

SEGMENT	DESCRIPTION	ALTERNATIVE TO	BENEFIT	JURISDICTION MILES	TOTAL LENGTH (MILES)
i-04	From the intersection of Segments i-03, x-04, and in-01, heads west-northwest and then generally due west as it parallels I-10 to the south, as it traverses BLM-administered land, it is wholly within utility corridors.	A portion of p-06 and in-01	In conjunction with other segments would avoid Segment p-06 crossing the Kofa NWR; and could be assembled with other segments to constitute a route within BLM utility corridors.	BLM – 10.4	10.4
in-01	From the intersection with Segments i-03 and i-04, in-01 would cross to the north side of and parallel I-10 on BLM-administered land within utility corridors.	i-04 and i-05	Would locate the transmission line north of I-10 protecting dominant scenic views of the New Water Mountain Wilderness and Kofa NWR to the south.	BLM – 13.8	13.8
x-01	From the intersection with Segment p-02, heads west then northwest paralleling the CAP to the south, ending just south of I-10. Crosses BLM-administered land and Arizona State land. Within utility corridors on BLM managed lands at either end.	p-03 and p-04, i-01	Would follow the CAP and consolidate disturbance and avoid CAP crossings by Segment i-01. Would place the route farther away from the Eagletail Mountains Wilderness Area.	Arizona State – 3.7 BLM – 1.0	4.7
x-02a	From the intersection with Segments i-01 and i-02, heads southeast crossing Arizona State land and a small portion of BLM-administered land. Not within a utility corridor.	p-04	In conjunction with a portion of Segment x-01, would provide an alternative cross-connection between the Proposed Action or Segment d-01 and segments within BLM utility corridors and avoids Segment p-06 crossing the Kofa NWR.	Arizona State – 3.2 BLM – 0.1	3.3

SEGMENT	DESCRIPTION	ALTERNATIVE TO	BENEFIT	JURISDICTION MILES	TOTAL LENGTH (MILES)
x-02b	From the intersection with Segments p-03, d-01, and p-04, heads northwest crossing BLM-administered and Arizona State land. Begins within a utility corridor on BLM managed lands, but primarily occurs outside of one.	p-04	In conjunction with Segment x-02a, would provide an alternative cross-connection between the Proposed Action or Segment d-01 and segments within BLM utility corridors and avoids Segment p-06 crossing the Kofa NWR.	Arizona State – 2.7 BLM – 0.8	3.5
x-03	From the intersection of Segments p-04 and p-05, heads northwest through BLM-administered land, terminating south of I-10. Begins and ends within utility corridors, but primarily outside of them.	x-01, x-02a, x-02b, and x-04	Would provide an alternative cross-connection between the Proposed Action and segments within BLM utility corridors and avoids Segment p-06 crossing the Kofa NWR.	BLM – 5.6	5.6
x-04	From the intersection with Segments p-05 and p-06, heads northwest through primarily BLM-administered land, terminating south of I-10. Begins and ends within utility corridors, but primarily outside of them. Crosses through a parcel of Arizona State land and the proposed Arizona Peace Trail.	x-01 through 03, i-03, and a portion of p-06	Would provide an alternative cross-connection between the Proposed Action and segments within BLM utility corridors and avoids Segment p-06 crossing the Kofa NWR in conjunction with other segments.	BLM – 21.6 Arizona State – 1.1	22.7
Quartzsite Zone					
i-05	From the intersection of Segments i-04 and x-05, heads generally west and parallels I-10 to the south, as it traverses BLM-administered land, it is wholly within utility corridors.	p-07	In conjunction with other segments, could be assembled to constitute a route almost entirely within BLM utility corridors.	BLM – 2.9	2.9

SEGMENT	DESCRIPTION	ALTERNATIVE TO	BENEFIT	JURISDICTION MILES	TOTAL LENGTH (MILES)
qn-01	Segment that crosses I-10 at the intersection of Segments i-05 and qs-01, and in-01 and qn-02; within utility corridors, solely within BLM-administered land.	North-south portion of in-01	Would follow the existing WAPA 161kV transmission line and allow Segment in-01 to connect to Segment x-06 to avoid Quartzsite and generally parallel SR 95; or to segment qs-01 to skirt the south side of Quartzsite. Would also allow Segment i-05 to connect to Segment qn-02 to skirt Quartzsite on the north.	BLM – 0.6	0.6
qn-02	From the intersection with in-01 and qn-01, skirts to the north of Quartzsite, by traveling north, then west, then southwest. Crosses SR 95 and a utility corridor, and crosses I-10 at its western end. It begins and ends within utility corridors but is mostly outside them. Primarily within BLM-administered land, but is within Arizona State land just west of the SR 95 crossing.	qs-01, qs-02, p-08, and p-09	Would skirt Quartzsite to the north by following the existing Western/SDG&E 161kV transmission line on the east and north. Avoids impacts to the northern portion of the LTVA (Segments qs-01 and qs-02).	BLM – 9.8 Arizona State – 1.0	10.8

SEGMENT	DESCRIPTION	ALTERNATIVE TO	BENEFIT	JURISDICTION MILES	TOTAL LENGTH (MILES)
qs-01	From the intersection of i-05, qn-01, and x-06, heads slightly southwest of Quartzsite and within the extreme northern portion of the LTVA, ending at SR 95, within BLM-administered land. Partly within a BLM designated utility corridor.	p-08, qn-02	Would avoid Quartzsite by skirting to the southeast following the existing Western/SDG&E 161kV transmission line. In conjunction with qs-02, would be shorter than Segments qn-01 and qn-02. In addition to skirting Quartzsite, would allow a southern connection down to the Proposed Action or continue an east-west route south of I-10 within BLM utility corridors.	BLM – 3.1	3.1
qs-02	Heads slightly southwest of Quartzsite and within the extreme northwestern portion of the LTVA, beginning at SR 95, within BLM-administered land. Just south of I-10 turns westerly to parallel the south side of I-10. Partly within utility corridors on BLM managed lands. Western portion parallels I-10 to the south.	Portions of p-09 and qn-02	Would avoid Quartzsite by skirting to the southwest, generally following an existing pipeline route; but also skirting south of Q Mountain.	BLM – 4.8	4.8
x-05	From the intersection of Segments p-06 and p-07, heads north-northeast through BLM-administered land, east of the LTVA. Begins and ends within utility corridors but the segment is primarily outside of them.	x-06	Would provide an alternative cross-connection between the Proposed Action and segments within BLM utility corridors; avoids Segment p-06 crossing the Kofa NWR, Quartzsite, and the LTVA in conjunction with other segments.	BLM – 10.2	10.2

SEGMENT	DESCRIPTION	ALTERNATIVE TO	BENEFIT	JURISDICTION MILES	TOTAL LENGTH (MILES)
x-06	From the intersection of Segments p-07 and p-08, heads north-northeast through BLM-administered land, on the eastern boundary of the LTVA. Begins and ends within utility corridors but the segment is primarily outside of them.	x-05 and x-07	Would provide an alternative cross-connection between the Proposed Action and segments within BLM utility corridors; avoids Segment p-06 crossing the Kofa NWR, Quartzsite, and the LTVA in conjunction with other segments.	BLM – 9.2	9.2
x-07	From the intersection with p-08 and p-09, heads due north along SR 95, through a utility corridor on BLM-administered land.	x-05 and x-06	Would provide an alternative cross-connection between the Proposed Action and segments within BLM utility corridors; avoids Segment p-06 crossing the Kofa NWR. Would follow the existing Western/ SDG&E 161kV transmission line east of SR 95.	BLM – 7.7	7.7
Copper Bottom Zone					
cb-01	From the intersection of Segments p-09 and p-10, exits the utility corridor then turns west-northwest across BLM-administered land overtop Cunningham Peak near an existing communications site.	In conjunction with other segments, p-10, p-11, p-12, cb-02, and cb-03	Together with other segments, would avoid Copper Bottom Pass, as well as Segment cb-02 through Johnson Canyon.	BLM – 3.2	3.2

SEGMENT	DESCRIPTION	ALTERNATIVE TO	BENEFIT	JURISDICTION MILES	TOTAL LENGTH (MILES)
cb-02	From the intersection of Segments p-10 and p-11, exits the utility corridor, heads west-southwest through Johnson Canyon and the proposed Arizona Peace Trail. All within BLM-administered land.	In conjunction with other segments, p-11, cb-01, and cb-03	Together with other segments, would avoid Copper Bottom Pass, as well as Segment cb-01 over Cunningham Peak.	BLM – 2.2	2.2
cb-03	From the intersection of Segments p-10 and cb-02, heads northwest through Copper Bottom Pass, generally parallel to Segment p-11. Crosses BLM- and Reclamation-managed lands and CRIT land.	p-11	Would be within a utility corridor on BLM-administered land and partially within utility corridors. Would provide the needed separation from the existing DPV1 line, allowing compliance with CAISO requirements without requiring construction upslope of the existing DPV1.	BLM – 2.3 CRIT – 2.0 Reclamation – 0.003	4.3
cb-04	From the intersection of Segments cb-01 and cb-02, heads southwest through primarily BLM-administered land, ending in Reclamation-managed land.	In conjunction with portions of p-11, p-12, and cb-03	Together with other segments avoids Copper Bottom Pass and crossing CRIT land.	BLM – 1.7 Reclamation – 0.2	1.9
cb-05	From the intersection of Segments cb-04 and cb-06, begins in Reclamation-managed land, heads southwest through BLM-administered land then turns west to avoid interference with the YPG. Crosses the proposed Arizona Peace Trail and ends within a utility corridor on BLM managed lands.	p-13	Together with other segments avoids Copper Bottom Pass and interference with the YPG. While the segment would cross the proposed Arizona Peace Trail, it would avoid following the trail along Segment p-13.	BLM – 3.9 Reclamation – 0.5	4.4

SEGMENT	DESCRIPTION	ALTERNATIVE TO	BENEFIT	JURISDICTION MILES	TOTAL LENGTH (MILES)
cb-06	From the intersection of Segments cb-04 and cb-05, begins in Reclamation-managed land, heads northwest through BLM-administered land then turns slightly northwest to where it intersects with the Proposed Action. Ends within a utility corridor on BLM-administered land.	In conjunction with other segments, p-11, p-12, cb-03	Together with other segments avoids Copper Bottom Pass and crossing CRIT land.	BLM – 1.3 Reclamation – 0.6	1.9
i-06	From the intersection with qs-02 and qn-02, heads slightly southwest and parallels I-10 to the south as it traverses BLM- and Reclamation-managed land, CRIT, and Arizona State land. It is within a BLM utility corridor.	p-09 through 11; cb-01 through 03	In conjunction with other segments would avoid Copper Bottom Pass, Johnson Canyon, and Cunningham Peak; and could be assembled with other segments to constitute a route almost fully within BLM utility corridors.	BLM – 3.9 Arizona State – 1.7 CRIT – 1.4 Reclamation – 0.1	7.1
i-07	From the intersection with Segments i-06 and x-08, heads southwest toward the Colorado River and parallels I-10 to the south as it traverses Reclamation-managed land and Arizona State land.	p-12 through 14; and portions of p-15e and cb-10	Could be assembled with other segments to constitute a route almost fully within BLM utility corridors.	Reclamation – 5.2 Arizona State – 1.3	6.5
x-08	From the intersection with Segments p-11, p-12, and cb-03, heads north-northwest to connect to the alternative segments paralleling I-10 within BLM utility corridors at the junction of Segments i-06 and i-07. Crosses Reclamation-managed land.	x-05, x-06, and x-07	Would provide an alternative cross-connection between the Proposed Action and segments within BLM utility corridors; could avoid Copper Bottom Pass, Johnson Canyon, or CRIT land in conjunction with other segments.	Reclamation – 1.3	1.3

SEGMENT	DESCRIPTION	ALTERNATIVE TO	BENEFIT	JURISDICTION MILES	TOTAL LENGTH (MILES)
Colorado River and California Zone					
cb-10	From Segment p-14, heads west through BLM-administered land and Arizona State land, then ends at the Colorado River.	A portion of p-15e	Offers an alternative to the Proposed Action to connect to a more northern east-west route comprised of Segment ca-01.	Arizona State – 1.0 BLM – 0.9	1.9
i-08s	From the intersection with Segment i-07, heads west crossing Reclamation-managed land, Arizona State land that is farmed, and ends at the Colorado River.	p-15e and cb-10	Would avoid the Colorado River floodplain in proximity to the I-10 crossing where the western bank of the river is heavily developed, while also avoiding the backwater areas that are important to endangered fish species.	Reclamation – 1.0 Private – 0.2 Arizona State – 0.1	1.3
ca-01	From the intersection of Segments x-10 and x-11, heads west across private agricultural land following an existing canal and two-track.	p-15w and ca-05	Offers an alternative to the Proposed Action crossing agricultural land that would not impact residences or other structures (as compared to Segment ca-05).	Private – 6.6	6.6
ca-02	From the intersection of Segments x-12 and x-13, headed west crossing private agricultural land following an existing canal, until reaching the western edge of the Colorado River floodplain, then continued west, ascending a bluff onto BLM-administered land.	p-16, ca-06, and i-09b	Mostly follows existing canal, until ascending a bluff onto BLM-administered land. Would be partially within a utility corridor and extend the ca-01 route west, as a shorter alternative to that portion of the Proposed Action route.	Private – 2.8 BLM – 0.7	3.4

SEGMENT	DESCRIPTION	ALTERNATIVE TO	BENEFIT	JURISDICTION MILES	TOTAL LENGTH (MILES)
ca-04	From the intersection with Segment i-08s, heads west crossing private land that is farmed.	p-15e and cb-10	Would avoid the Colorado River floodplain in proximity to the I-10 crossing where the western bank of the river is heavily developed, while also avoiding the backwater areas that are important to endangered fish species.	Private – 0.3	0.3
ca-05	From the intersection of Segments x-09 and x-10, heads west across private agricultural land interspersed with residences along Seeley Road.	ca-01 and a portion of p-15w	Offers an east-west route across private land that, in conjunction with other segments, could provide a route within BLM utility corridors south of I-10 avoiding Blythe.	Private – 6.6	6.6
ca-06	From the intersection of Segments ca-05 and x-12, heads west across private agricultural land interspersed with residences along Seeley Road, entering BLM-administered land on the western end. Crosses the approved Blythe Mesa Solar Project.	p-16	Offers an east-west route across private land that, in conjunction with other segments, could provide BLM utility corridor route south of I-10 avoiding Blythe.	Private – 2.5 BLM – 0.1	2.6
ca-07	From the intersection of Segments ca-06 and x-15, heads west crossing primarily BLM-administered land along a BLM utility corridor southern boundary, then turns north to connect at the intersection with Segment ca-09.	Portion of p-17	Offers an east-west route that, in conjunction with other segments, could provide a route within BLM utility corridors south of I-10 avoiding Blythe.	BLM – 2.6 Private – 0.5	3.1

SEGMENT	DESCRIPTION	ALTERNATIVE TO	BENEFIT	JURISDICTION MILES	TOTAL LENGTH (MILES)
ca-09	From the intersection with Segment ca-07, heads west along BLM-administered land in BLM utility corridors and alongside the proposed Desert Quartzite Solar Project. It is also adjacent to the south edge of the existing Blythe Mesa Solar Project.	Portions of p-17 and p-18	Offers an east-west route that extends the Seeley Road route west to connect at the substation within the southern boundary of a BLM utility corridor.	BLM – 1.6 Private – 1.0	2.6
x-09	From the intersection with Segment ca-04, heads south through private, rural agricultural land west of the Colorado River. Not in utility corridors.	Portion of x-11	Would connect segments i-08 or ca-04 within a BLM utility corridor route to other east-west alignments south of I-10.	Private – 0.8	0.8
x-10	From the intersection with Segments x-09 and ca-05, heads south through private agricultural land west of the Colorado River. Not in utility corridors.	x-12, x-15, and p-18	Would connect Segment x-09 with Segments x-11 and cb-10, allowing a BLM utility corridor route along I-10 to connect down to other east-west routes, avoiding Blythe or Copper Bottom Pass.	Private – 1.4	1.4
x-11	From the intersection with Segment cb-10, heads north, then northwest through rural agricultural land.	A portion of p-15e	Offers an alternative to the Proposed Action to connect to a more northern east-west route comprised of Segment ca-01.	Private – 2.1 CA State – 0.09	2.2
x-12	From the intersection with Segments ca-05 and ca-06, heads south from the 14th Avenue alignment across private agricultural land west of SR 78, then heads south following a canal and two-track crossing private land.	x-10, x-15, and portions of p-17 and p-18	Would connect the east-west route comprised of ca-01 north to segments that would comprise a BLM utility corridor route. It would avoid cultural resources potentially along x-15, x-16 or p-17 and p-18; and connect south to other east-west segments.	Private – 1.2	1.2

SEGMENT	DESCRIPTION	ALTERNATIVE TO	BENEFIT	JURISDICTION MILES	TOTAL LENGTH (MILES)
x-13	From the intersection with x-12 and ca-01, heads south generally following a canal and two-track crossing private land.	cb-10, x-16, p-17	Would connect Proposed Action north to segments that would comprise a BLM utility corridor route; and avoid cultural resources potentially along x-15, x-16 or p-17 and p-18.	Private – 2.1	2.1
x-15	From the intersection with ca-06 and ca-07, heads southwest across BLM-administered land a utility corridor.	x-12 and p-18	Would provide a cross-connection between the Seeley Road alignment and other east-west routes south of Blythe that would follow or possibly be within a utility corridor. Avoids cultural resources along p-17 and p-18.	BLM – 1.4	1.4
x-16	From the intersection with Segment x-15, heads southwest across BLM-administered and private land within a utility corridor and forms the southeastern boundary of the approved Desert Quartzite solar project.	x-13 and p-17	Would provide a cross-connection between the east-west canal alignment (ca-01 through 03) and other east-west routes south of Blythe that would follow or possibly be within a BLM utility corridor. Avoids cultural resources along p-17 and p-18.	BLM – 1.9 Private – 0.3	2.2

SEGMENT	DESCRIPTION	ALTERNATIVE TO	BENEFIT	JURISDICTION MILES	TOTAL LENGTH (MILES)
x-19	From Segment ca-09, heads south along BLM-administered land starting at the southern edge of a BLM utility corridor and, continuing southwest past the Colorado River Substation, then turning west to connect with the Proposed Action route along Segment p-18, to enter and terminate at the southern end of the SCE Colorado River Substation. Crosses the approved Bright Source Energy Sonoran West Crimson Solar Facility.	Portion of x-15	Would connect the east-west route either immediately south of I-10 along the 14th Avenue alignment or the Seeley Road alignment to the SCE Colorado River Substation.	BLM – 0.9	0.9

2.2.3.1 Alternative 1: I-10 Route

Figures 2.2-1 through 2.2-3 (Appendix 7) show the five subalternatives to Alternative 1.

Alternative 1 would include the segments listed in Table 2.2-3.

Table 2.2-3 Alternative 1 Segments

SEGMENT TYPE	EAST PLAINS AND KOFA ZONE	QUARTZSITE ZONE	COPPER BOTTOM ZONE	COLORADO RIVER AND CALIFORNIA ZONE[1]
Proposed	p-01	None	None	None
Alternative	i-01 through i-04	i-05, qs-01 and qs-02	i-06 and i-07	i-08s, ca-04. ca-05, ca-06, ca-07, ca-09, x-09 and x-19

The following subalternatives (Table 2.2-4) would also meet the objectives of Alternative 1.

Table 2.2-4 Subalternatives Under Alternative 1

SUBALTERNATIVE	SUBALTERNATIVE SEGMENTS	ALTERNATIVE ROUTE SEGMENTS REPLACED	ZONE
1A	p-02, p-03, x-02a and x-02b	i-01	East Plains and Kofa
1B	p-02, x-01, and x-02a	i-01	East Plains and Kofa
1C	in-01	i-04, i-05 (must be combined with 1D)	East Plains and Kofa
1D	qn-01	N/A (must be combined with 1C)	Quartzsite
1E	x-10, ca-01, and x-12	ca-05	Colorado River and California

Segment in-01 is the only segment located in the Lake Havasu FO. A portion of this segment crosses VRM Class II designated lands and would not conform to class objectives. An RMP amendment would be required to change the portion of this segment designated VRM Class II to Class IV within the BLM utility corridor crossing VRM Class II lands.

2.2.3.2 Alternative 2: BLM Utility Corridor Route

Figures 2.2-4 through 2.2-6 (Appendix 7) show the five subalternatives to Alternative 2.

Alternative 2 would include the segments listed in Table 2.2-5.

Table 2.2-5 Alternative 2 Segments

SEGMENT TYPE	EAST PLAINS AND KOFA ZONE	QUARTZSITE ZONE	COPPER BOTTOM ZONE	COLORADO RIVER AND CALIFORNIA ZONE
Proposed	p-01	None	p-09 through p-15e	p-15w, p-16
Alternative	i-01 through i-04	i-05, qs-01, x-07	None	x-15 and x-16, ca-07, ca-09, x-19

The following subalternatives (Table 2.2-6) would also meet the objectives of Alternative 2, except Subalternative 2D would not avoid CRIT land.

Table 2.2-6 Subalternatives Under Alternative 2

SUBALTERNATIVE	SUBALTERNATIVE SEGMENTS	ALTERNATIVE ROUTE SEGMENTS REPLACED	ZONE
2A	d-01, x-02a, x-02b	p-01, i-01	East Plains and Kofa
2B	p-02, p-03, p-04, x-03	i-01, i-02	East Plains and Kofa
2C	cb-02, cb-04, cb-06	p-11, p-12	Copper Bottom
2D	cb-03	p-11	Copper Bottom
2E	x-13, ca-02	p-16, x-16	Colorado River and California

2.2.3.3 Alternative 3: Avoidance Route

Figures 2.2-7 through 2.2-10 (Appendix 7) show the twelve subalternatives to Alternative 3.

Alternative 3 would include the segments listed in Table 2.2-7.

Table 2.2-7 Alternative 3 Segments

SEGMENT TYPE	EAST PLAINS AND KOFA ZONE	QUARTZSITE ZONE	COPPER BOTTOM ZONE	COLORADO RIVER AND CALIFORNIA ZONE
Proposed	p-01 through p-04	p-07 and p-08	p-09 and p-14	None
Alternative	i-03 and i-04, x-03	x-05	cb-01, cb-04, cb-05	ca-01, ca-06, ca-07, ca-09; cb-10, x-11, x-12, x-19

The following subalternatives (Table 2.2-8) would also meet the objectives of Alternative 3.

Table 2.2-8 Subalternatives Under Alternative 3

SUBALTERNATIVE	SUBALTERNATIVE SEGMENTS	ALTERNATIVE ROUTE SEGMENTS REPLACED	ZONE
3A	d-01, x-02a, x-02b, and i-02	p-01, i-01	East Plains and Kofa
3B	i-01 and i-02	p-02, p-03, p-04, x-03	East Plains and Kofa
3C	p-05 and x-04	x-03, i-03	East Plains and Kofa
3D	in-01	i-04 (must be combined with 3F and 3G, or 3H)	East Plains and Kofa
3E	qs-01 and x-07	x-06 (must be combined with 3D and 3G or 3J)	Quartzsite
3F	x-06	x-05 (must be combined with 3D and 3G or 3J)	Quartzsite
3G	qn-01	N/A (must be combined with 3D, 3E, 3F, 3H, and/or 3J)	Quartzsite

SUBALTERNATIVE	SUBALTERNATIVE SEGMENTS	ALTERNATIVE ROUTE SEGMENTS REPLACED	ZONE
3H	qn-02	N/A (must be combined with 3D and 3L)	Quartzsite
3J	i-05	N/A (must be combined with 3E, 3F, or 3G and 3H)	Quartzsite
3K	p-10 and cb-02	cb-01	Copper Bottom
3L	i-06, x-08, p-12, and p-13	p-09, p-10, p-11 (must be combined with 3D and 3H; or 3J, 3G and 3H)	Copper Bottom
3M	p-15e, p-15w, and x-13	cb-10, x-11, ca-01	Colorado River and California

2.2.3.4 Alternative 4: Public Lands Emphasis Route

Figures 2.2-11 through 2.2-14 (Appendix 7) show the fourteen subalternatives to Alternative 4.

Alternative 4 would include the segments listed in Table 2.2-9.

Table 2.2-9 Alternative 4 Segments

SEGMENT TYPE	EAST PLAINS AND KOFA ZONE	QUARTZSITE ZONE	COPPER BOTTOM ZONE	COLORADO RIVER AND CALIFORNIA ZONE
Proposed	p-04 and p-05	p-08	p-09, p-10, p-13, p-14	p-15e and p-15w
Alternative	d-01, in-01, x-04	qn-01, x-06	cb-02, cb-04, cb-06	ca-06, ca-07, ca-09; x-12, x-13, x-19

The following subalternatives (**Table 2.2-10**) would also meet the objectives of Alternative 4.

Table 2.2-10 Subalternatives Under Alternative 4

SUBALTERNATIVE	SUBALTERNATIVE SEGMENTS	ROUTE SEGMENTS REPLACED	ZONE
4A	p-01, p-02, and p-03	d-01	East Plains and Kofa
4B	x-03 and i-03	p-05, x-04	East Plains and Kofa
4C	i-04	N/A (must be combined with 4J or 4D)	East Plains and Kofa
4D	x-05 and p-07	i-05, x-06 (must be combined with 4C)	Quartzsite
4E	cb-01	p-10, cb-02	Copper Bottom
4F	cb-05	cb-06, p-13	Copper Bottom
4G	p-11 and p-12	cb-02, cb-04, cb-06	Copper Bottom
4H	x-08 and i-07	N/A (must be combined with p-11 and 4K)	Copper Bottom
4J	i-05	N/A (must be combined with 4C)	East Plains and Kofa
4K	i-08s, ca-04, x-09	N/A (must be combined with 4H and 4N)	Colorado River and California

SUBALTERNATIVE	SUBALTERNATIVE SEGMENTS	ROUTE SEGMENTS REPLACED	ZONE
4L	cb-10 and x-11	N/A (must be combined with 4M)	Colorado River and California
4M	ca-01	p-15w (must be combined with 4L)	Colorado River and California
4N	x-10	N/A (must be combined with 4H, 4K, and 4M)	Colorado River and California
4P	p-16, p-17, and p-18	x-13, x-12, ca-06, ca-07, ca-09, x-19	Colorado River and California

2.2.3.5 No Action Alternative

See Chapter 2.

2.2.4 Proposed Facilities, Infrastructure, and Construction

2.2.4.1 Preconstruction and Construction Activities Overview

Preconstruction Activities

DCRT intends to refine the design of the Project during the Federal and State approval processes. Final engineering surveys would determine the exact locations of structures, access roads, etc. prior to construction. Access roads and structure locations would be designed based on topographic information, aerial imagery, and other relevant information in order to reduce overall impacts to resources. Results of the pedestrian cultural survey, biological surveys, and visual impacts would also be considered when micrositing the Project structures. Technical and power system studies would determine items such as conductor sizes, substation arrangements, communications needs, and similar needs. Due to the broad scope of construction, the varied nature of the construction activities, and the geographic diversity of the Project Area, DCRT envisions that multiple construction work areas would be simultaneously utilized in different areas to complete Project work within the projected timeframe and in accordance with industry performance standards.

Preconstruction activities, including preconstruction environmental surveys, materials procurement, design, contracting, ROW acquisition, and permitting efforts would all influence the Project schedule and timing of construction activities.

DCRT would obtain a ROW through a combination of ROW grants and easements negotiated between DCRT and various Federal, State, and local governments; private companies; and private landowners. During the early stages of the Project, DCRT would coordinate with property owners and land agencies to obtain right-of-entry permissions for surveys and geotechnical drilling at selected locations.

Prior to construction, soil borings would be made at three to four locations in the SCS, particularly at the approximate location of large equipment, such as transmission line dead-end structures, in order to determine the engineering properties of the soil. Borings would be made with a truck or truck-mounted equipment. The borings would be approximately 4 inches in diameter, range from 30 to 60 feet in depth, and would be backfilled with excavated material upon completion.

Preconstruction transmission structure foundation testing/geotechnical investigation activities would take place along the ROW for the selected alternative and within the Project Area before the start of construction. Geotechnical testing would test conditions at structure foundation locations and would involve soil borings.

Testing would include standard penetration tests which are based on a tripod with a probe that is hammered into the ground. The testing would take place in three phases, as detailed below:

- Phase 1: test sites where angle structures would be located (point of intersection) to well define the route
- Phase 2: test other self-supporting structure sites
- Phase 3: per-mile study, test every three to five structures (guyed V)

It is estimated that two 3-man crews equipped with a drill truck and a pick-up truck would perform the borings, which are typically 6 to 8 inches in diameter and 3 to 40 feet deep. Boring holes would be backfilled with excavated material upon completion. These activities would not be needed at every structure location. It is anticipated that one boring per mile would be required on average, with special emphasis given to major angle points and apparent changes in geology. Existing access would be used wherever possible to facilitate these surveys; however, cross-country travel may be necessary. In areas where overland driving/overland access is needed, this access would be designed to follow future proposed access routes to minimize disturbance. All preconstruction activities on public land would have impacts similar to those described for construction along alternative routes under consideration, would be subject to APMs/BMPs as specified in Appendix 2A, and would be authorized by the applicable agency/landowner before implementation.

Environmental Safety and Training

All construction and maintenance workers would be required to participate in an environmental education program prior to beginning work on the Project. This program would be developed by DCRT prior to the start of construction and would be submitted to BLM for review and approval prior to implementation. At a minimum, the program would include the following topics: biological, cultural, paleontological, and other environmental requirements and protection measures.

After participating in the training program, each trained worker would receive a card and hardhat sticker, indicating they are cleared for access to the ROW. The construction contractor(s) would provide the BLM's CIC with an updated list of those workers who have received the training. It is the responsibility of the construction contractor(s) to ensure that all construction personnel have received the required training. A noncompliance violation would be issued if a worker is found working on the ROW without the required environmental training.

In addition, the construction contractor(s) would be responsible for providing safety training as required. All construction, operation, and maintenance activities would be required to comply with Occupational Safety and Health Administration regulations. The CIC would be notified by the construction contractor(s) of any accidents that occur on public land during construction of the Project.

All construction personnel working in California would be required to complete a 4-hour Leave No Trace awareness course.

General Construction Management and Controls

Vegetation Management

Prior to beginning construction of the BLM selected route, field surveys for noxious weeds, protected plants, and habitat for special status species would be conducted within the construction work limits. Vegetation removal in temporary disturbance areas would be conducted in accordance with IB-2012-097, Cutting, Removal, or Damage of Timber, Trees, or Vegetative Resources. As specified in the Habitat Restoration and Monitoring Plan (Appendix 2B), protected plants would be salvaged on Arizona State Trust lands as required under the Arizona Native Plant Law (Arizona Revised Statutes §§ 3-901 et seq.) and on other lands as directed by the BLM and other landowners and regulatory agencies. Temporary plant nurseries would be established along or near the transmission line ROW to maintain salvaged plants until they can be used for the revegetation of disturbed areas. The Vegetation Management Plan (Appendix 2B) describes vegetation management and control measures to be applied as needed during construction, operations, and maintenance of the Project.

Weed Management

Throughout construction of the Project, invasive and noxious weeds would be monitored and controlled as prescribed in the Noxious Weed Management Plan (Appendix 2B). Other strategies would be implemented to prevent, monitor, and control the spread of invasive and noxious weeds in compliance with BLM's policy of preventing the spread of these species. These strategies are intended to minimize the introduction of invasive and noxious weeds to the ROW. In general, all workers would attend training on identification and control of weeds. Prior to entering the work site, all vehicles, earthmoving, and excavation equipment would be inspected and cleaned of any extraneous soil and debris. Only certified weed-free straw, seed, and other materials would be used during reclamation and for other purposes. If invasive species were detected in locations disturbed during construction, immediate action would be taken to remove the invasive species from the affected area and to prevent them from spreading. Any use of herbicides would be done in accordance with a Vegetation Management Plan, and only BLM-approved herbicides applied in a manner consistent with regulations and label directions would be used.

Lighting

Given the extreme heat in summer and the short construction schedule, construction would include night work. Therefore, lighting would be used at worksites as necessary to maintain safe working conditions. Limited lighting in the material storage yards would facilitate earlier start times and improve overall safety.

Blasting

A Blasting Plan would be developed for the Project. Blasting would be required for areas where substantial hard rock is encountered and not able to be removed via heavy excavators. Blasting could be required for the installation of structure footings or to construct access roads. Areas where blasting may be required would be identified once a geotechnical investigation (Section 2.2.7.1) has been performed for the selected route. Blasting is not anticipated in sedimentary and surficial deposits, or in California.

Topsoil Management

Temporary use areas such as staging/storage and concrete batch plants would be located in areas of lesser ecological impact and previously disturbed areas to the extent practicable. This approach would minimize adverse impacts to topsoil. Depending upon selection of the Agency Preferred Alternative, some temporary use areas may be necessary in previously undisturbed areas. In these cases, proactive measures (described in Appendix 2A) would be taken to preserve the local topsoil and return the sites to their pre-disturbance conditions following completion of construction activities.

For all temporary use areas, a layer of topsoil would be initially removed from the area, in conformance with the Habitat Restoration and Monitoring Plan and the Site Plan for Soils and Hydrology (Appendix 2B).

In general, the need for soil removal from temporary disturbance areas is anticipated to be minimal and would ultimately depend upon local site conditions at the selected area. Limited soil removal may be required for temporary disturbance areas based on geologic conditions for the following scenarios:

- Areas with unconsolidated soils which could not support the types of vehicles required to be used, soil types would typically include sandy soils. In this scenario, a temporary rock base may be installed to support vehicle traffic, and 1 to 2 inches of sandy soil may be temporarily displaced when the temporary rock base is removed.
- Areas with soils utilized for agricultural activities. In this scenario, topsoil may be removed from sites where temporary construction activities would occur and stored in an area where contamination would be limited. Typically, 3 to 6 inches of fertile topsoil may be temporarily displaced during construction activities.
- Areas where uneven soils are present and not able to support construction of transmission structures. In this scenario, grading of 0.5 to 3 feet of topsoil may be required where terrain would not allow a usable working pad. Soil would be temporarily displaced, then graded and contoured once construction is complete.
- Areas where terrain may cause erosion during construction. In this scenario, topsoil may be disturbed to place erosion control measures in place during construction and through site reclamation.

The topsoil would be stored within the general boundary of the disturbed area and covered with durable weather-proof material to protect from erosion, contamination, or wind-blown effects, as appropriate. The stockpiled topsoil would be stored as close to the site of removal as possible to minimize the need for transporting the topsoil and ensuring that topsoil from different areas are not comingled; stockpiles would not be aggregated with topsoil from other locations.

These soils would be replaced after completion of site specific construction activities. After completion of construction related activities, the temporary use areas would be graded to near original and original topsoil would be replaced. Necessary treatments and seeding would be applied. The Habitat Restoration and Monitoring Plan (Appendix 2B) in conjunction with the Site Plan for Soils and Hydrology (Appendix 2B) would specify in detail the methods for topsoil salvage and soil management practices to be followed for site reclamation.

Dust Control
Dust control would be managed in accordance with the Dust Control Plan for the Project (to be provided as a part of the final POD). In order to control fugitive dust, active construction areas would be watered. Water for dust control would be obtained by the construction contractor from private wells and/or a municipal water supply. Water would be provided by three 2,000-gallon water trucks, which would water access roads twice a day. Approximately 2,210,000 gallons of water would be required for dust control for the Proposed Action.

2.2.4.2 Transmission Structures

Support structures are proposed to be steel lattice of various configurations or steel monopoles. Steel lattice structures include self-supporting four-legged tangent structures (i.e., structures placed where the line does not angle more than 5 degrees [RUS Bulletin 1724E-150]), guyed V structures with a single footing and four support guy wires, and two-legged H-frame structures as the primary structure types. Steel monopole structures are proposed for areas of active agricultural activity and to facilitate entrance into the two substations (Appendix 7, Figure 2.2-15). For areas of conductor tension change, angles, and phasing transpositions, self-supporting four-legged dead-end structures would be utilized. A dead-end structure is a fully self-supporting structure that is used when the circuit changes to a buried cable, or at a substation as a transition to a "slack span" entering the equipment. The structures would be between 72 and 195 feet in height, depending on the span length required and topography, with most being shorter than 130 feet. Span lengths between structures would vary from 600 to 2,100 feet, depending upon terrain conditions, current land use, structure type used, and to achieve site-specific mitigation objectives. However, the typical span would be approximately 1,200 feet. On average, three to eight structures would be placed per mile, depending on the structure type, topography, and angles of the route.

Additional refinements for structures shown in Figure 2.2-15 (Appendix 7) may be identified during preliminary engineering but are anticipated to result in similar design and height. Each structure type would be determined during final design and selected based on site-specific conditions or to mitigate impacts resulting from the Project.

The conductor, static wire, and OPGW would maintain a horizontal configuration for all structure types except proposed monopoles. Conductor bundles for all structure types except the proposed monopoles would be installed at the same height on the structures with approximately 34 feet of spacing between the center of each conductor bundle. The static wire and OPGW would be approximately 30 feet above the phase conductors at the top of the structures.

The proposed transmission line would be located adjacent to existing linear facilities such as transmission lines, pipelines, and roads to the extent practicable. DCRT would attempt to match the Project structure locations adjacent to existing transmission line structures to the extent practicable.

2.2.4.3 Foundations and Structure Construction

Foundation Installation

Each structure type requires specific foundation configurations. The guyed V structures require a center pier foundation and four anchors for the guy wires. The center pier would be either cast-in-place concrete, a precast foundation, or grillage foundation (a grillage consists of buried galvanized steel members designed to resist foundation loads). Grouted soil, grouted rock, or disk anchors would be used for the guy anchors.

For drilled anchors, each anchor hole would be about 6 to 12 inches in diameter and range in depth from 10 to 40 feet. For disk anchors, typical excavations are about 6 feet-by-3 feet wide and about 10 to 15 feet deep.

The self-supporting steel structures would consist of four foundations, which would either be cast-in place concrete, a precast foundation, or grillage foundation. H-Frame structures would consist of two foundations, comprised of the same materials listed for self-supporting steel structures. The steel monopoles would consist of one foundation, which would either be cast-in-place concrete or a pre-cast foundation.

Given the Arizona/California southwest desert conditions, the alluvial plain of the Colorado River basin typically contains 7 to 10 feet of upper soils that are generally loose sand, silt, and alluvium. In these areas, shrink-swell concerns and collapsing soils are more the rule rather than the exception (DCRT 2017a). This precludes DCRT from assuming that favorable soil conditions are present for the proposed transmission line; hence, DCRT has decided to use a combination of deep foundations and spread footers.

Short- and long-term disturbance associated with the Proposed Action and Action Alternative segments is detailed in Tables 2.2-11 and 2.2-12, respectively.

No soils investigations would be performed on the ROW until after a proposed centerline is identified within an approved corridor. It is anticipated that most of the geotechnical data would be collected soon after the ROW grant. In order to get construction started as soon as possible, it would be desirable to obtain geotechnical data on select line segments prior to the ROW grant. Early data collection for design would be subject to BLM/landowner permitting requirements, would likely be restricted to less sensitive areas, and likely could be coordinated with environmental surveys to minimize disturbance. It is also possible that data would be obtained as part of the route selection process in areas of specific geotechnical concern, in order to evaluate the need for special construction techniques and their corresponding impacts on certain segments.

Table 2.2-11 Structure Type and Disturbance Summary by Proposed Action Segment

SEGMENT	LINE MILES	TOTAL STRUCTURES	SELF-SUPPORTED TANGENT STRUCTURES	GUYED V STRUCTURES	SELF-SUPPORTED DEAD-END STRUCTURES	H-FRAME STRUCTURES	STEEL MONOPOLES	SUBSTATION DEAD-END STRUCTURES	SHORT-TERM DISTURBANCE AREA[1] (ACRES)	LONG-TERM DISTURBANCE AREA[2] (ACRES)
Arizona										
p-01	26.2	88	0	72	7	0	8	1	96.8	0.6
p-02	1.1	4	0	3	1	0	0	0	4.4	0.1
p-03	2.1	6	0	6	0	0	0	0	6.6	0.0
p-04	5.5	15	0	14	1	0	0	0	16.5	0.1
p-05	2.0	9	0	9	0	0	0	0	9.9	0.0
p-06	35.7	120	1	103	14	0	0	2	132.0	1.1
p-07	2.1	7	0	5	2	0	0	0	7.7	0.1
p-08	0.7	2	0	2	0	0	0	0	2.2	0.0
p-09	6.9	23	3	17	3	0	0	0	25.3	0.4
p-10	1.2	4	3	0	1	0	0	0	4.4	0.2
p-11	4.0	13	6	0	7	0	0	0	14.3	0.8
p-12	2.7	8	1	6	1	0	0	0	8.8	0.1
p-13	3.5	10	0	9	1	0	0	0	11.0	0.1
p-14	0.9	3	0	3	0	0	0	0	3.3	0.0
p-15e	2.8	11	1	7	3	0	0	0	12.1	0.3
SCS Dist. Line	0.2	3[3]	0	0	0	0	0	0	0.3	0.1>
California										
p-15w	6.6	24	1	0	0	0	23	0	26.4	0.1
p-16	4.7	18	3	0	0	0	15	0	19.8	0.2
p-17	3.0	9	8	0	1	0	0	0	9.9	0.5
p-18	2.4	11	5	0	5	0	0	1	12.1	0.6
Total	114.2	385	32	256	47	0	46	4	423.5	5.4

Assumptions: Short- and long-term disturbance areas include 20 percent buffer addition for final design considerations.
[1]Short-term disturbance assumes approximately 1.1 acres per structure site.
[2]Long-term disturbance assumes the Project structure permanent work areas described in Section 2.2.4.3.
[3] These structures would be either wood or galvanized steel single poles.

Table 2.2-12 Structure Type and Disturbance Summary by Action Alternative Segment

SEGMENT	LINE MILES	TOTAL STRUCTURES	SELF-SUPPORTED TANGENT STRUCTURES	GUYED V TANGENT STRUCTURES	SELF-SUPPORTED DEAD-END STRUCTURES	H-FRAME STRUCTURES	MONO-POLE STRUCTURES	SUB-STATION DEAD-END STRUCTURES	SHORT-TERM DIST. (ACRES)	LONG-TERM DIST. (ACRES)
East Plains and Kofa Zone										
d-01	25.3	83	0	57	4	17	4	1	91.3	0.5
i-01	8.3	27	0	26	1	0	0	0	29.7	0.1
i-02	3.2	10	0	10	0	0	0	0	11	0.0
i-03	20.0	65	1	63	1	0	0	0	71.5	0.2
i-04	10.4	38	6	21	9	0	0	2	41.8	1.1
in-01	13.9	53	19	21	11	0	0	2	58.3	2.1
x-01	4.7	16	0	13	3	0	0	0	17.6	0.2
x-02a	3.3	12	0	11	1	0	0	0	13.2	0.1
x-02b	3.5	10	0	10	0	0	0	0	11	0.0
x-03	5.6	18	0	17	1	0	0	0	19.8	0.1
x-04	22.6	73	0	72	1	0	0	0	80.3	0.2
Quartzsite Zone										
i-05	2.8	9	0	9	0	0	0	0	9.9	0.0
qn-01	0.6	3	2	0	1	0	0	0	3.3	0.2
qn-02	10.8	37	6	28	3	0	0	0	40.7	0.6
qs-01	3.1	10	0	9	1	0	0	0	11.0	0.1
qs-02	4.8	17	3	11	3	0	0	0	18.7	0.4
x-05	10.3	35	0	34	1	0	0	0	38.5	0.1
x-06	9.3	32	1	29	2	0	0	0	35.2	0.2
x-07	7.7	26	0	23	3	0	0	0	28.6	0.2
Copper Bottom Zone										
cb-01	2.9	12	7	0	5	0	0	0	13.2	0.7
cb-02	2.0	8	3	0	5	0	0	0	8.8	0.5

SEGMENT	LINE MILES	TOTAL STRUCTURES	SELF-SUPPORTED TANGENT STRUCTURES	GUYED V TANGENT STRUCTURES	SELF-SUPPORTED DEAD-END STRUCTURES	H-FRAME STRUCTURES	MONO-POLE STRUCTURES	SUB-STATION DEAD-END STRUCTURES	SHORT-TERM DIST. (ACRES)	LONG-TERM DIST. (ACRES)
cb-03	4.3	17	9	0	8	0	0	0	18.7	1.0
cb-04	1.8	6	0	6	0	0	0	0	6.6	0.0
cb-05	4.4	16	0	15	1	0	0	0	17.6	0.1
cb-06	1.9	6	0	5	1	0	0	0	6.6	0.1
i-06	7.2	26	11	10	5	0	0	0	28.6	1.0
i-07	6.4	22	2	18	2	0	0	0	24.2	0.3
x-08	1.3	5	3	1	1	0	0	0	5.5	0.2
Colorado River and California Zone										
Arizona										
cb-10	2.0	8	2	3	3	0	0	0	8.8	0.3
i-08s	1.2	6	3	0	2	1	0	0	6.6	0.3
California										
ca-01	6.7	26	0	0	1	0	25	0	28.6	0.1
ca-02	3.5	13	2	0	1	0	10	0	14.3	0.2
ca-04	0.3	2	1	0	1	0	0	0	2.2	0.1
ca-05	6.6	26	0	0	1	0	25	0	28.6	0.1
ca-06	2.6	11	0	0	0	0	11	0	12.1	0.0
ca-07	3.1	11	9	0	2	0	0	0	12.1	0.7
ca-09	2.6	9	8	0	1	0	0	0	9.9	0.5
x-09	0.8	4	1	0	1	0	2	0	4.4	0.1
x-10	1.4	5	0	0	1	0	4	0	5.5	0.1
x-11	2.2	7	1	0	2	0	4	0	7.7	0.2
x-12	1.2	5	0	0	1	0	4	0	5.5	0.1
x-13	2.1	7	0	0	3	0	4	0	7.7	0.2
x-15	1.4	5	5	0	0	0	0	0	5.5	0.3

SEGMENT	LINE MILES	TOTAL STRUCTURES	SELF-SUPPORTED TANGENT STRUCTURES	GUYED V TANGENT STRUCTURES	SELF-SUPPORTED DEAD-END STRUCTURES	H-FRAME STRUCTURES	MONO-POLE STRUCTURES	SUB-STATION DEAD-END STRUCTURES	SHORT-TERM DIST. (ACRES)	LONG-TERM DIST. (ACRES)
x-16	2.2	8	7	0	1	0	0	0	8.8	0.5
x-19	0.9	6	1	0	4	0	0	1	6.6	0.4
Other										
Alt SCS	N/A	1	0	0	0	0	0	0	0.3	<0.1
Alt SCS Dist. Line	2.1	34	34	0	0	0	0	0	0.5	<0.1

N/A – Not Applicable

Assumptions:

Short- and long-term disturbance areas include 20 percent buffer addition for final design considerations.

Short-term disturbance assumes approximately 1.1 acres per structure site.

Long-term disturbance assumes:

Guyed V structure foundations of 9 feet by 9 feet for a total of 81 square feet (0.002-acre) per structure.

H-Frame structure foundations of 6 feet by 50 feet for a total of 300 square feet (0.007-acre) per structure.

Self-supporting tangent and dead end structures of 51 feet by 51 feet for a total of 2,601 square feet (0.06-acre) per structure.

Steel monopole foundations, both tangent and dead end, of 12 feet by 12 feet for 144 square feet (0.003-acre) per structure.

Foundations for supporting structures would be drilled piers. Pier foundations are placed in a hole generally made by a truck-mounted auger. Reinforced steel and anchor bolts are placed into the hole using a truck-mounted crane. The portion of the foundation above ground would be formed. The portion below ground uses the undisturbed earth of the augured hole as the form. After the foundation has been poured, the forms would be removed, the excavation would be backfilled, and the surface of the foundation dressed. Foundation depths would be consistent with geotechnical conditions at the structure site. First, drilled shafts would be excavated for each structure: four holes for each self-supporting structure, two holes for each H-Frame structure, and one hole for each guyed V structure and steel monopole. The holes would be drilled using a truck-mounted excavator equipped with augers of various sizes depending on the diameter and depth requirements of the hole to be drilled. Excavation spoils would be evenly spread out within the ROW in the vicinity of each structure, unless specifically prohibited by the landowner. Spoils would be crowned around the foundations to provide positive drainage away from them.

Where solid rock is encountered, blasting, rock hauling, or the use of a rock anchoring or mini pile system may be required. The rock anchoring or mini-pile system would be used in areas where site access is limited or where adjacent structures could be damaged by blasting or rock hauling activities. Such anchoring systems may also be used where economically and technically justified. Materials used for rock anchoring or mini-pile systems would be stored in the staging areas and not on the ROW. In areas where it is not possible to operate large drilling equipment due to access or environmental constraints, hand digging may be required.

In some areas where wheel-mounted access is not possible, crews would hand dig foundation holes for each structure. Crews would hand dig foundation sites utilizing both powered and non-powered digging tools to the specifications of the design. Once the foundation excavation is complete, spoils from excavation would be airlifted offsite by helicopter and be placed in an approved spoils location or laydown yard for storage or offsite disposal. The contractor would then place steel reinforcement bars into the foundations as required by the design. Once the reinforcement bar installation is completed, the contractor would have concrete airlifted to each site by helicopter and foundations would be poured using hand tools. This type of work would only be required for sites where vehicle access is not feasible.

Reinforced steel and anchor bolts would be transported to each site by truck, either as a prefabricated cage or loose pieces, which would then be fabricated into cages on the site. Concrete would be hauled to the site in concrete trucks. Water would be required for concrete mixing. Excavated material would be spread at the site or disposed of in accordance with local ordinances and per agreement. Structures and equipment would be attached to the foundations by means of threaded anchor bolts embedded in the concrete. Some equipment such as transformers may not require anchor bolts. They would be secured to the foundation by other means. Water for SCS foundation construction is included in the construction water needs.

Steel reinforcing cages and stub angles would be installed for all lattice structures. The foundations would be designed to satisfy all Federal, State, and local design codes. The lattice structure holes would be approximately 4 feet in diameter.

Concrete would be acquired as a commercial product from a supplier. Typically, concrete would be delivered directly to the site in concrete trucks with a capacity of up to 10 cubic yards. However, in areas with limited access or environmental constraints, the concrete would be placed in the

excavation with either a crane and garbro bucket or pumped from a distance of several hundred feet. Each foundation would extend approximately 2 feet above the ground level.

Structure Assembly and Installation

At local assembly and staging areas, materials would be staged and subassemblies may be fabricated. From these local assembly and staging areas, material and subassemblies would be delivered to the structure sites via flatbed truck or helicopter. Subsequent to full or partial assembly, sections of the structure would be assembled adjacent to the structure location. Supporting steel structures would be erected on concrete foundations. These would be set with a truck-mounted crane and attached to the foundation anchor bolts by means of a steel base plate. These structures would be used to support the energized conductors and certain types of equipment. This equipment would be lifted onto the structure by means of a truck-mounted crane and bolted to the structures, and electrical connections would then be completed. Some equipment would be mounted directly to the foundations without supporting structures; again, these would be set in place by means of a truck-mounted crane. The crane would move along the ROW as structures are erected. Some of this equipment requires assembly and testing on the pad. Electrical connections to the equipment would then be completed.

2.2.4.4 Conductors

Conductor, shield wire, and OPGW would be placed on the transmission line support structures by a process called stringing. Conductors with a non-specular finish would be suspended from insulator assemblies. Overhead ground wires and OPGW would be located on the peaks of each transmission structure and function to intercept lightning that would otherwise strike the conductor. All structures with a single shield wire peak would have OPGW installed at the structure peak. All structures with dual shield wire peaks would have OPGW installed on one peak, and steel shield wire installed on the other. Additionally, a grounding system would be installed at the base of each transmission structure that would consist of copper ground rods embedded into the ground in immediate proximity to the structure foundation and connected to the structure by buried copper lead.

The first step to conductor and shield wire stringing would be to install insulators and stringing sheaves. Stringing sheaves are rollers that are temporarily attached to the lower portion of the insulators at each transmission line support structure to allow conductors to be pulled along the line. A lightweight rope known as a finger line may be placed through each sheave with each end extending to the ground. Additionally, temporary clearance structures would be erected where required prior to stringing any transmission lines. The temporary clearance structures are typically vertical wood poles with cross arms and are erected at road crossings or crossings with other energized electrical lines to prevent contact during stringing activities. Bucket trucks may also be used to provide temporary clearance. Bucket trucks are trucks fitted with a hinged arm ending in an enclosed platform called a “bucket” which can be raised to let the worker in the bucket service aerial equipment.

Once the stringing sheaves and temporary clearance structures are in place, the initial stringing operation would commence. This would consist of pulling a pilot line through the sheaves, using the finger lines, along a section of the alignment. The pilot line is then attached to the hard line, which follows the pilot line as it is pulled through the sheaves. The hard line would then be attached to the conductor or shield wire to pull it through the sheaves into its final location. Pulling the pilot line may be accomplished by attaching it to a specialized vehicle or to a small helicopter that moves along the ROW.

Pulling and tensioning equipment would use a hard line to install the ground wires and achieve the correct sagging of the transmission lines between support structures. Pulling and tensioning sites would be required about every 3 miles along the ROW and would encompass approximately 1 to 2 acres to accommodate required equipment. Equipment at sites required for pulling and tensioning activities would include tractors and trailers with spooled reels that hold the conductors, and trucks with tensioning equipment. To the extent practicable, pulling and tensioning sites would be located within the ROW; any pulling and tensioning sites on Federal lands outside the ROW would require a temporary ROW authorization from the BLM. Depending on the topography, minor grading may be required at some sites to create level pads for equipment. Wire splicing sites would be located midway between each pair of pulling/tensioning sites. Finally, the tension and sag of the conductors and shield wires would be fine-tuned, the conductors would be permanently attached to the insulators at the support structures, and the stringing sheaves would be removed.

Temporary work areas for conductor, ground wire, and OPGW pulling, and snubbing sites would also be required. During stringing operations, approximately 2 to 3 drums of cable can be pulled and spliced together; meaning pulling stations would be required every 5 to 7 miles along the transmission line route. For large angles, these pulling sites may extend beyond the ROW. Pulling sites would be approximately 600 feet by 150 feet in size. Snubbing sites (where a conductor is temporarily fixed or attached to the ground for conductor-sagging purposes) would be located within the ROW and are locations where conductors are spliced together approximately every 5 to 7 miles along the transmission line route. Access to both sites would be required for necessary equipment. Tables 2.2-13 and 2.2-14 present the estimated short-term disturbance associated with wire stringing for the Proposed Action and Action Alternatives, respectively.

All temporary disturbance areas would be reclaimed as described in the Habitat Restoration and Monitoring Plan (Appendix 2B).

Table 2.2-13 Short-term Disturbance Associated with the Wire Stringing under the Proposed Action by Segment

SEGMENT	LINE MILES	NUMBER OF SNUBBING SITES	SNUBBING SITE DISTURBANCE (ACRES)*	NUMBER OF PULLING SITES	PULLING SITE DISTURBANCE (ACRES)*	TOTAL SHORT-TERM DISTURBANCE (ACRES)
Arizona						
p-01	26.2	5	5.5	4	9.9	15.4
p-02	1.1	0	0.0	0	0.0	0
p-03	2.1	1	1.1	1	2.5	3.6
p-04	4.7	1	1.1	1	2.5	3.6
p-05	2.8	1	1.1	0	0	1.1
p-06	35.7	6	6.6	7	17.4	24.0
p-07	2.1	0	0.0	1	2.5	2.5
p-08	0.6	0	0.0	0	0.0	0
p-09	6.9	2	2.2	1	2.5	4.7
p-10	1.2	1	1.1	0	0	1.1
p-11	4.1	0	0.0	1	2.5	2.5
p-12	2.5	1	1.1	0	0.0	1.1
p-13	3.5	0	0.0	1	2.5	2.5
p-14	0.9	0	0.0	0	0.0	0
p-15e	2.8	1	1.1	0	0	1.1
SCS Dist. Line	0.2	0	0.0	0	0	0
California						
p-15w	6.6	1	1.1	2	5.0	6.1
p-16	4.7	1	1.1	0	0	1.1
p-17	2.9	0	0.0	0	0	0
p-18	2.6	1	1.1	1	2.5	3.6
Total	114.2	22	24.2	20	49.8	74.0

*Assumptions:
Snubbing sites estimated at 1.1 acres of disturbance each located 5 miles apart along the line.
Pulling sites estimated at 2.5 acres of disturbance each located at 5 miles apart along the line.
Wire stringing for new distribution line associated with the SCS would be accomplished within other estimated disturbance; no additional disturbance estimate required.

Table 2.2-14 Short-term Disturbance Associated with Wire Stringing Requirements by Action Alternative Segment

SEGMENT	LINE MILES	NUMBER OF SNUBBING SITES	SNUBBING SITE DISTURBANCE (ACRES)*	NUMBER OF PULLING SITES	PULLING SITE DISTURBANCE (ACRES)*	TOTAL SHORT-TERM DISTURBANCE (ACRES)
East Plains and Kofa Zone						
d-01	25.3	6	6.6	5	12.4	19.0
i-01	8.3	2	2.2	2	5.0	7.2
i-02	3.2	0	0	1	2.5	2.5
i-03	20.1	3	3.3	2	5.0	8.3
i-04	10.4	1	1.1	2	5.0	6.1
in-01	13.9	3	3.3	3	7.4	10.7
x-01	4.7	1	1.1	1	2.5	3.6
x-02a	3.3	2	2.2	1	2.5	4.7
x-02b	3.5	1	1.1	1	2.5	3.6
x-03	5.6	4	4.4	5	12.4	16.8
x-04	22.6	6	6.6	5	12.4	19.0
Quartzsite Zone						
i-05	2.8	1	1.1	0	0.0	1.1
qn-01	0.6	0	0	1	2.5	2.5
qn-02	10.8	2	2.2	2	5.0	7.2
qs-01	3.1	1	1.1	0	0.0	1.1
qs-02	4.8	1	1.1	1	2.5	3.6
x-05	10.3	1	1.1	1	2.5	3.6
x-06	9.3	1	1.1	1	2.5	3.6
x-07	7.7	1	1.1	1	2.5	3.6
Copper Bottom Zone						
cb-01	2.9	1	1.1	1	2.5	3.6
cb-02	2.0	1	1.1	0	0.0	1.1
cb-03	4.3	0	0	1	2.5	2.5
cb-04	1.8	0	0	1	2.5	2.5
cb-05	4.4	1	1.1	0	0.0	1.1
cb-06	1.9	1	1.1	0	0.0	1.1
i-06	7.2	1	1.1	1	2.5	3.6
i-07	6.4	1	1.1	1	2.5	3.6
x-08	1.3	0	0	1	2.5	2.5

SEGMENT	LINE MILES	NUMBER OF SNUBBING SITES	SNUBBING SITE DISTURBANCE (ACRES)*	NUMBER OF PULLING SITES	PULLING SITE DISTURBANCE (ACRES)*	TOTAL SHORT-TERM DISTURBANCE (ACRES)
Colorado River and California Zone						
Arizona						
cb-10	2.0	1	1.1	0	0.0	1.1
i-08s	1.2	0	0	1	2.5	2.5
California						
ca-01	6.7	1	1.1	1	2.5	3.6
ca-02	3.5	1	0.7	1	1.7	2.4
ca-04	0.3	1	1.1	1	2.5	3.6
ca-05	6.6	1	1.1	1	2.5	3.6
ca-06	2.6	1	1.1	0	0.0	1.1
ca-07	3.1	0	0	1	2.5	2.5
ca-09	2.6	1	1.1	0	0.0	1.1
x-09	0.8	0	0	0	0.0	0.0
x-10	1.4	0	0	1	2.5	2.5
x-11	2.2	1	1.1	0	0.0	1.1
x-12	1.2	0	0	0	0.0	0.0
x-13	2.1	1	1.1	0	0.0	1.1
x-15	1.4	0	0	1	2.5	2.5
x-16	2.2	1	1.1	0	0.0	1.1
x-19	0.9	1	1.1	0	0.0	1.1
Other						
Alt SCS Dist. Line	2.1	0.0	0.0	1	2.5	2.5

*Assumptions:
Snubbing sites estimated at 1.1 acres of disturbance each located 5 miles apart along the line.
Pulling sites estimated at 2.5 acres of disturbance each located at 5 miles apart along the line.

2.2.4.5 Insulators, Grounding, and Other Hardware

Other hardware, such as bird flight diverters, not associated with the transmission of electricity may be installed as part of the Project. This hardware may include aerial marker spheres or aircraft warning lighting, as required for the conductors or structures by FAA regulations. Structure proximity to airports and structure height are the main factors determining whether FAA regulations would apply, based on an assessment of wire/structure strike risk.

Current guidelines and methodologies (APLIC 2012, 2006) would be used to minimize the potential for raptors and other birds to collide with, or be electrocuted by, the transmission line. For example, aerial marker balls, or other appropriate visibility markers would be placed on the transmission line at and near the crossing of the Colorado River to increase visibility to birds using

that flight corridor. Visibility markers would also be placed at other locations along the transmission line that are identified by the BLM and state wildlife agencies as having a high potential for avian collisions. Additional transmission line marking may be required in accordance with the FAA and DOD consultation for aircraft obstruction marking. Structure lighting and marking would be in accordance with FAA Circular 70/7460, which may include structure lighting, structure painting, or marker balls being placed on conductors.

2.2.4.6 Series Compensation Station

A general layout of the SCS is shown in Figure 2.2-16 (Appendix 7).

Two alternative locations for the SCS have been identified. Both alternative locations would be on BLM-administered public land, as shown in Figure 2.2-17 (Appendix 7).

Design

A new SCS system would be needed and located under the new transmission line (or in very close proximity to the transmission line), parallel to the existing SCS associated with the DPV1 line. The SCS would be within the 200-foot wide ROW, approximately 47 miles from the APS Delaney Substation. This SCS would be equipped with switchable banks of capacitors inserted in series with a line to compensate for the voltage drop in the line, effectively allowing power transmission over greater lengths of line.

The ground surface within the fenced area of the SCS would be covered with crushed rock. This is required for personnel safety due to grounding concerns and because of lower clearances to energized conductors within the substation as compared to transmission lines. These lower clearances are allowed by NESC 2012 because of the limited access to the SCS due to fence and gates.

A fiber optic repeater would be located in the SCS using the same distribution line for backfeed to this substation. Under the Proposed Action, the new SCS would be connected to the same APS 12kV distribution line used for the existing DPV1 SCS. This existing three-phase distribution line would not need to be upgraded to accommodate the new SCS. The line connecting the new SCS to the distribution line would run along existing access roads and would require a 15-foot ROW along its approximately 1,000-foot length, and portions of this 15-foot ROW would likely occur within the larger 200-foot ROW for the transmission line. This line would require three new poles, either wood or galvanized steel. Each pole would be an average of 45 feet tall, would temporarily disturb approximately 0.04-acre, and would permanently disturb a 5-foot diameter area around each pole for a total permanent disturbance of less than 20 square feet per pole, or 0.0014-acre total.

The perimeter fence would be a 7-foot chain-link fence with steel posts. One foot of barbed wire would be installed at the top of the chain-link, yielding a total height of 8 feet. Locked gates would be installed at appropriate locations for authorized vehicle and personnel access.

The grounding system would consist of buried copper conductor arranged in a grid pattern and driven ground rods of adequate size, typically 8 to 10 feet in length. The ground rods and any equipment and structures would be connected to the grid conductor. The amount of conductor, size, length, and number of ground rods required would be calculated based on the fault current

and soil characteristics. All metal structures and equipment would be connected to the ground grid via ground pig tails. The ground grid would extend approximately 4 feet outside of the perimeter fence to prevent unsafe reach-touch potential.

Two main types of high-voltage conductors are used in the SCS: tubular aluminum for rigid bus sections and/or stranded aluminum conductor for strain bus and connections to equipment. Rigid bus sections would be supported by porcelain insulators installed on steel supports. The bus sections would be welded together and attached to special fittings for connection to equipment. Stranded aluminum conductors would be used as flexible connectors between the rigid bus and the SCS equipment.

Clearing and Grading

Clearing of all vegetation for the entire SCS area is required for personnel safety due to grounding concerns and because of lower clearances to energized conductors within the substation as compared to transmission lines. These lower clearances are allowed by NESC 2012 because of the limited access to the SCS due to fence and gates.

Vegetation would be removed and a 4 to 6-inch layer of crushed rock applied to the finished surface of the SCS. The SCS would be treated with a BLM-approved and authorized soil sterilizer to prevent vegetation to ease maintenance. The entire SCS area would be graded flat, with enough slope to provide runoff of precipitation. The SCS would be graded to use existing drainage patterns to the extent possible. In some cases, drainage structures, such as ditches, culverts and sumps may be required to control runoff. The topsoil would be removed. The topsoil would be covered once stockpiled. Topsoil storage at each location is assumed to be within each site disturbance and would not increase disturbance estimates. Cleared and graded material would be disposed of in compliance with local ordinances. Material from offsite would be obtained at existing borrow or commercial sites and trucked to the SCS using existing roads and access roads.

Material Storage Yards

Construction material storage yards may include the SCS footprint or be leased by the contractor. A storage area for the SCS would be approximately 24 acres, may be shared with transmission line crews.

Power Supply Distribution Line Connection

The SCS would be connected to the existing APS 12kV distribution line by a 1,000-foot connection line. Installation of the connection would be performed by APS and would take place over approximately two months. The three new poles for the line would be buried 6 feet below grade and filled with native soil. An approximately 15-foot by 40-foot area around each pole site would be temporarily disturbed during the installation of the poles, for a total short-term disturbance footprint of 0.04-acre. There would not be any water required for the construction of the line because the construction would not require dust control and no concrete would be used. Limited traffic control may be required on the access road adjacent to the line, which would consist of signage and lane closure or deviation. The traffic control would be performed in accordance with ADOT requirements.

Alternative Series Compensation Station Locations

The two alternative locations for the SCS would be on BLM-administered public land near the intersection of Segments x-04 and i-03, less than 75 feet apart. Specifications for the SCS would be the same as those described under the Proposed Action. The distribution line for either location would require 34 new wood or galvanized steel single poles and would be accessed using existing roads or access roads constructed for the transmission line; no new access would be required for construction of the distribution line. The crossing of I-10 required for the distribution line servicing the alternative SCS location may require taller than average poles on either side of the crossing. The crossing would be designed in accordance with USDOT requirements and crossing permits.

For the SCS, up to two additional fiber optic regeneration sites would be only required if the distance from the Delaney Substation to the SCS or from the SCS to the Colorado River Substation greatly exceeds 60 miles. Locations for these additional fiber optic repeaters, if needed, would be selected minimizing the length of the distribution line.

The estimated short- and long-term disturbance for the alternative SCS footprint would be similar to that described under the Proposed Action: the SCS would be integrated into the footprint of the transmission line with a 200-foot by 315-foot fenced area. Clearing of all vegetation would be required for the entire SCS area, including a distance of 10 feet outside the fence, for a total permanent disturbance of 1.7 acres. Each pole would be an average of 45 feet tall (except at the I-10 crossing) and would permanently disturb a 5-foot diameter area around each pole. The estimated short-term construction disturbance for the connection to the distribution line would be 0.50-acre, with a permanent disturbance footprint of 0.06-acre.

2.2.4.7 Substation Upgrades

DCRT is in the process of conducting wire-to-wire interconnection facility studies with both APS and SCE for the Project. The purpose of these studies is to identify the effects of the installation of the Project on the existing transmission grid as well as to determine the specific facilities required to effectively interconnect the Project to the Delaney and Colorado River substations. The Delaney and Colorado River substations have adequate room to accommodate all of the equipment associated with the interconnection of the TWL line. SCE and APS would perform all of the engineering, design material procurement, construction, and testing related to the interconnections of the TWL to the Colorado River and Delaney substations, respectively. It is estimated to take approximately 18-24 months to complete interconnection related work at the Delaney Substation, and approximately 27 months to complete the same task at the Colorado River Substation. DCRT anticipates the installation of the following equipment at both the substations to interconnect the TWL line to the existing 500kV buses at the respective substation:

500kV line position including -

- 500kV dead-end switchyard structure
- 3 - 500kV line drops
- 3 - 500kV coupling capacitor voltage transformers with steel pedestal support structures
- 2 - 500kV circuit breakers

- 9 - 500kV single phase disconnect switches
- 3 - 500kV single phase disconnect switches with grounding attachment
- 36 - 500kV bus support post insulators
- 1 - 500kV, 75MVAr line reactor including
- 1 - 500kV sync-opening circuit breaker
- 3 - 500kV disconnect switches
- 1 - 500kV 75MVAr, 3-Phase line reactor
- 4 - 500kV surge arresters
- 1 - 25-foot high firewall
- Installation of protection relays, fiber optic cable, lightwave, channel, and associated equipment supporting protection and supervisory control and data acquisition (SCADA) system
- Installation of new 20-foot driveway and removal of existing driveway
- Installation of one 500kV transmission structure including insulator/hardware assemblies, and two spans of conductor between the TWL´s last structure located outside the substation property line and the dead-end substation structure at the substation.

The equipment required to interconnect the Project to the Delaney and Colorado River substations is expected to be similar in type and size to the existing equipment at each substation. Exact equipment requirements would be determined after the completion of the facility studies by each interconnecting utility.

CAISO requires the installation of one 75 megavolt-ampere reactive (MVAR) shunt-reactor in both the APS Delaney and SCE Colorado River substations—the two, existing utility-owned terminus substations of the Project. Shunt reactors are voltage modulation devices that are generally installed to provide voltage control on transmission systems, thereby enabling the power system operator to maintain the terminal voltage within specified limits to ensure reliable operation of the bulk transmission network. There would be no new disturbance associated with these installations.

2.2.4.8 Access

Access Routes

Access routes are displayed on Figures 2.2-18 through 2.2-21 (Appendix 7).

Access to the ROW would be provided by existing roads and trails, such as those associated with the DPV1 transmission line and nearby pipelines, to the extent practicable. Access for the Project would be in accordance with an Access Road Plan (Appendix 2B)

Existing roads would be used in their present condition without improvements, unless improvements are required or are deemed to be in the Project's best interest and for future access. In areas where improvements are required, roads and trails would be graded to provide a smooth travel surface, and a temporary ROW would be required for new disturbance on Federal lands.

Where existing roads can be used to access the ROW, only spur roads to each structure site would be required. Access on the ROW, other than in specific areas, would require a road graded to a width of up to 16 feet, including a 2-foot berm on either side. Typically, new roads would go directly from structure to structure, except on hillsides, ridgebacks, rock outcrop areas, wash crossings, treed areas, or in areas where sensitive environmental resources can be avoided. In such cases, the road would follow suitable topography from structure to structure and would be built in areas that generally cause the least amount of overall disturbance.

New roads that must be graded for access in steep terrain (side-hill roads) would most likely exceed the estimated width and specified disturbance because of cut and fill conditions; however, the travel surface width would not exceed 16 feet and would accommodate a standard haul truck size which is approximately 20 cubic yards (CY). In certain areas, the BLM may agree to final access route designs that increase the access route length, and resulting ground disturbance, but would result in an overall reduction in resource impacts.

It is expected that most of the construction activities required for this Project would be performed without major import or export of cut and fill materials. It is likely that mountainous areas of the Project would require some cut material to be exported to an approved location in order to construct access roads and structure foundations in higher elevations.

Type A roads would not require modifications; therefore, their use would not result in any new disturbance.

Low-lying vegetation would be driven on, rather than mechanically cleared, where practicable (overland driving/overland access). In areas where improvements to existing roads or new access routes are required, roads and routes would be graded to provide a smooth travel surface. Where access roads and work sites must be leveled or otherwise cleared, topsoil would be salvaged and stored for future reclamation activities. Topsoil stockpiles would be stabilized and covered to reduce erosion and the potential for sediment-laden runoff during storms.

It is expected that most of the access construction activities required for this Project would be performed without major import or export of cut and fill materials. It is likely that mountainous areas of the Project would require some cut material to be exported to an approved disposal location (in compliance with the Vegetation Management Plan [Appendix 2B]) in order to construct access roads and structure foundations in higher elevations.

Access roads to each structure site would be constructed in a permanent manner to allow operations and maintenance staff to access each structure site through the life of the transmission line. Access roads to material laydown yards, conductor pulling sites and conductor snubbing sites (where the conductor is temporarily fixed or attached to the ground for conductor sagging purposes) would be temporary and only needed during construction.

Estimated miles of access roads needed and estimated disturbance for the Proposed Action and Action Alternatives are shown in Tables 2.2-15 and 2.2-16.

Table 2.2-15 Proposed Action Access Roads and Permanent Disturbance Summary by Segment

SEGMENT	TYPE A (EXISTING)	TYPE B (WIDENED EXISTING) (MILES)	TYPE C (CENTERLINE ACCESS) (MILES)	TYPE D (SPUR ROADS) (MILES)	LONG-TERM DISTURBANCE (ACRES)*
Arizona					
p-01	0	25.5	0	2.7	53.5
p-02	0	1.1	0	0.2	2.3
p-03	0	2.2	0	0.3	4.7
p-04	0	7.7	0	0.8	16.1
p-05	0	1.9	0	0.3	4.1
p-06	0	43.8	0	6.1	94.8
p-07	0	1.6	0	0.4	3.9
p-08	0	0.8	0	0.1	1.6
p-09	0	9.8	0	2.1	22.6
p-10[1]	0	1.2	0	0.2	2.6
p-11[1]	0	5.8	0	0.9	12.7
p-12	0	5.4	0	0.5	11.2
p-13	0	4.3	0	0.6	9.3
p-14	0	1.2	0	0.2	2.6
p-15e	0	2.7	0	0.5	6.2
California					
p-15w	9.2	0.2	0.2	0.6	1.7
p-16	0	0.9	0.1	0.5	2.8
p-17	0	2.9	0	0.6	6.7
p-18	0	2.5	0	0.5	5.6
Total	9.2	121.5	0.3	18.1	265.0

[1] An existing Access Type B road is present on the CRIT reservation adjacent to these segments; however, 2.1 miles of Access Type C road in Arizona is proposed to avoid Project use of the CRIT reservation.

Access Type A would not require any additional ground disturbance. Lengths are provided only where Type D spur roads would connect to Type A existing roads.

Access Type E (Helicopter Access) would not be required for any Proposed Action segments.

*Assumptions:

Temporary and permanent impact areas include a 20 percent buffer addition for final design considerations.

Disturbance estimates were developed in a conservative manner; actual disturbance may be less than estimated.

While a small portion of the estimated disturbance may include temporary access to material storage, pulling, and snubbing sites, for purposes of analysis, all estimated access disturbance is considered permanent.

Table 2.2-16 Access Roads Summary and Estimated Disturbance by Segment

SEGMENT	TYPE A (MILES)	TYPE B (MILES)	TYPE C (MILES)	TYPE D (MILES)	TYPE E	LONG-TERM DISTURBANCE (ACRES)**
East Plains and Kofa Zone						
d-01	0	3.4	15.3	1.2		37.9
i-01	0	0.5	6.5	0.3		13.8
i-02	0	0	3.4	0		6.5
i-03	0	1.8	18.2	0.2		38.5
i-04	0	4.8	6.3	0.8		22.7
in-01	0	14.8	1.3	2.4		35.1
x-01	0	0.2	7.7	0		14.9
x-02a	0	0	3.0	0		5.7
x-02b	0	0.9	2.0	0.4		6.3
x-03	0	0	5.3	0		10.1
x-04	0	6.2	16.9	1.6		46.8
Quartzsite Zone						
i-05	0	2.4	0	0.8		6.1
qn-01	0	1.3	0	0.1		2.7
qn-02	0	13.2	0.4	2.2		30.0
qs-01	0	3.6	0	0.4		7.5
qs-02	0	3.3	0	1.0		8.1
x-05	0	0	10.1	0.1		19.3
x-06	0	0.4	9.3			18.4
x-07	0	7.7	0	1.1		16.4
Copper Bottom Zone						
cb-01	0	0	0	0	X	0.0
cb-02	0	0	0	0	X	0.0
cb-03	0	0	0	1.2		2.2
cb-04	0	2.3	0	0.6		5.4
cb-05	0	5.3	3.4	0.3		16.9
cb-06	0	0.5	1.6	0		4.0
i-06	0	7.5	1.4	0.8		18.4
i-07	0	6.1		1.0		13.5
x-08	0	2.5		0.4		5.5
Colorado River and California Zone						
Arizona						
cb-10	0	0.2	0.5	0.2		1.8
i-08s	0.8	0.7		0.3		1.9
California						
ca-01	4.5	0	0.3	0.4		1.3
ca-02	2.9	0	0.4	0.1		6.5
ca-04	1.3	0	0	0		0.0
ca-05	3.3	0.6	0.2	0.5		2.5
ca-06	1.6	0.5	0	0.3		1.9

SEGMENT	TYPE A (MILES)	TYPE B (MILES)	TYPE C (MILES)	TYPE D (MILES)	TYPE E	LONG-TERM DISTURBANCE (ACRES)**
ca-07	0	1.4	0	0		2.6
ca-09	0	0	4.3	0		8.1
x-09	0	0	0	0		0.0
x-10	0.8	0	0	0.1		0.1
x-11	1.1	0	0.2	0.1		0.6
x-12	1.3	0	0	0.1		0.1
x-13	2.0	0.2	0	0.1		0.6
x-15	0	1.5	0	0.3		3.3
x-16	0	2.3	0	0.4		5.1
x-19	0	0	0.8	0		1.5

X: Helicopter access would be required for these segments and would not involve a number of linear miles. Segments cb-01 and cb-02 are alternatives to each other. Should one of these segments be included in the Preferred Alternative, one helicopter staging area of approximately 5 acres would be required.

Type A roads would not require any new disturbance. Lengths are provided only where Type D spur roads would connect to Type A existing roads.

**Assumptions: Temporary and permanent impact areas include 20 percent buffer addition for final design considerations.

While a small portion of the estimated disturbance may include temporary access to material storage, pulling, and snubbing sites, for purposes of analysis, all estimated access disturbance is considered permanent.

Construction of the distribution line to the alternative SCS would be accessed via existing routes and no new access would be required.

Helicopter Access

Helicopter access is not anticipated under the Proposed Action. Under the Action Alternatives, in areas where crane access is not feasible, helicopters would be used to airlift in sections of structure steel and to place structures on the poured foundations. Helicopters would pick up pre-assembled subsections of the lattice steel structures, place them on the foundations, and ground crews would assemble the structures with hardware. This process would continue until the structure is erected.

The construction contractor(s) would ultimately decide the need for helicopter construction usage on the Project, except in areas where constructing access roads is not feasible. A Helicopter Flight and Safety Plan would be developed and included as a part of the final POD. The hours of operation and expected number of miles of structures that could be erected per day would be described in the Helicopter Flight and Safety Plan.

It is common to use a light helicopter to string the pilot line. The pilot line is then attached to a hard line on the ground, which is then attached to the conductor for actual pulling of the conductor. If utilized, the light helicopter would be operating for approximately 8 hours per week during stringing and its use would also be described in the Helicopter Flight and Safety Plan. Sites for staging of helicopter work would disturb approximately 5 acres each and would be created as needed. This is considered part of Access Type E.

Table 2.2-16 indicates that Segments cb-01 and cb-02 would require helicopter access for construction. Because these segments are alternatives to each other, it is assumed that one helicopter staging area would be required, disturbing approximately 5 acres. The location would be at either the intersection of Segment p-10 with cb-02 (if cb-02 were selected as a part of the Preferred Alternative) or cb-01 (if cb-01 were selected as a part of the Preferred Alternative). As these locations are situated in remote areas in Copper Bottom Pass, risk to the public from structure transportation is not high. Traffic control measures would be implemented in these remote areas during structure transportation activities.

The Erosion, Dust, and Air Quality Plan (Appendix 2B) will include information about the reduction of dust emissions generated from helicopter use.

2.2.4.9 Induced Currents on Adjacent Facilities

Induced currents on facilities such as metallic structures such as other transmission lines, railroads, pipelines, fences, or structures that are parallel to or cross the transmission line(s) occur to some degree during steady-state operating conditions and during a fault condition on the transmission line(s). For example, during a lightning strike on the line(s), the insulators may flash over, causing a fault condition on the line(s); current would flow down the structure through the grounding system (that is, ground rod or counterpoise) and into the ground.

The magnitude of effects of the AC-induced currents on adjacent facilities is highly dependent on the magnitude of the current flows in the transmission line(s), the proximity and orientation of the adjacent facility to the line(s), and the distance (length) for which the facilities and the line(s) parallel one another in proximity.

The methods and equipment needed to mitigate these conditions would be determined through electrical studies of the specific situation prior to initiation of construction activities. As standard practice and as part of the Project design, electrical equipment and fencing at the substation would be grounded. Grounding of metallic objects outside of, but within 150 feet of the ROW, also may be implemented. These actions address most induced current effects on metallic facilities adjacent to the transmission line by shunting the induced currents to the ground through ground rods, ground mats, and other grounding systems, thus reducing the step and touch potential a person may experience when touching a metallic object near the line (that is, reducing electric shock potential).

If additional gradient control wires were needed for existing pipelines, they are expected to be located within the existing pipeline ROW. Not knowing the level of mitigation that may be needed, there could possibly be some disturbance from installation of the gradient wires. An electrical study would be conducted once the BLM's Preferred Alternative is disclosed and the proximity of the ROW to existing pipelines is known. This study would likely be conducted between the draft and final EIS, and disturbance estimates would be included in the final EIS. This study would determine the extent and type of anti-corrosion mitigation that would be required. The gradient wires that may be required could be installed by different methods; trenching, ripping, or a combination of both.

Once the final route and any paralleled facilities, such as pipelines, have been determined, an induction study would also be completed for those facilities affected by the Project. Typically, a distribution supply line is needed to provide power for the compensation stations, fiber optic repeater stations, and cathodic protection equipment. The need for, and locations of, any new distribution lines would be determined as part of the detailed Project design, following issuance of the ROD.

There are two different ways to provide cathodic protection: galvanic and impressed current. The method of cathodic protection would be determined as part of the study, and the most operationally- and cost-effective method to protect the facilities would be used. A distribution line (impressed current) would be used if existing facilities were available. If distribution lines weren't available where needed, other methods would be researched and used if feasible.

If any distribution lines were potentially required for impressed current cathodic protection, an induction study would be conducted once the Preferred Alternative was selected. Disturbance estimates would be included in the final EIS.

A fiber optic repeater would be located in the SCS, using the same distribution line for backfeed to this substation. For Segment p-06 (Kofa NWR), the distribution line for the SCS would tie-in to the same distribution line used for the DPV project.

The proposed Project would intersect and parallel a Kinder Morgan Energy Partners Natural Gas existing pipeline ROW for a substantial portion of its length. While the width of ROWs varies based on anticipated maintenance needs and negotiations between utilities and landowners, typical pipelines in the region generally have permanent ROW widths of approximately 50 feet.

In the case of a longer parallel facility, such as a pipeline parallel to the Project over many miles, DCRT may undertake additional electrical studies to identify any additional mitigation measures that would need to be implemented to prevent damaging currents from flowing onto the parallel facility and to prevent electrical shock to any people who may come in contact with the parallel facility. Some of the typical MMs that could be considered for implementation, depending on the degree of mitigation needed, can include the following (National Association of Corrosion Engineers International 2003):

- **Fault Shields.** Shallow grounding conductors connected to the affected structure adjacent to overhead electrical transmission structures, poles, substations, etc. They are intended to provide localized protection to the structure and pipeline coating during a fault event from a nearby electric transmission power system.
- **Lumped Grounding.** Localized conductor or conductors connected to the affected structure at strategic locations (for example, at discontinuities). They are intended to protect the structure from both steady-state and fault AC conditions.
- **Gradient Control Wires.** A continuous and long grounding conductor or conductor installed horizontally and parallel to a structure (for example, pipeline section) at strategic lengths and connected at regular intervals. These are intended to provide protection to the structure and pipeline coating during steady-state and fault AC conditions from nearby electric transmission power systems.

- **Gradient Control Mats.** Typically used for aboveground components of a pipeline system, these are buried ground mats bonded to the structure and are used to reduce electrical step and touch voltages in areas where people may come in contact with a structure and be subject to hazardous potentials.

Permanent mats bonded to the structure may be used at valves, metallic vents, cathodic protection test stations, and other aboveground metallic and nonmetallic appurtenances where electrical contact with the affected structure is possible. In these cases, no standard solution exists to solve these issues every time. Instead, each case must be studied to determine the magnitude of the induced currents and the most appropriate mitigation given the ground resistivity, distance paralleled, steady-state and fault currents, fault clearing times expected on the transmission line, and distance between the line and paralleling facilities, to name a few of the parameters. Should the electrical studies indicate a need to install cathodic protection devices on a parallel facility, a distribution supply line interconnection may be needed to provide power to the cathodic protection equipment.

2.2.4.10 Temporary Use Areas

Locations for temporary use areas would be identified in the final POD and would generally be located on previously disturbed lands or in areas that are identified as minimizing environmental impacts. In some locations, only minimal site preparation would be required for material staging, laydown yards, and batch plant locations. Some areas may need to be scraped, which involves removing the top 6 to 8 inches of topsoil, by bulldozer and adding a layer of rock to provide an all-weather surface. It is likely that not all staging areas would be active at the same time. Construction would occur in a sequential manner with access crews, foundation crews, structure erection crews, stringing crews, and cleanup crews working in order throughout the Project. Quick road access is preferred for location selection.

Under the Proposed Action, one material staging area is anticipated in California, located on private lands in Segment p-15w. A second material staging area would be collocated with the SCS. A third material staging area would be close to the Delaney Substation on private lands. A fourth material staging area, if needed, would be located in Quartzsite, AZ (preferred) or close to the intersection between Segment p-09 and SR 95, depending on land availability in Quartzsite.

Concrete batch plants would also be located strategically along the Proposed Action or Action Alternative routes. Batch plant operations occupy and average approximately 6 acres. Setting up a batch plant typically takes 3 to 5 days. In order to set up a batch plant, 6 to 8 inches of topsoil would be removed using a bulldozer or motor grader and replaced with temporary gravel. A crane would then be used to set the batch plant equipment. Although batch plants may be collocated with material staging/storage areas, batch plant disturbance acreage is estimated independent of other areas. For purposes of disturbance estimates, material staging, material storage, and laydown areas are synonymous. If required, helicopter staging areas would be similar in size to, but separate from other staging areas, and used for fueling. The existing 500kV switchyards at the Delaney and Colorado River substations were designed and constructed to accommodate multiple transmission lines and generation interconnections, and as such there would not be an expansion to the existing substation acreage or to the existing 500kV buses. No new disturbance would occur outside of the substation property boundaries. Estimated short-term disturbance associated with temporary use areas for the Proposed Action and Action Alternatives is shown in Tables 2.2-17 and 2.2-18.

Table 2.2-17 Short-term Disturbance Associated with Temporary Use Areas under the Proposed Action by Segment

SEGMENT	LINE MILES	MATERIAL STAGING/STORAGE DISTURBANCE (ACRES)	BATCH PLANT DISTURBANCE (ACRES)	TOTAL (ACRES)
Arizona				
p-01	26.2	28.8	6.0	34.8
p-02	1.1	0	0	0
p-03	2.1	0	0	0
p-04	4.7	0	0	0
p-05	2.8	0	0	0
p-06	35.7	28.8	6.0	34.8
p-07	2.1	0	0	0
p-08	0.6	0	0	0
p-09	6.9	0	0	0
p-10	1.2	0	0	0
p-11	4.1	0	0	0
p-12	2.5	0	0	0
p-13	3.5	0	0	0
p-14	0.9	0	0	0
p-15e	2.8	0	0	0
California				
p-15w	6.6	28.8	6.0	34.8
p-16	4.7	0	0	0
p-17	2.9	0	0	0
p-18	2.6	0	0	0
Total	113.9	86.4	18.0	104.4
No. of Areas		3	3	

Assumptions:
*Temporary use areas include a 20 percent buffer addition for final design considerations.
Assume that material staging/storage for the SCS would be accommodated in conjunction with those estimated for line segments and no additional disturbance would be required.

Table 2.2-18 Short-term Disturbance Associated with Temporary Use Areas under the Action Alternatives by Segment

SEGMENT	LINE MILES	MATERIAL STAGING/STORAGE DISTURBANCE (ACRES)	BATCH PLANT DISTURBANCE (ACRES)	TOTAL (ACRES)
East Plains and Kofa Zone				
d-01	25.3	28.8	6.0	34.8
i-01	8.3	0	0	0
i-02	3.2	0	0	0
i-03	20.0	28.8	6.0	34.8
i-04	10.4	0	0	0
in-01	13.9	0	0	0
x-01	4.7	0	0	0
x-02a	3.3	0	0	0
x-02b	3.5	0	0	0
x-03	5.6	0	0	0
x-04	22.6	28.8	6.0	34.8
Quartzsite Zone				
i-05	2.8	0	0	0
qn-01	0.6	0	0	0
qn-02	10.8	28.8	6.0	34.8
qs-01	3.1	0	0	0
qs-02	4.8	28.8	6.0	34.8
x-05	10.3	0	0	0
x-06	9.3	0	0	0
x-07	7.7	0	0	0
Copper Bottom Zone				
cb-01	2.9	0	0	0
cb-02	2.0	0	0	0
cb-03	4.3	0	0	0
cb-04	1.8	0	0	0
cb-05	4.4	0	0	0
cb-06	1.9	0	0	0
i-06	7.2	0	0	0
i-07	6.4	0	0	0
x-08	1.3	0	0	0
Colorado River and California Zone				
Arizona				
cb-10	2.0	0	0	0
i-08s	1.2	0	0	0

SEGMENT	LINE MILES	MATERIAL STAGING/STORAGE DISTURBANCE (ACRES)	BATCH PLANT DISTURBANCE (ACRES)	TOTAL (ACRES)
California				
ca-01	6.7	28.8	6.0	34.8
ca-02	3.5	4.1	0.7	4.8
ca-04	0.3	0	0	0
ca-05	6.6	28.8	6.0	34.8
ca-06	2.6	0	0	0
ca-07	3.1	0	0	0
ca-09	2.6	0	0	0
x-09	0.8	0	0	0
x-10	1.4	0	0	0
x-11	2.2	0	0	0
x-12	1.2	0	0	0
x-13	2.1	0	0	0
x-15	1.4	0	0	0
x-16	2.2	0	0	0
x-19	0.9	0	0	0

*No material staging/storage areas or batch plants would be required associated with the electric distribution line that would serve the alternative SCS location.
Assumptions: Temporary and permanent impact areas include a 20 percent buffer addition for final design considerations.
Batch Plants – Although some batch plants may be collocated with material staging/storage areas, batch plant disturbance acreage is estimated independent of other areas.

These areas would be used only during construction and reclaimed following completion of construction as described in the Habitat Restoration and Monitoring Plan (Appendix 2B). The sites would be returned to their original contour and stock piled topsoil would be spread on the surface. Vegetation reclamation would be designed and implemented with the goal to return the temporary disturbance areas to their pre-existing conditions to the extent practicable, given the desert environmental conditions.

To the extent practicable, temporary use areas would be located in previously disturbed areas to minimize impacts to the environment. A Stormwater Pollution Prevention Plan (SWPPP, Appendix 2B) would provide detailed, site-specific steps to minimize construction impacts to the natural environment.

2.2.4.11 Existing Utility Lines and ROW Crossings

A number of existing electric utility ROWs are present near the Project which would require spanning or encroachment. The CAP canal has a varied ROW in the Project vicinity; the Project would cross the canal twice near the Big Horn Mountains and parallel it in areas to the west. The Proposed Action would also cross major roadways, including I-10, Arizona State Route (SR) 95, California SR 78, and local roads in Maricopa, La Paz, and Riverside Counties, where structures would need to be placed outside of existing ROWs.

Temporary clearance structures called guard structures would be erected over highways, transmission lines, structures, waterways, and other obstacles prior to conductor stringing. The guard structures are typically vertical 16 – 24-inch diameter wood poles with cross arms, on a 2xh-frame configuration (Appendix 7, Figure 2.2-22) and are erected at road crossings or crossings with other energized electric and communication lines to prevent contact during stringing activities.

Bucket trucks may also be used to provide temporary clearance. Bucket trucks are trucks fitted with a hinged arm ending in an enclosed platform called a ¨bucket¨, which can be raised to let the worker in the bucket service aerial equipment. Two crossing guard structures are required per crossing, one on each side.

All guard structures would be located within the Project ROW. The short-term disturbance associated within installation of guard structures would consist of an approximately 450 square foot work area at the base of each structure and three holes approximately 2 feet in diameter, with a total of 900 square foot (0.02-acre) of short-term disturbance per crossing. The installation method of the guard structures would be direct embedding with crushed rock and excavated material. All excavated material for the guard structures would be used to backfill these guard structures. As such, no excavated material would require offsite removal. All topsoil would be salvaged, stockpiled, and replaced on removal of the guard structures and initiation of reclamation activities.

A summary of number and type of crossings and the associated short-term disturbance for the Proposed Action and Action Alternatives, by segment, is provided in Tables 2.2-19 and 2.2-20.

Table 2.2-19 Summary of Guard Crossings Short-term Disturbance by Alternative Segment

SEGMENT NUMBER	ELECTRICAL CROSSINGS	ROAD AND WATER CROSSINGS	TOTAL SHORT-TERM DISTURBANCE (ACRES)
Arizona			
p-01	6	13	0.4
p-02	0	0	0.0
p-03	0	0	0.0
p-04	1	4	0.1
p-05	0	1	<0.1
p-06	1	5	0.1
p-07	1	1	<0.1
p-08	1	1	<0.1
p-09	0	1	<0.1
p-10	0	1	<0.1
p-11	1	0	<0.1
p-12	0	0	0.0
p-13	0	1	<0.1
p-14	0	0	0.0
p-15e	1	1	<0.1
California			
p-15w	2	3	0.1
p-16	1	3	0.1
p-17	2	0	<0.1
p-18	0	0	0.0
Total	17	35	1.1

Table 2.2-20 Summary of Guard Crossings Short-term Disturbance by Alternative Segment

SEGMENT	ELECTRICAL CROSSINGS	ROAD AND WATER CROSSINGS	TOTAL SHORT-TERM DISTURANCE (ACRES)
East Plains and Kofa Zone			
d-01	2	13	0.3
i-01	2	0	<0.1
i-02	1	2	0.1
i-03	2	5	0.1
i-04	0	2	<0.1
in-01	0	6	0.1
x-01	2	1	0.1
x-02a	0	0	0.0
x-02b	1	1	<0.1
x-03	1	0	<0.1
x-04	2	2	0.1
Quartzsite Zone			
i-05	0	0	0.0
qn-01	0	3	0.1
qn-02	3	5	0.2
qs-01	0	1	<0.1
qs-02	2	4	0.1
x-05	0	1	<0.1
x-06	1	1	<0.1
x-07	1	2	0.1
Copper Bottom Zone			
cb-01	0	1	<0.1
cb-02	0	0	0.0
cb-03	0	0	0.0
cb-04	0	0	0.0
cb-05	0	1	<0.1
cb-06	0	0	0.0
i-06	0	0	0.0
i-07	0	1	<0.1
x-08	1	0	<0.1
Colorado River and California Zone			
Arizona			
cb-10	1	1	<0.1
i-08s	0	4	0.1
California			
ca-01	4	8	0.3
ca-02	0	10	0.2
ca-04	1	2	0.1
ca-05	2	6	0.2
ca-06	2	2	0.1

SEGMENT	ELECTRICAL CROSSINGS	ROAD AND WATER CROSSINGS	TOTAL SHORT-TERM DISTURANCE (ACRES)
ca-07	4	0	0.1
ca-09	0	0	0.0
x-09	0	0	0.9
x-10	1	3	0.1
x-11	0	4	0.1
x-12	1	0	<0.1
x-13	0	0	0.0
x-15	0	0	0.0
x-16	0	0	0.0
x-19	1	0	<0.1

2.2.4.12 Construction Water Requirements

Water requirements for the Proposed Action and Action Alternatives is estimated in Tables 2.2-21 through 2.2-23.

Table 2.2-21 Foundation Details and Construction Water Requirements

STRUCTURE TYPE	CONCRETE PER PIER (CY)	NO. OF PIERS PER STRUCTURE	CONCRETE PER STRUCTURE (CY)	WATER PER STRUCTURE (GALLONS)	NO. OF FOUNDA-TIONS	TOTAL CONCRETE (CY)	TOTAL WATER (GALLONS)
Guyed V Structure (Tangent) Foundation	6.3	1	6.3	219.9	256	1,929.2	67,556.4
H Frame (Tangent) Foundation	6.5	2	13.9	458.2	0	0	0
Tangent and Dead-end Structure Foundation	39.8	4	159.2	5,571.1	79	15,089.3	528,139.3
Monopole	70.7	1	70.7	2,476.0	46	3,904.9	136,677.4
SCS Foundations	6.5	4	26.2	916.3	7	183.3	6,414.1
Substation Component Foundations	6.5	4	26.2	916.3	4	104.7	3,665.2
TOTAL							**742,452.4**

Note: No water would be required for construction of the SCS distribution line.

Table 2.2-22 Construction Water Requirements

SEGMENT	LINE MILES	TOTAL STRUCTURES	STRUCTURES (GALLONS)	DUST CONTROL (GALLONS)	TOTAL (GALLONS)*
Arizona					
p-01	26.2	88	80,209.6	507,913.2	588,122.8
p-02	1.1	4	6,230.8	21,324.6	27,555.4
p-03	2.1	6	1,319.4	40,710.6	42,030.0
p-04	4.7	15	8,649.7	106,623.0	115,272.7
p-05	2.8	9	1,979.1	38,772.0	40,751.1
p-06	35.7	120	117,358.4	692,080.2	809,438.6
p-07	2.1	7	12,241.7	40,710.6	52,952.3
p-08	0.6	2	439.8	13,570.2	14,010.0
p-09	6.9	23	37,164.9	133,763.4	170,928.3
p-10	1.2	4	22,284.4	23,263.2	45,547.6
p-11	4.1	13	72,424.3	77,544.0	149,968.3
p-12	2.5	8	12,461.6	52,342.2	64,803.8
p-13	3.5	10	7,550.2	67,851.0	75,401.2
p-14	0.9	3	659.7	17,447.4	18,107.1
p-15e	2.8	11	23,823.7	54,280.8	78,104.5
California					
p-15w	6.6	24	62,519.1	127,947.6	190,466.7
p-16	4.7	18	53,853.3	91,114.2	144,967.5
p-17	2.9	9	50,139.9	58,158.0	108,297.9
p-18	2.6	11	61,282.1	46,526.4	107,808.5
Other					
Substations	N/A	4	22,284.4	N/A	22,284
SCS & Substation Foundations	N/A	N/A	N/A	N/A	12,100
Total	113.9	389	531,613.7	2,210,004	2,592,543

Assume the water per structure values provided in Table 2.2-21
Dust control estimated at 19,386 gallons per mile average based on total requirements for the Proposed Action.
No water would be required for construction of the SCS distribution line.

Table 2.2-23 Total Water Requirements for Construction by Action Alternative Segment

SEGMENT	LINE MILES	TOTAL STRUCTURES	STRUCTURES (GALLONS)	DUST CONTROL (GALLONS)	TOTAL (GALLONS)
East Plains and Kofa Zone					
d-01	25.3	83	58,083.2	490,465.8	548,549.0
i-01	8.3	27	11,288.5	160,903.8	172,192.3
i-02	3.2	10	2,199.0	62,035.2	64,234.2
i-03	20.1	65	24,995.9	387,720.0	412,715.9

SEGMENT	LINE MILES	TOTAL STRUCTURES	STRUCTURES (GALLONS)	DUST CONTROL (GALLONS)	TOTAL (GALLONS)
i-04	10.4	38	99,326.6	201,614.4	300,941.0
in-01	13.9	53	182,893.1	269,465.4	452,358.5
x-01	4.7	25	19,572.0	91,114.2	110,686.2
x-02a	3.3	11	7,990.0	63,973.8	71,963.8
x-02b	3.5	11	2,199.0	67,851.0	70,050.0
x-03	5.6	18	9,309.4	108,561.6	117,871.0
x-04	22.6	73	21,403.9	438,123.6	459,527.5
Quartzsite Zone					
i-05	2.8	9	1,979.1	54,280.8	56,259.9
qn-01	0.6	3	16,713.3	11,631.6	28,344.9
qn-02	10.8	37	56,297.1	209,368.8	265,665.9
qs-01	3.1	10	7,550.2	60,096.6	67,646.8
qs-02	4.8	17	35,845.5	93,052.8	128,898.3
x-05	10.3	35	13,047.7	199,675.8	212,723.5
x-06	9.3	32	23,090.4	180,289.8	203,380.2
x-07	7.7	26	21,771.0	149,272.2	171,043.2
Copper Bottom Zone					
cb-01	2.9	12	66,853	62,035	128,888
cb-02	2.0	8	44,569	41,680	86,249
cb-03	4.3	17	94,709	85,105	179,814
cb-04	1.8	6	66,853.2	56,219.4	123,072.6
cb-05	4.4	16	44,568.8	38,772.0	83,340.8
cb-06	1.9	6	94,708.7	83,359.8	178,068.5
i-06	7.2	26	1,319.4	34,894.8	36,214.2
i-07	6.4	22	8,869.6	85,298.4	94,168.0
x-08	1.3	5	6,670.6	36,833.4	43,504.0
Colorado River and California Zone					
Arizona					
cb-10	2.0	8	28,515.2	38,772.0	67,287.2
i-08s	1.2	6	28,313.7	23,263.2	51,576.9
California					
ca-01	6.7	26	67,471.1	129,886.2	197,357.3
ca-02	3.5	13	41,473.3	67,851.0	109,324.3
ca-04	0.3	4	11,142.2	5,815.8	16,958.0
ca-05	6.6	26	67,471.1	127,947.6	195,418.7

SEGMENT	LINE MILES	TOTAL STRUCTURES	STRUCTURES (GALLONS)	DUST CONTROL (GALLONS)	TOTAL (GALLONS)
ca-06	2.6	11	27,236.0	50,403.6	77,639.6
ca-07	3.1	11	61,282.1	60,096.6	121,378.7
ca-09	2.6	9	50,139.9	50,403.6	100,543.5
x-09	.8	3	16,094.2	15,508.8	31,603.0
x-10	1.4	5	15,475.1	27,140.4	42,615.5
x-11	2.2	7	26,617.3	42,649.2	69,266.5
x-12	1.2	5	15,475.1	23,263.2	38,738.3
x-13	2.1	7	26,617.3	40,710.6	67,327.9
x-15	1.4	5	27,855.5	27,140.4	54,995.9
x-16	2.2	8	44,568.8	42,649.2	87,218.0
x-19	0.9	6	33,426.6	17,447.4	50,874.0
Other					
Alt SCS and Substation Upgrades (Gallons)	N/A	N/A	N/A	N/A	12,100
Alt. SCS Dist. Line	2.1	34	N/A	19,386	19,386

* Assume the water per structure values provided in Table 2.2-21
The Alternative SCS would require the same amount of water for construction as the Proposed Action SCS.
No water would be required for construction of the SCS distribution line.

2.2.4.13 Disposal and Cleanup

2.2.4.14 Construction Reclamation

Cleanup

Construction sites, material storage yards, batch plants, and access roads would be kept in an orderly condition throughout the construction period in conformance with the Waste Management Plan for the Project (to be included in the final POD). Refuse and trash, including stakes and flagging, would be removed from the work areas and disposed of in local permitted landfills in accordance with local ordinances. There would be no open burning or on-site disposal of construction trash at any time during the life of the Project. Once the cleanup crew has completed a section of line, the staging area serving that portion of the line would be decommissioned and fencing around storage yards would be removed.

Soil Stabilization

Ruts and holes due to construction activities would be regraded. Disturbed surfaces would be reclaimed to as near the original contour of the land surface as possible. Permitted water diversions would be constructed along the ROW, as needed, to control surface water and minimize soil erosion. Temporary construction roads, not required for future maintenance access, would be reclaimed after construction of the Project is complete. For example, access roads to staging areas

would not be required once the staging area is regraded and vegetated. Areas of soil compaction, including temporary roads and reclaimed existing roads, would be scarified as prescribed in the Habitat Restoration and Monitoring Plan (Appendix 2B). Unless directed by the landowner, the rock placed on temporary use areas (material staging, laydown, and batch plant locations, for example) would be removed from the staging area upon completion of construction, and the area reclaimed. A number of BMPs for soil stabilization would be implemented in disturbed areas. Possible stabilization methods may include reseeding, contouring of the land surface, use of water control and diversion techniques, compacting or de-compacting of underlying soil if appropriate, sediment control devices and rolled erosion control systems (RECS) because they are typically sold in rolls for ease of storage and installation and others. A detailed assessment of available stabilization procedures and technologies is included in the Habitat Restoration and Monitoring Plan for the Project.

Revegetation

Appropriate site-specific seed mixes for revegetation would be used for varying site conditions and would be specified in the Habitat Restoration and Monitoring Plan (Appendix 2B). Salvaged native plants would be used for revegetation, if appropriate, along with seeding using BLM-recommended and approved seed mixes. Preferably, seeding would occur during the months from November to January following transmission line construction. Specific details for revegetation activities would be described in the approved POD or within the Habitat Restoration and Monitoring Plan prepared for this Project. Part of the Habitat Restoration and Monitoring Plan would be the inclusion of specific success criteria that must be met to demonstrate compliance with vegetation requirements. Water requirements for revegetation would be estimated in conjunction with preparation of the Habitat Restoration and Monitoring Plan.

DCRT would adhere to Arizona's Native Plant Law, and any California legal requirements, and would work with the applicable jurisdictions to implement reclamation and reseeding of construction-disturbed areas sites, in accordance with BLM, State, and local requirements. Plants would be salvaged on State Trust lands, while safeguarded and salvage restricted plants protected by the Arizona Native Plant Law would likely be salvaged on BLM and private lands, pending a decision by the BLM in accordance with the Habitat Restoration and Monitoring Plan (Appendix 2B). All plant material not salvaged could either be broken up to potentially aid in revegetation efforts and/or completely removed from the area and disposed of at an appropriate disposal facility in compliance with the Vegetation Management Plan (Appendix 2B) for the Project.

2.2.4.15 Construction Workforce and Schedule

The estimated number of workers and types of equipment required to construct the proposed transmission line are shown in Table 2.2-24 and are subject to adjustment as Project planning evolves. The estimated number of workers and types of equipment required to construct the SCS are provided in Table 2.2-25. Various phases of construction would occur at different locations throughout the construction process, and in some cases at the same time at different locations. Regular field meetings would be held with the CIC and environmental monitors to coordinate construction activities with monitoring requirements for the transmission line and ancillary facilities.

The transmission line workforce and equipment listed in Table 2.2-24 would also be used for reclamation. The workforce required for reclamation for the SCS is included in Table 2.2-25. Crew parking would be accommodated at a central staging area. Crews would then be sent out to work sites together via carpool. The central location required for crew parking would be located at one of the material storage yards closest to the work area. The most probable locations are Blythe, Quartzsite, Tonopah, and adjacent to the SCS, but the location would depend on the final route selected by the BLM. The transmission line labor force and equipment requirements provided in Table 2.2-24 is for one work front. All the following activities, except ROW survey and geotechnical investigation, would operate in up to two work fronts, simultaneously.

Table 2.2-24 Transmission Line Labor Force and Equipment Requirements

ACTIVITY	WORK DAYS	EQUIPMENT TYPE	NUMBER OF EQUIPMENT	STARTING MONTH	DURATION MONTHS*	CREW
Geotechnical investigation	88	GPS survey equipment	4	1	1	4
	44	2-ton drill truck	2	1	1	4
Access road construction	440	Bulldozers, D6 or D8	4	1	5	8
	440	Motor graders	4	1	5	
Foundation installation	440	Augers	4	1	5	24
	308	Bulldozer, D6	2	2	7	
	616	Wagon drills	4	2	7	
	308	Front-end loader	2	2	7	
	616	Flatted trucks with booms	4	2	7	
	308	15-ton hydro crane	2	2	7	
	308	Carry-alls	2	2	7	
	616	2-ton trucks	4	2	7	
Laydown yard/receiving	704	40-ton crane	2	2	16	8
	1408	Forklifts	4	2	16	
Structure hauling	352	Boom truck	2	6	8	4
	352	Forklifts	2	6	8	
Structure assembly	704	40-ton crane	4	6	8	16
	352	2-ton crane	2	6	8	
	704	Carry-alls	4	6	8	
Structure erection	704	100-ton cranes	4	6	8	20
	704	2-ton trucks	4	6	8	
	704	Boom truck	4	6	8	
Wire stringing	220	Drum puller	2	12	5	20
	440	Haul trailer	4	12	5	
	220	Tensioner	2	12	5	
	220	30-ton crane	2	12	5	
	880	Boom truck	8	12	5	
	220	D-8 cat with sag winches	2	12	5	
	440	2-ton trucks	4	12	5	
	220	Splicing truck	2	12	5	

ACTIVITY	WORK DAYS	EQUIPMENT TYPE	NUMBER OF EQUIPMENT	STARTING MONTH	DURATION MONTHS*	CREW
Road/ROW restoration	220	Bulldozers, D6 or D8	2	12	5	8
	132	Front-end loader with bucket	2	15	3	
	132	Dump truck	2	15	3	
	132	Tractor with seeding equipment	2	15	3	
	132	Motor grader	2	15	3	
Clean up/ Reclamation	132	Flatbed truck with bucket	2	15	3	4

*number of months during which this activity may occur, as work days may not be consecutive

Table 2.2-25 SCS Labor Force and Equipment Requirements

ACTIVITY	WORK DAYS	EQUIPMENT TYPE	NUMBER OF EQUIPMENT	STARTING MONTH	DURATION MONTHS	CREW
Substation Site Grading & Surfacing	176	CAT 623 Scraper	2	6	4	20
	88	CAT 140H Blade	1	6	4	
	88	Mid-size Dozer	1	6	4	
	88	Sheepfoot roller	1	6	4	
	88	Smooth Drum Roller	1	6	4	
	88	Walk behind roller	1	6	4	
	88	CAT 950 Loader	1	6	4	
	88	30-ton Excavator	1	6	4	
Substation Equipment Install & Steel Erection	176	Mini Excavator	1	8	8	20
	176	Backhoe	1	8	8	
	352	40-foot manlift	2	8	8	
	352	60-foot manlift	2	8	8	
	176	90-foot manlift	1	8	8	
	176	Skidsteer loader	1	8	8	
	176	Trencher	1	8	8	
	176	60-ton Crane	1	8	8	
	352	5-ton forklift	2	8	8	

Equipment trip estimates for construction and reclamation are provided in Table 2.2-26.

Table 2.2-26 Equipment Transportation Estimates

ACTIVITY	SUBACTIVITY	MONTH STARTING	DURING MONTHS	VEHICLE/ TRUCK TYPE	TOTAL NUMBER OF LOADS	TOTAL MILES	NUMBER OF TRUCKS/ VEHICLES REQUIRED
Foundation installation	Concrete transport from batch plant to site	2	7	Concrete truck	2706	33,826	5
	Aggregates transport from quarry to batch plants	2	7	Dump truck	869	114,364	3
	Water transport from well to batch plants	2	7	Water truck	378	49,751	1
Access roads	Aggregates transport from quarry to roads	1	5	Dump truck	4237	557,592	28
Dust control	Water from well to roads	1	18	Water truck	756	99,490	2
Material procurement and transport	Structure transport from factory to material storage	1	3	40-foot container truck	276	689,232	26
	Conductor from factory to material storage	4	3		194	678,211	25
	OPGW and EHS from factory to material storage	4	1		8	29,732	3
	Insulators from factory to material storage	3	1		4	9,497	1
	Fittings, grounding, spares from manufacturer to material storage/site	10	2		14	34,462	2
	Substation material	4	8		20	2,000	1
Structure hauling	Structures from material storage to site	5	7	Flatbed trailer	551	6,892	2
Wire stringing	Conductor and OPGW from material storage to site	12	5	Wire reel trailer	405	5,057	2

ACTIVITY	SUBACTIVITY	MONTH STARTING	DURING MONTHS	VEHICLE/ TRUCK TYPE	TOTAL NUMBER OF LOADS	TOTAL MILES	NUMBER OF TRUCKS/ VEHICLES REQUIRED
ROW Survey	Workers daily commute	1	1	Pick-up truck	42	3,360	2
Geotechnical investigation		1	1		42	4,200	2
Access road construction		1	5		420	33,600	2
Foundation installation		2	7		1764	141,120	12
Structure hauling		6	8		336	26,880	2
Structure assembly		6	8		1344	107,520	8
Wire stringing		12	5		1050	84,000	10
Road/ROW reclamation		15	3		252	20,160	4
Clean up/Reclamation		15	3		252	20,160	4
Substation construction		6	12		2520	126,000	10

Schedule

Upon obtaining all permits and ROW approvals, DCRT would commence construction activities. Table 2.2-27 below outlines the construction task, phase, and anticipated duration.

Table 2.2-27 Construction Schedule

TASK/PHASE	DURATION (DAYS)
TRANSMISSION AND DISTRIBUTION LINE CONSTRUCTION	**585**
Project Execution Plan	11
Design and Engineering	387
Procurement	173
Construction Mobilization and Recruitment	272
Access Roads	107
Foundations	184
Structure Erection and Assembly	234
Wire Stringing and Installation of Cables and Accessories	207
Commissioning and Testing	57
SERIES COMPENSATION STATION & SUBSTATION CONSTRUCTION	**472**
Procurement	300
Capacitor Bank	300
Protections	109
Civil Works	40
Erection and Assembly Works	30
Commissioning and Testing	90

2.2.4.16 Project Construction Closeout

See Chapter 2.

2.2.4.17 Estimated Disturbance Summary

2.2.5 Project Operation and Maintenance

Although the lease term would be 30 years, a renewal could be granted at the request of DCRT and subject to BLM approval; therefore, the anticipated operations and maintenance duration is 50 years.

The NESC (ANSI C2), which governs the design and operation of high-voltage electric utility systems, obligates the Proponent to maintain reliable operation of the electrical system. The design, operation, and maintenance of the Project would meet or exceed applicable criteria and requirements outlined by NESC, FERC, WECC, Avian Power Line Interaction Committee recommendations, and U.S. Department of Labor Occupational Safety and Health Standards for the safety and protection of landowners, their property, and the general public.

In 2005, Congress passed the Energy Policy Act of 2005, which provided a regulatory basis for implementing specific incentives (and penalties) for maintaining reliable service, among other

issues. As a result of the passage of the Energy Policy Act of 2005, FERC selected North America Electric Reliability Corporation (NERC) to act as the enforcement agency for compliance with electric utility reliability and operating standards, among other issues. DCRT is required to comply with the various reliability standards promulgated through implementation of NERC policies and procedures. Additionally, DCRT is governed by WECC standards that may be in addition to or more stringent than those put forth by NERC.

2.2.5.1 Building and Fence Grounding

To mitigate possible electric shock caused by electrostatic and electromagnetic induction, all buildings, fences, center pivot irrigation systems, and other structures with metal surfaces within 150 feet of the centerline of the ROW would be grounded to the mutual satisfaction of the parties involved. Typically, residential buildings more than 150 feet from the centerline would not require grounding. Other buildings or structures beyond 150 feet from the centerline would be reviewed in accordance with the NESC to determine grounding requirements. All metal irrigation systems and fences that parallel the transmission line for distances of 500 feet or more, within 150 feet of the centerline, would be grounded (none identified at this time). All fences that cross under the transmission line would also need to be grounded. This procedure would be included in the construction specifications and, if grounding is required outside the ROW, temporary use permits or landowner consent would be obtained, as necessary.

2.2.5.2 Inspections and Maintenance

Regular inspection of transmission lines, substations, and support systems is critical for the Project's safe, efficient, and economical operation. Operation and maintenance activities would include transmission line patrols, annual inspections, structure and wire maintenance, and repairs of access roads.

Transmission Line Maintenance

The transmission lines would be inspected annually or as required by using fixed-wing aircraft, helicopters, ground vehicles, all-terrain vehicles, or on foot. The transmission lines and substations would be inspected for corrosion, equipment misalignment, loose fittings, vandalism, and other mechanical problems. The need for vegetation management would also be determined during inspection patrols.

Maintenance would be performed as needed. The comfort and safety of land users and local residents would be provided for by limiting noise, dust, and the danger caused by maintenance vehicle traffic. Where access is required for nonemergency maintenance and repairs, the same precautions against ground disturbance that were taken during construction would be followed, and restrictions and MMs applicable during initial construction would be followed in areas of critical biological and cultural resource concern. Any berms or boulders that were in place also would be reclaimed after completion of the maintenance work.

Reclamation procedures following completion of repair work would be similar to those prescribed during construction (Section 2.2.7.4). Damage repair may require the same types of equipment used during construction, including power augers for hole boring, backhoes for excavation, and/or concrete trucks and cranes for structure erection. Other required equipment may include power

tensioners, pullers, wire trailers, crawler tractors, and trucks and pickups for hauling materials, tools, and workers. Under certain conditions, a helicopter may be used to haul in material and erect structures or string conductor in those areas where access and/or terrain conditions preclude the use of conventional methods. If structures cannot be accessed by a permanent road, workers may access structures by helicopter, foot, or all-terrain vehicle. Any necessary temporary staging areas outside the ROW would require authorization from the applicable landowner(s). Site and access road disturbances such as ruts created during damage operations would be reclaimed to satisfactory condition using rehabilitation procedures.

A permanent work area at the base of each structure is required for long-term maintenance. While revegetation would occur in this work area, minimal contouring would be performed. If, during transmission line maintenance and monitoring, it is determined that new or reconstruction activities should be implemented, DCRT would notify BLM, property owners, and/or other regulatory agencies, and obtain proper approvals, as necessary, prior to initiating new or reconstruction.

Dust control during maintenance of the transmission line would be managed the same as during construction (Section 2.2.7.2).

Vegetation Management

When necessary and approved by the BLM, DCRT would limit the height of vegetation along the ROW according to minimum conductor clearances required for the Project. Where vegetation presents a potential hazard, trees would be trimmed or cut to prevent accidental grounding contact with conductors. The transmission line would be protected with power circuit breakers and line relay protection equipment. If a conductor failure occurs, power would be automatically removed from the line. Lightning protection would be provided by ground wires and OPGW on top of the structures.

The Vegetation Management Plan (Appendix 2B) describes measures needed to control vegetation during operation of the transmission line and at associated facilities. The goal of the Project design would be to design for conductor heights that would eliminate or minimize the need for control of height of vegetation, while assuring the Project would be in conformance with NERC guidelines and in compliance with the Arizona Native Plant Law, and any California legal requirements. Should it be required, the Vegetation Management Plan would specify controls for situations where tall vegetation such as saguaro cacti, ironwood, and paloverde growing under and immediately adjacent to the path of the conductors would need to be trimmed or removed to maintain a safe clearance and to reduce the risk of power outages, fires, and other damage. As a part of the Vegetation Management Plan, a wire zone/border zone approach would be applied (Appendix 7, Figure 2.2-23a), incorporating growth rates of tall vegetation within the Project ROW, as detailed in the Vegetation Management Plan. Extensive vegetation management is only anticipated in discrete areas within the Project Area where fast growing, tall species are present. Where necessary, saguaro cacti and other protected plants that must be removed would be salvaged and relocated in accordance with the Arizona Native Plant Law and the Habitat Restoration and Monitoring Plan (Appendix 2B) for the Project.

The conductor's position in space at any point in time is continuously changing in reaction to a number of different loading variables. Changes in vertical and horizontal conductor positioning

are the result of thermal and physical loads applied to the line. Thermal loading is a function of line current and the combination of numerous variables influencing ambient heat dissipation including wind velocity/direction, ambient air temperature and precipitation. Physical loading applied to the conductor affects sag and sway by combining physical factors such as ice and wind loading. The movement of the transmission line conductor due to wind is illustrated in Figure 2.2-23a in Appendix 7 (depending on wind conditions and conductor maximum deflection).

The NESC requires 30.25 feet clearance between the maximum point of conductor sag and the ground. The Minimum Vegetation Clearance Distance (MVCD) required by the NERC for a 500kV transmission line is 7.4 feet, at an elevation between 2,000 and 3,000 feet. Winds can blow conductors away from the transmission structures, where the conductor could connect with or arc over to nearby vegetation. The furthest point a conductor could be blown from the transmission structure is the conductor maximum deflection.

The Project would be required to be inspected annually, including the incursion of vegetation growth. Palo Verde are predicted to be the quickest growing large vegetation that could interfere with the conductor, growing an average of 36 inches per year, and could intrude on the Project either vertically or radially. The Wire Security Zone is the distance between the maximum point of conductor sag and vegetation (either vertically or radially). For estimating purposes, the Wire Security Zone would add 9 feet (3 feet for vegetation growth plus a 6-foot buffer) to the MVCD, for a total of 16 feet 5 inches beyond the point of conductor maximum sag or deflection. Therefore, the maximum height of vegetation vertically and radially from the conductors at maximum sag or deflection would be approximately 13 feet 10 inches. Border zone vegetation would be height limited at to 31 feet 7 inches, gradually increasing as the distance to the conductor increases (Appendix 7, Figure 2.2-23b). Vegetation may be required to be treated according to the Vegetation Management Plan (Appendix 2B), should design adjustments, micrositing, or other avoidance measures (Appendix 2A) not be feasible or fully resolve the situation.

DCRT would comply with agency requirements regarding management of noxious weeds and invasive species within the ROW, along access roads, and at temporary use areas (for example, cleaning equipment to prevent spread of noxious weeds and invasive species), as specified in the Noxious Weed Management Plan (Appendix 2B). Chemical treatment within or adjacent to the ROW generally would be limited only to areas with noxious weeds or invasive species, and only if absolutely necessary and in accordance with the Noxious Weed Management Plan. Should the use of herbicides or pesticides be necessary, only BLM-approved products from the approved California herbicide list would be used, and only upon prior approval of the BLM Authorized Officer or owner. A pesticide use proposal (PUP) must be completed by all persons using any chemicals on BLM-administered land. End of year reports must be turned in at the completion of every calendar year. Use of pesticides and herbicides on lands that fall under the CDCA Plan as amended by the DRECP would adhere to the CMAs regulating those activities.

Series Compensation Station Maintenance

The SCS requires minor maintenance once yearly for approximately 3 to 5 days, depending on the tasks required. A crew comprised of up to four electricians and two specialists would perform this work using a man lift.

Substation Maintenance

It would be the responsibility of the interconnecting utilities, SCE and APS, to perform maintenance on all equipment associated with the Project inside their respective substations (APS Delaney and SCE Colorado River Substations).

Maintenance, patrolling, and monitoring of the rest of the Project, including the SCS, would be the responsibility of DCRT and would be performed on a routine basis in accordance with industry standards and manufacturer guidelines. If a large volume of a contaminant were to leak from a piece of electrical equipment, an automated alert would notify the operations center of the problem. A trained maintenance crew would be dispatched to the substation or SCS immediately to begin repairs and clean up according to all appropriate regulations and procedures.

2.2.5.3 Long-Term Access to the ROW

Authorized access roads would be used only for maintenance purposes upon completion of construction. Where long-term access is required for maintenance and operation and authorized by the BLM or other underlying landowners/managers, DCRT would maintain the ROW in a safe, useable condition. A regular maintenance program may include, but would not be limited to, blading, ditching, culvert installation, and surfacing. Access maintenance would not be initiated prior to obtaining necessary authorization from landowners or land management agencies.

Maintenance vehicles would require access to the ROW once yearly for transmission line inspection. Where the ground is uneven at drainage crossings, special precautions would be taken to ensure equipment blades do not destroy vegetation.

2.2.5.4 Signs and Markers

Warning signs would be placed on structures and at substations, marking high-voltage danger areas in accordance with industry standards.

2.2.5.5 Energy Use During Operations and Maintenance

Strengthening the regional transmission system in Arizona and California by adding additional capacity and alleviating grid congestion would indirectly facilitate increased consumption of energy by meeting increased electricity demand (Section 1.1.3). However, increases in per capita energy use are not expected to result from implementation of the Project. Nevertheless, a direct effect of this grid congestion reduction, is that the Project would improve energy reliability. The Project would also facilitate the development of new renewable energy sources. Vehicle trips and equipment use during operation would be minimal and have a negligible impact on energy consumption. Nevertheless, the Project would incorporate measures in maintenance procedures to reduce wasteful energy use during operation as well.

The conductor selected for the Project, and the increase in section allowed by the triple-bundle configuration, would reduce energy losses. Aluminum conductor steel-reinforced design (ACSR) selection allows the use of aluminum, a metal with high conductivity, while steel provides the tensile strength required.

Transmission losses are also directly proportional to the square of the power transmitted, and therefore operation of this line in parallel with the DPV1, would allow power to be distributed between both lines, and therefore reducing overall transmission losses for the same amount of power transmitted.

2.2.5.6 Radio or Television Interference

DCRT would respond to complaints of radio or television interference generated by the transmission line by investigating complaints and implementing appropriate MMs, if necessary. The transmission line would be inspected on a regular basis so that damaged insulators or other components that could cause interference are repaired or replaced. These patrols would be the same thing as routine inspections and monitoring, unless a problem is reported; then a special patrol or maintenance might be done to mitigate an issue.

2.2.5.7 Contingency Planning

A representative would be selected by DCRT to provide routine and emergency planning for situations such as power outages, equipment upgrades, and fire control. The designated representative would have the authority to receive and carry out instructions from BLM.

2.2.5.8 Emergency Procedures

In the event of an emergency, crews would be dispatched quickly to repair or replace any damaged equipment. Every attempt would be made to contact the appropriate agencies or landowners along the ROW. In the event notification cannot be made, repair operations would proceed only in the case of an emergency situation with notification occurring within 48 hours after the emergency incident. Reasonable efforts would be made to protect plants, wildlife, and other resources, and minimize ground disturbance.

Emergency response procedures would be implemented for the following potential events or similar events, in conformance with the Emergency Response Plan for the Project (to be provided in conjunction with the final POD):

- downed transmission lines, structures, or equipment failure
- fires
- sudden loss of power
- natural disasters
- serious personal injury

2.2.5.9 Compatible Uses

After construction, compatible uses in the ROW on public land would be considered and approved (if necessary) by BLM in consultation with DCRT. Examples of compatible uses within the ROW include grazing, vehicle, and pedestrian access to cross under the line, recreational use, low growing vegetation, and preexisting compatible uses. Examples of uses generally not compatible with high-voltage transmission lines include commercial or residential development and any use that requires changes in surface elevation that affect electrical clearances of existing or planned facilities. Compatible uses of the ROW on Federally-managed lands would have to be approved by the appropriate agency. Compatible uses within easements on private land crossed by the transmission line would be similar to those on public land and would be consistent with the terms of the easement.

2.2.6 Termination, Reclamation, and Decommissioning

Should the ROW and facilities no longer be needed, the transmission lines and associated facilities would be decommissioned on BLM-managed land. Subsequently, conductors, insulators, concrete pads for the SCS and associated facilities, and hardware would be dismantled and removed from the ROW. Transmission structures would be removed and foundations broken off at least 2 feet below ground surface. All areas of permanent disturbance would be reclaimed in accordance with a Decommissioning Plan to be developed by the ROW grant holder.

Access routes and other sites disturbed during decommissioning would be reclaimed and revegetated in accordance with a Decommissioning Plan to be approved by BLM. Implementation of this plan is intended to minimize the impacts of decommissioning activities and ensure that all areas temporarily disturbed during decommissioning are returned to their prior condition. Selected contractors would also be required to develop a SWPPP, which would provide detailed, site-specific steps to minimize impacts to the natural environment. Soil would be de-compacted and sites would be returned to their original contour where possible, salvaged topsoil distributed, and water diversions and other erosion control measures established where necessary. A site-specific mix of native seeds would be planted using BLM-approved methods, and vegetation that had been salvaged and maintained in a nursery would be planted in accordance with the approved Habitat Restoration and Monitoring Plan. Revegetated sites would be monitored periodically to evaluate the effectiveness of erosion control measures, inventory and control weeds, compare the progress of vegetation recovery to predetermined reclamation success criteria, and identify any additional treatment required to achieve those criteria.

Prior to termination of the ROW, the holder shall contact the BLM Authorized Officer to arrange a joint inspection of the ROW. This inspection would be held to facilitate an acceptable Decommissioning Plan. The BLM Authorized Officer must approve the Plan in writing prior to commencement of any termination activities. The Decommissioning Plan would be reviewed and approved by the BLM Authorized Officer and would include the following information:

- what facilities and access routes are to be removed, reclaimed, and/or rehabilitated;
- how facilities and access routes would be removed and the disturbed areas reclaimed;
- time of year the facilities and access routes would be removed;

- timeline or schedule of removal and reclamation activities;
- stabilization and reclamation techniques to be used during reclamation;
- appropriate BLM approved environmental analysis of the plan;
- criteria that reclamation should meet to be considered complete;
- monitoring of the stabilization and reclamation techniques for an established time period; and
- any environmental stipulations necessary for the protection of sensitive environmental and cultural resource locations

Decommissioning would be a separate undertaking under the National Historic Preservation Act, as stipulated in the draft PA.

2.2.7 Applicant Proposed Measures and BLM Best Management Practices

See Chapter 2.

2.2.8 Alternative Segments Considered but Eliminated from Detailed Analysis

A summary of alternative segments not carried forward for detailed analysis is provided in Table 2.2-28 and shown on Figures 2.2-24 through 2.2-27 (Appendix 7).

2.3 COMPARISON OF ALTERNATIVES

A comparison of impacts by segment and subalternatives is provided in Tables 2.2-29a-b, 2.2-30a-b, 2.2-31a-c, and 2.2-32a-d; and Tables 2.2-33 through 2.2-37, respectively.

Table 2.2-28 Alternative Segments Eliminated from Detailed Analysis

ALTERNATIVE/ SEGMENT (LENGTH IN MILES)	SEGMENT DESCRIPTION	ALTERNATIVES SCREENING CRITERIA				REASON ELIMINATED FROM DETAILED ANALYSIS
		CONSISTENT WITH PURPOSE AND NEED?	TECHNICALLY FEASIBLE?	ECONOMICALLY FEASIBLE?	ENVIRONMENTALLY SUPERIOR?	
East Plains & Kofa Zone						
ASLD-A (21.4)	Alternative to Segment p-06, x-04. Connects the Proposed Action to segments paralleling I-10; avoids the Kofa NWR. Suggested by ASLD to avoid Arizona State Trust land parcels near I-10 Follows existing Kinder Morgan–El Paso Natural Gas pipeline; could share access to reduce disturbance.	Yes	Yes	Yes	No, would have similar impacts to Segment x-04, but slightly longer/less direct. Segment x-04 would better utilize existing access along the gas pipeline road.	Segment x-04 would be superior.
BLM-1 (21.8)	Alternative to Segments p-01, d-01 Parallels I-10 on south side Almost entirely on Arizona State Trust and private land; within utility corridor on BLM-administered land.	Yes	Yes	Yes	No, although this segment would be shorter and would have 2 less crossings of I-10 and the CAP than the Proposed Action (p-01), it would require more new disturbance and new access as compared to the Proposed Action (p-01) and d-01, which parallel existing linear utilities with existing access. Also, this segment would require an unreasonable amount of negotiations with numerous private landowners, as well as ASLD; thus, it is not considered superior to the corresponding segments of the Proposed Action.	Segment p-01 or d-01 would be superior since they parallel existing utilities.

ALTERNATIVE/ SEGMENT (LENGTH IN MILES)	SEGMENT DESCRIPTION	ALTERNATIVES SCREENING CRITERIA				REASON ELIMINATED FROM DETAILED ANALYSIS
		CONSISTENT WITH PURPOSE AND NEED?	TECHNICALLY FEASIBLE?	ECONOMICALLY FEASIBLE?	ENVIRONMENTALLY SUPERIOR?	
BLM-4 (32.3)	Alternative to Segments p-02 through a portion of p-06; i-01 through i-03. Parallels I-10 on north side; within utility corridor on BLM-administered lands.	Yes	Yes	Yes	No, would avoid impacts to scenic views looking south from I-10 toward Courthouse Rock, the New Water Mountains Wilderness, and the Kofa NWR. Views along I-10 are more scenic to the south than the north and travelers on I-10 tend to look to the south; would parallel the CAP, which is prominent linear feature visible to the north. Would place the Alternative Series Compensation Station north of I-10, which could save a future I-10 crossing to connect to the Brenda SEZ. However, would cross both Category 2 and 3 Sonoran desert tortoise habitat, while Segment i-03 south of and parallel to I-10 would only cross Category 3 habitat. AGFD stated there is more sensitive habitat on the north side and prefers this segment not go forward.	Would impact higher quality tortoise habitat and impact other sensitive habitat more than other alternatives. La Paz County adamantly requires the line to be sited on the south side of I-10, due to their economic feasibility issues on record.
Quartzsite Zone						
XA (9.6)	Alternative to Segments i-05, qn-01 and a portion of qn-02; qs-01 and qs-02. Developed as conceptual route around north side of the Town of Quartzsite; replaced by qn-02.	Yes	Yes	Yes	No, qn-02 follows the existing WAPA 161kV transmission line and would reduce impacts by co-locating facilities and sharing access.	Replaced by Segment qn-02.
XB (2.0)	Alternative to Segment p-09, qn-02. Originally part of Segment qs-02, but qs-02 revised to dip south to avoid Quartzsite developed area.	Yes	Yes	Yes	No, the segment would have visual and land use impacts to densely developed areas on the southwest side of Quartzsite, including residential areas, as well as popular OHV routes and dispersed camping areas immediately south.	Replaced by eastern portion of Segment qs-02 on BLM lands.

ALTERNATIVE/ SEGMENT (LENGTH IN MILES)	SEGMENT DESCRIPTION	ALTERNATIVES SCREENING CRITERIA				REASON ELIMINATED FROM DETAILED ANALYSIS
		CONSISTENT WITH PURPOSE AND NEED?	TECHNICALLY FEASIBLE?	ECONOMICALLY FEASIBLE?	ENVIRONMENTALLY SUPERIOR?	
XC (5.5)	Alternative to Segments x-07, x-08 Within designated but as-yet undeveloped utility corridor; corridor is currently under review regarding whether it will continue as a corridor.	Yes	Yes	Yes	No, due to very steep and rugged topography, would result in impacts to vegetation and topography in this undisturbed area. Also, there are numerous mining claims in the area which may make route infeasible. Segments x-07 or x-08 would provide easier connection between the Proposed Action route and an I-10 route with less impacts and more certainty.	Segments x-07 or x-08 would be superior.
Copper Bottom Zone						
BLM-3 (1.6)	Alternative to Segment x-08 Connector between the I-10 and Proposed Action routes without right angle turns.	Yes	Yes	Yes	No, challenging terrain would incur more impacts to the natural topography, soils, etc. Segment x-08 offers a shorter route with less challenging terrain and portions of which are in previously disturbed areas, resulting in fewer impacts to vegetation and topography.	Segments x-08 would be superior.
cb-07 (2.8)	Alternative to Segments p-10/p-11/p-12; cb-01, cb-02	Yes	Yes	Yes	Avoids crossing Cunningham Peak, Johnson Canyon, and Copper Bottom Pass, but the terrain is challenging and would result in more impacts than Proposed Action. Also, this segment could negatively impact the YPG mission by placing road and structures near YPG boundary.	Segments dropped through coordination between BLM and YPG management due to potential national security impacts.
cb-08 (3.0)	Alternative to Segments p-10/p-11/p-12; cb-04	Yes	Yes	Yes	Avoids crossing Cunningham Peak, Johnson Canyon, and Copper Bottom Pass, but the terrain is challenging and would result in more impacts than Proposed Action. Also, this segment could negatively impact the YPG mission by placing road and structures near YPG boundary.	Segments dropped through coordination between BLM and YPG management due to potential national security impacts.

ALTERNATIVE/ SEGMENT (LENGTH IN MILES)	SEGMENT DESCRIPTION	ALTERNATIVES SCREENING CRITERIA				REASON ELIMINATED FROM DETAILED ANALYSIS
		CONSISTENT WITH PURPOSE AND NEED?	TECHNICALLY FEASIBLE?	ECONOMICALLY FEASIBLE?	ENVIRONMENTALLY SUPERIOR?	
cb-09 (7.7)	Alternative to Segments p-13, cb-05	Yes	Yes	Yes	Avoids crossing Cunningham Peak, Johnson Canyon, and Copper Bottom Pass, but the terrain is challenging and would result in more impacts than Proposed Action or cb-05. Also, this segment could negatively impact the YPG mission by placing road and structures near YPG boundary.	Segments dropped through coordination between BLM and YPG management due to potential national security impacts.
XD (4.0)	Attach transmission line to existing DPV1 structures through Copper Bottom Pass.	No, the segment would not meet the CAISO requirement of a 250-foot separation from DPV1.	Yes	Yes	Yes, would eliminate disturbance from new structures and eliminate or substantially reduce disturbance for new access routes.	Eliminated because it would not meet the CAISO requirements for the Project, to maintain separation between the Project and the existing DPV1 Transmission Line.
XF (1.6)	Alternative to Segment x-08	Yes	Yes	Yes	No, Segment x-08 would be shorter, with fewer impacts, and be easier to construct.	Segment x-08 would be superior.
Colorado River and California Zone						
ca-03 (3.5)	Alternative to Segments p-17, ca-07/ca-08/ca-09	Yes	Unknown at this time; would require negotiation with Desert Quartzite Solar Project, could adversely impact the solar project's planned operations. Desert Quartzite Solar Project is presently under environmental analysis by the BLM.	Yes	Yes, partially within a utility corridor and would cross lands already dedicated to industrial facility, reducing new disturbance/impacts. But would require Desert Quartzite Solar Facility to revise planned facility layout, negatively affecting operations.	Due to uncertainty with solar facility, would not be superior to Proposed Action or ca-07/ca-08/ca-09.
ca-08a (1.4)	Alternative to Segments p-17/p-18, ca-07	Yes	No, crosses through the existing NRG Blythe solar facility; there is not sufficient space for the ROW.	No, would require extensive redesign of the NRG Blythe solar facility to accommodate the power line.	Yes, partially within a utility corridor and crosses industrialized area.	Replaced by ca-07 once conflict with existing NRG Blythe solar facility was identified.
ca-08b (2.9)	Alternative to Segments p-17/p-18, ca-09	Yes	No, would conflict with gen-tie lines for proposed/approved solar facilities in the area; there is not sufficient space for the ROW.	Yes	Yes, partially within a utility corridor and crosses industrialized area.	Eliminated because of technical and safety conflicts with solar facility gen-tie lines. Replaced by ca-09.

ALTERNATIVE/ SEGMENT (LENGTH IN MILES)	SEGMENT DESCRIPTION	ALTERNATIVES SCREENING CRITERIA				REASON ELIMINATED FROM DETAILED ANALYSIS
		CONSISTENT WITH PURPOSE AND NEED?	TECHNICALLY FEASIBLE?	ECONOMICALLY FEASIBLE?	ENVIRONMENTALLY SUPERIOR?	
i-08e (0.8)	Alternative to Segments p-15e, i-08s Adjacent to I-10, offset to south; east of Colorado River	Yes	No, there is not sufficient space for the ROW.	Yes	No, would require relocation of residences. Existing pipeline crossing and related appurtenances, RV park, and a residential community limits available area. There are three other river crossings that would have fewer impacts to existing development.	Eliminated due to insufficient space for the ROW.
i-08wa (0.3) **i-08wb** (0.9)	Alternative to Segments p-15e, i-08s, i-08sw, ca-04, x-09 Adjacent to I-10, offset to south; west of Colorado River	Yes	No, there is not sufficient space for the ROW.	Yes	Yes	Eliminated due to insufficient space for the ROW.
i-08sw (0.7)	Alternative to Segment i-08s	No, segment was stranded after elimination of segments i-08e and i-08wa.	Yes	Yes	Yes	Eliminated because it became stranded with the elimination of connecting segments.
i-09a (1.2)	Alternative to Segments i-08s/ca-04/x-09	No, segment was stranded after elimination of Segments XGa and i-09b.	Yes	Yes	Yes	Eliminated because it became stranded with the elimination of connecting segments.
i-09b (1.6)	Alternative to Segments p-16, ca-02, and ca-06	Yes	No, is within the Blythe Airport Influence Area, where structure heights are limited.	Yes	Yes	Eliminated due to technical infeasibility
i-09c (0.3)	Connector between i-09a and i-10 or x-14	Yes	No, is within the Blythe Airport Influence Area, where structure heights would be limited, rendering the route infeasible.	Yes	N/A	Eliminated due to technical infeasibility
i-10 (3.6)	Alternative to Segments p-17/p-18, ca-07/ca-09	Yes	No, would require crossing existing transmission lines, going above some lines and under others, in a manner that would not be technically feasible, and given consideration for safety. Additionally, the route would be located within the Blythe Airport Influence Area, where some structure heights would be limited, rendering the route infeasible.	Yes	N/A	Eliminated due to technical infeasibility

ALTERNATIVE/ SEGMENT (LENGTH IN MILES)	SEGMENT DESCRIPTION	ALTERNATIVES SCREENING CRITERIA				REASON ELIMINATED FROM DETAILED ANALYSIS
		CONSISTENT WITH PURPOSE AND NEED?	TECHNICALLY FEASIBLE?	ECONOMICALLY FEASIBLE?	ENVIRONMENTALLY SUPERIOR?	
i-11 (3.7)	Alternative to Segments p-17/p-18, ca-09	Yes	No, would require crossing multiple existing transmission lines, going above some lines and under others, in a manner that would not be technically feasible.	Yes	N/A	Eliminated due to technical infeasibility
i-12a (1.4)	Alternative to Segments p-17, ca-07	No, segments i-09b, i-09c, i-11, and x-18 were eliminated, leaving the segment stranded.	No, portions would be within the Blythe Airport Influence Area, where structure heights would be limited, rendering the route infeasible.	Yes	N/A	Eliminated due to technical infeasibility and because connecting segments were eliminated
i-12b (1.1)	Alternative to Segment XGb	No, segments i-12a and i-12c were eliminated, leaving the segment stranded.	No, portions would be within the Blythe Airport Influence Area, where structure heights would be limited, rendering the route infeasible.	Yes	Yes	Eliminated due to technical infeasibility and because connecting segments were eliminated
i-12c (1.8)	Alternative to Segments p-17, ca-07	No, because Segments i-09b, i-09c, i-11, i-12a, i-12b, and x-18 were eliminated, leaving the segment stranded.	Segment may also have failed due to structure height limitations within the Blythe Airport Influence Area.	Yes	Yes	Eliminated because connecting segments were eliminated.
XGa (6.6)	Alternative to Segments p-15w, ca-01, ca-05	No, Segments i-08wb and x-21 were eliminated, leaving the segment stranded.	Yes	Yes	No, segment would cross through the congested Blythe business district along I-10. High density areas are more challenging: more infrastructure, safety clearance issues, and angle structures are required.	Eliminated because connecting segments were eliminated. Replaced by alternative segments further south of and following the I-10 corridor that would have fewer adverse impacts.
XGb (1.0)	Alternative to Segment i-12b	Yes	No, would be within the Blythe Airport Influence Area, where structure heights would be limited, rendering the route infeasible.	Yes	N/A	Eliminated due to technical infeasibility
x-14 (1.4)	Alternative to Segments i-08s/ca-04/x-09	No, it became stranded with the elimination of Segments i-09b and i-09c, and i-10.	Yes	Yes	Yes	Eliminated because connecting segments were eliminated.

ALTERNATIVE/ SEGMENT (LENGTH IN MILES)	SEGMENT DESCRIPTION	ALTERNATIVES SCREENING CRITERIA				REASON ELIMINATED FROM DETAILED ANALYSIS
		CONSISTENT WITH PURPOSE AND NEED?	TECHNICALLY FEASIBLE?	ECONOMICALLY FEASIBLE?	ENVIRONMENTALLY SUPERIOR?	
x-17a (0.4) **x-17b** (1.3) **x-17c** (0.4)	Alternative to Segments x-14 and x-18a & b	Yes	No, Segment x-17b conflicts with the existing NRG Blythe solar facility operations that wasn't identified until after the segment was sited.	Yes	Yes	Eliminated due to technical infeasibility
x-18a (0.9) **x-18b** (0.2)	Together, alternative to Segments i-08s, x-14 and i-11	No, eliminated because it became stranded with the elimination of Segments i-10, i-11, and i-12a, b, and c.	Yes	Yes	Yes	Eliminated because connecting segments were eliminated.
x-20 (1.2)	Alternative to Segment x-19	No, eliminated because it became stranded with the elimination of Segment i-11	Yes	Yes	Yes	Eliminated because connecting segments were eliminated.
x-21 (1.5)	Alternative to i-08s/ca-04/x-09	No, eliminated because it became stranded with the elimination of Segments i-08wa & b	Yes	Yes	Yes	Eliminated because connecting segments were eliminated.

Table 2.2-29a East Plains and Kofa Zone Comparison of Impacts by Segment – p and d Segments

CHARACTERISTIC OR RESOURCE IMPACT		p-01	p-02	p-03	p-04	p-05	p-06	d-01
Segment length (miles)		26.2	1.1	2.1	5.5	2.0	35.8	25.2
Land ownership (miles)	BLM	12.6	-	1.0	5.0	2.0	10.9	7.3
	Reclamation	-	-	-	-	-	-	-
	USFS	-	-	-	-	-	24.9	-
	Arizona State	5.9	0.5	1.1	0.5	-	-	3.2
	Private	7.8	0.6	-	-	-	-	14.7
Ground disturbance	Short-term Acres	150.7	4.4	10.9	20.9	11.3	195.9	149.4
	Long-term Acres	20.2	1.0	1.7	6.1	1.6	39.1	13.3
BLM Yuma RMP conformance	VRM	Compliant	Compliant	Compliant	Compliant	Compliant	Amendment required	Compliant
	Corridors	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	RMP Conformance	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Other Plan conformance (Federal, county, municipal)	Plan Conformance	Yes	Yes	Yes	Yes	Yes	No - Not an appropriate use for Kofa NWR	Yes
Air Quality and Climate Change	Air Quality Emissions are proportional to the Proposed Action based on length of each segment. Due to the length of each segment, the impact of individual segments on air quality may be negligible to minor. However, the cumulative impact of all Project segments might have large total emissions, but the emissions are distributed across a long linear area. Climate Change is not available at this smaller scale.							
Geology, Minerals, and Soil Resources	Geological Hazards Minerals/Mining (access to known resources or claims) Soils	Earthquake risk long-term negligible; no mapped active faults. No active mines; negligible short-term potential for preclusion of access; soil loss/erosion risk negligible to minor, short term to long term; adherence to APMs & BMPs reduces risks to negligible.	Same as p-01	Same as p-01	Same as p-01	Same as p-01	Same as p-01	Same as p-01
Paleontological Resources	Potential Fossil Yield Classification	Low to unknown	Low	Low to unknown	Low to unknown	Very low to unknown	Very low, unknown, and high	Low to unknown

CHARACTERISTIC OR RESOURCE IMPACT		p-01	p-02	p-03	p-04	p-05	p-06	d-01
Biological Resources (Vegetation Resources, Wildlife, including Special Status Species and Migratory Birds)	Loss of native habitat/communities; Noxious weeds; Special Status Species & animals); Increased risk of predation or electrocution re infrastructure; Displacement via construction; Displacement via human activity including recreation; Impacts to native habitat and designated management areas; and Migratory birds.	Segment already impacted by I-10, agriculture, transmission lines, and canal, so negligible additional impact. Short-term impact to desert bighorn sheep via avoidance of Big Horn Mountains #5 wildlife water and disruption of dispersal corridor between Burnt Mountain and Big Horn Mountains.	Additional disturbance would be indistinguishable from current conditions.	Additional disturbance would be indistinguishable from current conditions.	Permanent potential habitat degradation for Sonoran desert tortoise and other wildlife.		Potential temporary habitat alteration for Gila monster, elf owl, gilded flicker, Le Conte's thrasher, and Lucy's warbler. Temporary disruption and desert bighorn sheep and Sonoran pronghorn. Permanent impact to desert bighorn sheep and Sonoran desert tortoise habitat. Golden eagle disturbance. Construction activities could have significant direct and indirect impacts on the management of Kofa NWR for wildlife. These impacts would be major, with both short- and long-term effects, and cannot be mitigated. The USFWS states the construction of a new transmission line across the Kofa NWR should not be considered as a viable alternative.	Areas already impacted by agriculture and development. Permanent habitat loss possible for Sonoran desert tortoise, Gila monster, and Le Conte's thrasher could be lost. Permanent impact to 187 acres of desert vegetation and wildlife habitat.

CHARACTERISTIC OR RESOURCE IMPACT		p-01	p-02	p-03	p-04	p-05	p-06	d-01
Cultural Resources	Damage or loss of a cultural site or potential site under Federal or state registers; degradation of the setting for a cultural site where setting is significant to its listing eligibility; increased access leading to potential vandalism; disturbance of human remains	Known NRHP-eligible sites or sites requiring NRHP evaluation: 4 (cultural resources survey coverage: 54.9%). Known site density: 2.6 sites per 100 acres. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 7. No known historic properties sensitive to visual considerations. No known indirect visual impacts to known historic properties from structures along this segment.	Known NRHP-eligible sites or sites requiring NRHP evaluation: 2 (cultural resources survey coverage: 13.5%). Known site density: 85.7 sites per 100 acres. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 14. No known historic properties sensitive to visual considerations. No known indirect visual impacts to known historic properties from structures along this segment.	No previous Class III cultural resources survey has been conducted in the 200-foot analysis corridor. No sites have been recorded in the corridor. As a result, no meaningful evaluation of potential site density or direct effect can be made. No known historic properties sensitive to visual considerations. No known indirect visual impacts to known historic properties from structures along this segment.	Known NRHP-eligible sites or sites requiring NRHP evaluation: 3 (cultural resources survey coverage: 26.0%). Known site density: 23.3 sites per 100 acres. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 12. Cultural resources potentially sensitive to visual considerations are located within the 1-mile corridor. No known indirect visual impacts to known historic properties from structures along this segment.	Known NRHP-eligible sites or sites requiring NRHP evaluation: 2 (cultural resources survey coverage: 17.9%). Known site density: 24.8 sites per 100 acres. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 11. No known historic properties sensitive to visual considerations. No known indirect visual impacts to known historic properties from structures along this segment.	Known NRHP-eligible sites or sites requiring NRHP evaluation: 17 (cultural resources survey coverage: 23.8%). Known site density: 8.3 sites per 100 acres. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 71. Cultural resources potentially sensitive to visual considerations are located within the 1-mile corridor. No known indirect visual impacts to known historic properties from structures along this segment.	Known NRHP-eligible sites or sites requiring NRHP evaluation: 2 (cultural resources survey coverage: 5.7%). Known site density: 5.7 sites per 100 acres. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 35. One NRHP-listed site potentially sensitive to indirect visual impacts is within the indirect effects analysis area. Analysis of potential visual impacts to this historic property would be required as part of the indirect effects analysis.
Issues of Concern to Indian Tribes	Existing and new access, native infrastructure and the interconnection of the cultural and natural environment, places of elevated spiritual important to tribes, the Colorado River, the treatment of human remains, and the disturbance of previously pristine landscapes.	No known concerns to Indian tribes.	No known concerns to Indian tribes	No known concerns to Indian tribes	Native infrastructure and the interconnectedness of the cultural and natural environment.	Native infrastructure and the interconnectedness of the cultural and natural environment.	Native infrastructure and the interconnectedness of the cultural and natural environment; places of elevated spiritual importance	Native infrastructure and the interconnectedness of the cultural and natural environment; places of elevated spiritual importance
Land Use	Land use authorizations and ROWs; Residential; Agricultural; Other (i.e., nuisance impacts)	Minor, short-term effects to residential land during construction. Minor, long-term effects to residential land during operations.	Minor, short-term effects to residential land during construction. Minor, long-term effects to residential land during operations.	See Proposed Action and Alternatives 3, 1A, 2A, and 4A	See Proposed Action and Alternatives 3, 4, and 2A	See Proposed Action and Alternatives 4 and 3C	Same as p-01	Crosses more farmland than other segments and all of the NRCS-designated farmland in the East Plains and Kofa Zone (minor, short- and long-term effects).
Grazing and Rangeland	Access to range or improvements; Loss of range relative to	Two stock tanks to which access may be temporarily impeded during construction. Impact	See Proposed Action and Alternatives 3, 1A, 1B, 2A, and 4A	See Proposed Action and Alternatives 3, 1A, 2A, and 4A	See Proposed Action and Alternatives 3, 4, and 2A	See Proposed Action and Alternatives 4 and 3C	Same as p-01	One stock tank to which access may be temporarily impeded during construction. Impact

CHARACTERISTIC OR RESOURCE IMPACT		p-01	p-02	p-03	p-04	p-05	p-06	d-01
	AUMs; Fragmentation of allotments; Degradation of range quality	reduced to negligible with MM GR-1.						reduced to negligible with MM GR-1.
Recreation	Physical, access, use, or functional changes to established, designated, or planned recreation areas, resources, experiences, or activities; conflicts with Federal, state, or local policies; affect OHV designations, access, or routes; impacts to hunting access.	See Proposed Action and Alternatives 1, 2, 3, and 4A	See Proposed Action and Alternatives 3, 1A, 1B, 2A, and 4A	See Proposed Action and Alternatives 3, 1A, 2A, and 4A	See Proposed Action and Alternatives 3, 4, and 2A	See Proposed Action and Alternatives 4 and 3C	See Proposed Action	See Proposed Action and Alternatives 4, 2A, and 3A
Special Designations	Conflict with goals, objectives & resources an area is designated to protect.	See Proposed Action and Alternatives 1, 2, 3, and 4A	See Proposed Action and Alternatives 3, 1A, 1B, 2A, and 4A	See Proposed Action and Alternatives 3, 1A, 2A, and 4A	See Proposed Action and Alternatives 3, 4, and 2A	See Proposed Action and Alternatives 4 and 3C	See Proposed Action	See Proposed Action and Alternatives 4, 2A, and 3A
Noise	Exceedance of regulations or guideline; exposure of receptors to excessive noise levels; generate noise levels that pose a health risk.	No Noise Sensitive Receptors (NSR) present. See Proposed Action and Alternatives 1, 2, 3, and 4A.	No NSR present. See Proposed Action and Alternatives 3, 1A, 1B, 2A, and 4A	No NSR present. See Proposed Action and Alternatives 3, 1A, 2A, and 4A	No NSR present. See Proposed Action and Alternatives 3, 4, and 2A	No NSR present. See Proposed Action and Alternatives 4 and 3C.	No NSR present. See Proposed Action.	See Proposed Action and Alternatives 4, 2A, and 3A.

CHARACTERISTIC OR RESOURCE IMPACT		p-01	p-02	p-03	p-04	p-05	p-06	d-01
Hazards and Hazardous Materials	Generation, use, handling, or disturbance of hazardous waste that: violates Federal, state, or local laws or regulations; poses a health or safety risk to public or environment; releases hazardous emissions; creates a safety hazard to public or private airstrips; or exposes workers, schools, or the public to hazardous materials.	Negligible risk with adherence to Federal, state, and local laws and regulations; BMPs, APMs, and a HMMP; and the Hazardous Materials Mitigation Sequence.	Same as p-01	Same as p-01	Same as p-01	Same as p-01	Same as p-01	Same as p-01
Public Health and Safety	Risks to public health, safety, utilities; fire or electrocution hazard; EMF emissions	With worker education programs, adherence to BMPS and APMs, risks for adverse impacts would be negligible to minor for all receptors. Impacts to public health and safety due to EMF during operations would be long-term negligible to minor.	Same as p-01	Same as p-01	Same as p-01	Same as p-01	Same as p-01	Same as p-01
Socioeconomics & Environmental Justice	Not available at this scale							
Traffic and Transportation	Increased roadway traffic; damage to roadways, access, or road systems; risk to aviation.	All risks reduced to negligible to minor with adherence to APMs, BMPs, and MMs TT-1, TT-2, and TT-3.	Same as p-01.	Same as p-01.	Same as p-01.	Same as p-01.	Same as p-01.	Same as p-01.

CHARACTERISTIC OR RESOURCE IMPACT		p-01	p-02	p-03	p-04	p-05	p-06	d-01
Visual Resources	Conflicts with visual standards, ordinances, or policies established; major and unmitigated visual changes that degrade or disrupt views of scenic landscapes from highly sensitive viewing locations; VRM class objectives that would not be met requiring an RMP Amendment.	Segment p-01 would conform to BLM VRM Class objectives. The visual environment would benefit from changing the proposed guyed V structures to self-supporting lattice to match the existing DPV1 transmission infrastructure, which would reduce contrast and visual clutter. Minor addition to the view, marginally increasing the sense of development and visual clutter.	Same as p-01	Segment p-03 would conform to BLM VRM Class objectives. Same as p-01.	Segment p-04 would conform to BLM VRM Class objectives. Same as p-01.	Segment p-05 would conform to BLM VRM Class objectives. Same as p-01.	Segment p-06 would conform to BLM VRM Class objectives. Same as p-01.	Same as p-01
Water Resources	Impacts to surface water or groundwater quantity or availability; impediments to floodplain function from channel alterations; impacts to water rights or water quality; violations of Section 404 of the Clean Water Act or Section 10 of the Rivers and Harbors Act.	Except where floodplains are too extensive to be spanned between structures impacts should be negligible using BMPs, APMs, or avoidance through design and placement of structures. Otherwise must comply with 404 permitting or Section 10 permitting to minimize impacts. Crossings of high risk floodplains associated with Centennial Wash, likely greater than a single span (negligible long-term effect).	Except where floodplains are too extensive to be spanned between structures impacts should be negligible using BMPs, APMs, or avoidance through design and placement of structures. Otherwise must comply with 404 permitting or Section 10 permitting to minimize impacts.	Same as p-02	Same as p-02	Same as p-02	Crossings of high risk floodplains associated with Bouse Wash, likely greater than a single span (negligible effect). Otherwise the same as p-02.	Crossings of high risk floodplains associated with Centennial Wash, likely greater than a single span (negligible effect). Otherwise the same as p-02.

Table 2.2-29b East Plains and Kofa Zone Comparison of Impacts by Segment – i and x Segments

CHARACTERISTIC OR RESOURCE IMPACT		i-01	i-02	i-03	i-04	in-01	x-01	x-02a	x-02b	x-03	x-04
Segment length (miles)		8.3	3.3	20.0	10.4	**13.8**	**4.7**	3.3	3.4	5.6	22.6
Land ownership (miles)	BLM	0.1	3.3	10.7	10.4	13.8	1.0	0.1	0.8	5.6	21.6
	Reclamation	0.1	-	-	-	-	-	-	-	-	-
	Arizona State	5.3	-	6.0	-	-	3.7	3.2	2.7	-	1.1
	Private	2.8	-	3.3							
Ground disturbance	Short-term Acres	25.1	14.1	116.5	49.2	71.4	32.0	12.1	17.8	24.1	135.4
	Long-term Acres	8.1	12.4	47.5	24.7	21.5	16.1	8.8	9.2	43.9	17.7
BLM YFO or Lake Havasu (in-01 only) RMP conformance	VRM	Compliant	Compliant	Optional for ROW	Amendment required	Amendment required	Compliant	Compliant	Compliant	Compliant	Compliant
	Corridors	Yes	Yes	No (0.2-mile is outside)	Yes	Yes	No	Yes	No	No	No
	RMP Conformance	Yes	Yes	No	Yes	Yes	No	Yes	No	No	No
Other Plan conformance (Federal, county, municipal)	Plan Conformance	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Air Quality and Climate Change	Air Quality Emissions are proportional to the Proposed Action based on length of each segment. Due to the length of each segment, the impact of individual segments on air quality may be negligible to minor. However, the cumulative impact of all Project segments might have large total emissions, but the emissions are distributed across a long linear area. Climate Change is not available at this smaller scale.										
Geology, Minerals, and Soil Resources	Geological Hazards Minerals/Mining (access to known resources or claims) Soils	Earthquake risk long-term negligible; no mapped active faults. No active mines; negligible short-term potential for preclusion of access; soil loss/erosion risk negligible to minor, short term to long term; adherence to APMs & BMPs reduces risks to negligible.	Same as i-01	Same as i-01	Same as i-01	Same as i-01	Same as i-01	Same as i-01	Same as i-01	Same as i-01	Same as i-01
Paleontological Resources	Potential Fossil Yield Classification	Low	Low to unknown	Low to unknown	Very low to unknown	Very low to unknown	Low	Low	Low	Low	Low to unknown

CHARACTERISTIC OR RESOURCE IMPACT		i-01	i-02	i-03	i-04	in-01	x-01	x-02a	x-02b	x-03	x-04
Biological Resources (Vegetation Resources, Wildlife, including Special Status Species and Migratory Birds)	Loss of native habitat/communities; Noxious weeds; Special Status Species & animals); Increased risk of predation or electrocution re infrastructure; Displacement via construction; Displacement via human activity including recreation; Impacts to native habitat and designated management areas; and Migratory birds.	Little additional effect from development of Project segments.			Minimal Project impacts due to ongoing influence of I-10 on wildlife in the area.		Additional disturbance would be indistinguishable from current conditions	Additional disturbance would be indistinguishable from current conditions	Additional disturbance would be indistinguishable from current conditions	Minor disturbance and impacts to common wildlife species using Sonoran desert scrub habitat.	Temporary relocation of Gila monster, Le Conte's thrasher, and kit fox using Sonoran desert scrub. Long-term impacts to biological resources associated with the Sonoran desert scrub.
Cultural Resources	Damage or loss of a cultural site or potential site under Federal or state registers; degradation of the setting for a cultural site where setting is significant to its listing eligibility; increased access leading to potential vandalism; disturbance of human remains	Known NRHP-eligible sites or sites requiring NRHP evaluation: 2 (cultural resources survey coverage: 10.2%). Known site density: 9.7 sites per 100 acres. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 20. No known historic properties sensitive to visual considerations. No known indirect visual impacts to known	No previous Class III cultural resources survey has been conducted in the 200-foot analysis corridor. No sites have been recorded in the corridor. As a result, no meaningful evaluation of potential site density or direct effect can be made. No known historic properties sensitive to visual considerations. No known indirect visual impacts to	Known NRHP-eligible sites or sites requiring NRHP evaluation: 4 (cultural resources survey coverage: 4.2%). Known site density: 19.4 sites per 100 acres. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 95. Cultural resources potentially sensitive to visual considerations are located within the 1-mile corridor. No known indirect visual impacts to known historic properties from structures along this segment.	Only 2.1 percent of the 200-foot analysis corridor has been subjected to Class III survey. No sites have been recorded in the corridor. As a result, no meaningful evaluation of potential site density or direct effect can be made. No known historic properties sensitive to visual considerations. No known indirect visual impacts to known historic properties from	Known NRHP-eligible sites or sites requiring NRHP evaluation: 2 (cultural resources survey coverage: 2.0%). Known site density: 30.3 sites per 100 acres[1]. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 102. No known historic properties sensitive to visual considerations. No known indirect visual impacts to known historic properties from structures along this segment.	Known NRHP-eligible sites or sites requiring NRHP evaluation: 0 (cultural resources survey coverage: 2.0%). Known site density: 100.0 sites per 100 acres[1]. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 0. No known historic properties sensitive to visual considerations. No known indirect visual impacts to known historic	No previous Class III cultural resources survey has been conducted in the 200-foot analysis corridor. No sites have been recorded in the corridor. As a result, no meaningful evaluation of potential site density or direct effect can be made. Cultural resources potentially sensitive to visual considerations are located within the 1-mile corridor. No known indirect visual impacts to known historic	Only 4.4 percent of the 200-foot analysis corridor has been subjected to Class III survey. No sites have been recorded in the corridor. As a result, no meaningful evaluation of potential site density or direct effect can be made. Cultural resources potentially sensitive to visual considerations are located within the 1-mile corridor. No known indirect visual impacts to known historic properties from structures along this segment.	Only 1.7 percent of the 200-foot analysis corridor has been subjected to Class III survey. No sites have been recorded in the corridor. As a result, no meaningful evaluation of potential site density or direct effect can be made. Cultural resources potentially sensitive to visual considerations are located within the 1-mile corridor. No known indirect visual impacts to known historic properties from structures along this segment.	Known NRHP-eligible sites or sites requiring NRHP evaluation: 1 (cultural resources survey coverage: 4.4%). Known site density: 14.1 sites per 100 acres. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 23. Cultural resources potentially sensitive to visual considerations are located within the 1-mile corridor. No known indirect visual impacts to known historic properties from structures along this segment.

CHARACTERISTIC OR RESOURCE IMPACT		i-01	i-02	i-03	i-04	in-01	x-01	x-02a	x-02b	x-03	x-04
		historic properties from structures along this segment.	known historic properties from structures along this segment.		structures along this segment.		properties from structures along this segment. .	properties from structures along this segment.			
Issues of Concern to Indian Tribes	Existing and new access, native infrastructure and the interconnection of the cultural and natural environment, places of elevated spiritual important to tribes, the Colorado River, the treatment of human remains, and the disturbance of previously pristine landscapes.	No known concerns to Indian tribes.	No known concerns to Indian tribes.	Native infrastructure and the interconnectedness of the cultural and natural environment	No known concerns to Indian tribes	No known concerns to Indian tribes	No known concerns to Indian tribes	Native infrastructure and the interconnectedness of the cultural and natural environment	Native infrastructure and the interconnectedness of the cultural and natural environment	Native infrastructure and the interconnectedness of the cultural and natural environment	Native infrastructure and the interconnectedness of the cultural and natural environment regarding new access and intrusion on pristine landscapes; Intrusion on pristine landscape
Land Use	Land use authorizations and ROWs; Residential; Agricultural; Other (i.e., nuisance impacts)	Crosses state land (minor to moderate, long-term effect). Crosses the CAP but would not infringe on the utility.	Does not cross residential land; crosses state land (minor to moderate, long-term effect).	Crosses state land (minor to moderate, long-term effect). Crosses the CAP but would not infringe on the utility.	Does not cross residential land	Does not cross residential land	Crosses state land (minor to moderate, long-term effect).	Crosses state land (minor to moderate, long-term effect).	Crosses state land (minor to moderate, long-term effect).	Does not cross residential land	See Full-route Alternatives
Grazing and Rangeland	Access to range or improvements; Loss of range relative to AUMs; Fragmentation of allotments; Degradation of range quality	One stock tank to which access may be temporarily impeded during construction. Impact reduced to negligible with MM GR-1.	None	None	None	None	One stock tank to which access may be temporarily impeded during construction. Impact reduced to negligible with MM GR-1.	None	None	None	None

CHARACTERISTIC OR RESOURCE IMPACT		i-01	i-02	i-03	i-04	in-01	x-01	x-02a	x-02b	x-03	x-04
Recreation	Physical, access, use, or functional changes to established, designated, or planned recreation areas, resources, experiences, or activities; conflicts with Federal, state, or local policies; affect OHV designations, access, or routes; impacts to hunting access.	See Alternatives 1, 2, and 3B	See Alternatives 1, 2, 3A, and 3B	See Alternatives 1, 2, 3, and 4B	See Alternatives 1, 2, 3, and 4C	See Alternatives 4, 1C and 3D	See Alternative 1B	See Alternatives 1A, 1B, 2A, and 3A	See Alternatives 1A, 2A, and 3A	See Alternatives 3, 2A, 4B	See Alternatives 4 and 3C
Special Designations	Conflict with goals, objectives & resources an area is designated to protect	See Alternatives 1, 2, and 3B	See Alternatives 1, 2, 3A, and 3B	See Alternatives 1, 2, 3, and 4B	See Alternatives 1, 2, 3, and 4C	See Alternatives 4, 1C and 3D	See Alternative 1B	See Alternatives 1A, 1B, 2A, and 3A	See Alternatives 1A, 2A, and 3A	See Alternatives 3, 2A, 4B	See Alternatives 4 and 3C
Noise	Exceedance of regulations or guideline; exposure of receptors to excessive noise levels; generate noise levels that pose a health risk.	No NSR present. See Alternatives 1, 2, and 3B	No NSR present. See Alternatives 1, 2, 3A, and 3B	No NSR present. See Alternatives 1, 2, 3, and 4B	No NSR present. See Alternatives 1, 2, 3, and 4C	No NSR present. See Alternatives 4, 1C and 3D	No NSR present. See Alternative 1B	No NSR present. See Alternatives 1A, 1B, 2A, and 3A	No NSR present. See Alternatives 1A, 2A, and 3A	No NSR present. See Alternatives 3, 2A, 4B	No NSR present. See Alternatives 4 and 3C
Hazards and Hazardous Materials	Generation, use, handling, or disturbance of hazardous waste that: violates Federal, state, or local laws or regulations; poses a health or safety risk to public or environment; releases hazardous emissions; creates a safety hazard to public or private	Negligible risk with adherence to Federal, state, and local laws and regulations; BMPs, APMs, and a HMMP; and the Hazardous Materials Mitigation Sequence.	Same as i-01	Same as i-01	Same as i-01	Same as i-01	Same as i-01	Same as i-01	Same as i-01	Same as i-01	Same as i-01

CHARACTERISTIC OR RESOURCE IMPACT		i-01	i-02	i-03	i-04	in-01	x-01	x-02a	x-02b	x-03	x-04
	airstrips; or exposes workers, schools, or the public to hazardous materials.										
Public Health and Safety	Risks to public health, safety, utilities; fire or electrocution hazard; EMF emissions	With worker education programs, adherence to BMPS and APMs, risks for adverse impacts would be negligible to minor for all receptors. Impacts to public health and safety due to EMF during operations would be long-term negligible to minor.	Same as i-01	Same as i-01	Same as i-01	Same as i-01	Same as i-01	Same as i-01	Same as i-01	Same as i-01	Same as i-01
Socioeconomics & Environmental Justice	Not available at this scale										
Traffic and Transportation	Increased roadway traffic; damage to roadways, access, or road systems; risk to aviation	All risks reduced to negligible to minor with adherence to APMs, BMPs, and MMs TT-1, TT-2, and TT-3.	Same as i-01.	Same as i-01.	Same as i-01.	Same as i-01.	Same as i-01.	Same as i-01.	Same as i-01.	Same as i-01.	Same as i-01.

CHARACTERISTIC OR RESOURCE IMPACT		i-01	i-02	i-03	i-04	in-01	x-01	x-02a	x-02b	x-03	x-04
Visual Resources	Conflicts with visual standards, ordinances, or policies established; major and unmitigated visual changes that degrade or disrupt views of scenic landscapes from highly sensitive viewing locations; VRM class objectives that would not be met requiring an RMP Amendment.	Same as p-01	Segment i-02 would conform to BLM VRM Class objectives. Same as p-01.	Segment i-03 would conform to BLM VRM Class objectives. Same as p-01. Should some combination of Segments i-03, i-04, and/or x-04 be part of the selected alternative, the Alt. SCS location would be used. The segments and Alt. SCS site would moderately contrast with the existing setting but would not be dominant in views. The Alt. SCS would conform with VRM Class objectives.	OHV users would be in close proximity to the Project. Guyed V structures would pose an unacceptable human health and safety risk to OHV users; self-supporting lattice structures or monopoles would replace the guyed V structures as mitigation to eliminate the hazards. Level of development would be a major modification to the visual environment and dominate the view. VRM Class III objectives would not be met. See i-03 for Alt. SCS.	The Project along the portion of in-01 within the YFO would outsize surrounding landforms and be a major modification that dominates the view; an amendment of the Yuma RMP required to change the VRM Class from III to IV. The portion within the Lake Havasu FO would cross lands designated VRM Class II and VRM Class IV. It would not meet VRM Class II objectives. An amendment of the Lake Havasu RMP would be required.	Segment x-01 would conform to BLM VRM Class objectives. Same as p-01.	Segment x-02a would conform to BLM VRM Class objectives. Same as p-01.	Segment x-02b would conform to BLM VRM Class objectives. Same as p-01.	Segment x-03 would conform to BLM VRM Class objectives. Same as p-01.	Segment x-04 would conform to BLM VRM Class objectives. Same as p-01. See i-03 for Alt. SCS.

CHARACTERISTIC OR RESOURCE IMPACT		i-01	i-02	i-03	i-04	in-01	x-01	x-02a	x-02b	x-03	x-04
Water Resources	Impacts to surface water or groundwater quantity or availability; impediments to floodplain function from channel alterations; impacts to water rights or water quality; violations of Section 404 of the Clean Water Act or Section 10 of the Rivers and Harbors Act.	Except where floodplains are too extensive to be spanned between structures impacts should be long-term negligible using BMPs, APMs, or avoidance through design and placement of structures. Otherwise must comply with 404 permitting or Section 10 permitting to minimize impacts.	Same as i-01	Crossings of high risk floodplains associated with Bouse Wash, likely greater than a single span (negligible effect). Otherwise the same as i-01.	Same as i-01	Same as i-01	Same as i-01	Same as i-01	Same as i-01	Same as i-01	Crossings of high risk floodplains associated with Bouse Wash, likely greater than a single span (negligible effect). Otherwise the same as i-01.

[1]Site density calculations include sites that have been previously determined or recommended as ineligible for the NRHP. In cases where the projected counts of NRHP-eligible sites or sites of unknown NRHP eligibility are 0 and the site density is greater than 0, the site density calculation includes NRHP-ineligible sites.

Table 2.2-30a Quartzsite Zone Comparison of Impacts by Segment – p and i Segments, and qn-01 and 02

CHARACTERISTIC OR RESOURCE IMPACT		p-07	p-08	i-05	qn-01	qn-02
Segment length (miles)		2.1	0.7	2.8	0.6	10.8
Land ownership (miles)	BLM	2.1	0.7	2.8	0.6	9.8
	Reclamation	-	-	-	-	
	Arizona State	-	-	-	-	1.0
	Private	-	-	-	-	
Ground disturbance	Short-term Acres	10.7	2.3	11.2	6.3	84.4
	Long-term Acres	1.9	0.6	21.9	13.8	3.4
BLM Yuma RMP conformance	VRM	Amendment required	Amendment required	Compliant	Compliant	Compliant
	Corridors	Yes	Yes	Yes	Yes	No
	RMP Conformance	Yes	Yes	Yes	Yes	No
Other Plan conformance (Federal, county, municipal)	Plan Conformance	Yes	Yes	Yes	Yes	No – crosses a Tier III growth area, LTVA, and designated 14-day camping area (Town of Quartzsite General Plan)
Air Quality and Climate Change	Air Quality Emissions are proportional to the Proposed Action based on length of each segment. Due to the length of each segment, the impact of individual segments on air quality may be negligible to minor. However, the cumulative impact of all Project segments might have large total emissions, but the emissions are distributed across a long linear area. Climate Change is not available at this smaller scale.					
Geology, Minerals, and Soil Resources	Geological Hazards Minerals/Mining (access to known resources or claims) Soils	Earthquake risk long-term negligible; no mapped active faults. No active mines; negligible short-term potential for preclusion of access; soil loss/erosion risk negligible to minor, short term to long term; adherence to APMs & BMPs reduces risks to negligible.	Same as p-07	Same as p-07	Same as p-07	Same as p-07
Paleontological Resources	Potential Fossil Yield Classification	Unknown	Unknown	Unknown	Unknown	Very low to unknown
Biological Resources (Vegetation Resources, Wildlife, including Special Status Species and Migratory Birds)	Loss of native habitat/communities; Noxious weeds; Special Status Species & animals); Increased risk of predation or electrocution re infrastructure; Displacement via construction; Displacement via human activity including recreation; Impacts to native habitat and designated management areas; and Migratory birds.	No new impacts to biological resources		Additional disturbance associated with the Project would be indistinguishable from current conditions.		Localized site-specific impacts where farthest from human activities to common wildlife species, Gila monster, Le Contes' thrasher, kit fox, various desert amphibians, and Lucy's warbler.

CHARACTERISTIC OR RESOURCE IMPACT		p-07	p-08	i-05	qn-01	qn-02
Cultural Resources	Damage or loss of a cultural site or potential site under Federal or state registers; degradation of the setting for a cultural site where setting is significant to its listing eligibility; increased access leading to potential vandalism; disturbance of human remains	Known NRHP-eligible sites or sites requiring NRHP evaluation: 2 (cultural resources survey coverage: 15.4%). Known site density: 32.5 sites per 100 acres. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 6. Cultural resources potentially sensitive to visual considerations are located within the 1-mile corridor. No known indirect visual impacts to known historic properties from structures along this segment.	Known NRHP-eligible sites or sites requiring NRHP evaluation: 0 (cultural resources survey coverage: 5.6%). Known site density: 17.9 sites per 100 acres[1]. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 0. No known historic properties sensitive to visual considerations. No known indirect visual impacts to known historic properties from structures along this segment.	Known NRHP-eligible sites or sites requiring NRHP evaluation: 1 (cultural resources survey coverage: 36.3%). Known site density: 4.0 sites per 100 acres. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 3. No known historic properties sensitive to visual considerations. No known indirect visual impacts to known historic properties from structures along this segment.	Known NRHP-eligible sites or sites requiring NRHP evaluation: 2 (cultural resources survey coverage: 89.6%). Known site density: 22.2 sites per 100 acres. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 2. No known historic properties sensitive to visual considerations. No known indirect visual impacts to known historic properties from structures along this segment.	Known NRHP-eligible sites or sites requiring NRHP evaluation: 4 (f cultural resources survey coverage: 56.6%). Known site density: 4.7 sites per 100 acres. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 7. Cultural resources potentially sensitive to visual considerations are located within the 1-mile corridor. No known indirect visual impacts to known historic properties from structures along this segment
Issues of Concern to Indian Tribes	Existing and new access, native infrastructure and the interconnection of the cultural and natural environment, places of elevated spiritual important to tribes, the Colorado River, the treatment of human remains, and the disturbance of previously pristine landscapes.	Native infrastructure and the interconnectedness of the cultural and natural environment	No known concerns to Indian tribes.	No known concerns to Indian tribes.	No known concerns to Indian tribes.	Places of elevated spiritual importance.
Land Use	Land use authorizations and ROWs; Residential; Agricultural; Other (i.e., nuisance impacts)	See Proposed Action and Alternatives 3 and 4D	See Proposed Action and Alternatives 3 and 4	See Alternatives 1, 2, 3J, and 4J	See Alternatives 4, 1D, 3G	Contains residential land; crosses Tier III growth area (minor. long-term impact). Crosses State land (negligible to minor, long-term impact).
Grazing and Rangeland	Access to range or improvements; Loss of range relative to AUMs; Fragmentation of allotments; Degradation of range quality	See Proposed Action and Alternatives 3 and 4D	See Proposed Action and Alternatives 3 and 4	See Alternatives 1, 2, 3J, and 4J	See Alternatives 4, 1D, 3G	See Alternative 3H

CHARACTERISTIC OR RESOURCE IMPACT		p-07	p-08	i-05	qn-01	qn-02
Recreation	Physical, access, use, or functional changes to established, designated, or planned recreation areas, resources, experiences, or activities; conflicts with Federal, state, or local policies; affect OHV designations, access, or routes; impacts to hunting access.	See Proposed Action and Alternatives 3 and 4D	See Proposed Action and Alternatives 3 and 4	See Alternatives 1, 2, 3J, and 4J	See Alternatives 4, 1D, 3G	Crosses La Posa LTVA and Dome Rock Camping Area (moderate to major, long-term effect).
Special Designations	Conflict with goals, objectives & resources an area is designated to protect	See Proposed Action and Alternatives 3 and 4D	See Proposed Action and Alternatives 3 and 4	See Alternatives 1, 2, 3J, and 4J	See Alternatives 4, 1D, 3G	See Alternative 3H
Noise	Exceedance of regulations or guideline; exposure of receptors to excessive noise levels; generate noise levels that pose a health risk.	No NSR present. See Proposed Action and Alternatives 3 and 4D	No NSR present. See Proposed Action and Alternatives 3 and 4	No NSR present. See Alternatives 1, 2, 3J, and 4J	No NSR present. See Alternatives 4, 1D, 3G	80 NSR are present, including residences and Quartzsite Alliance Church in Quartzsite. See Alternative 3H.
Hazards and Hazardous Materials	Generation, use, handling, or disturbance of hazardous waste that: violates Federal, state, or local laws or regulations; poses a health or safety risk to public or environment; releases hazardous emissions; creates a safety hazard to public or private airstrips; or exposes workers, schools, or the public to hazardous materials.	Negligible risk with adherence to Federal, state, and local laws and regulations; BMPs, APMs, and a HMMP; and the Hazardous Materials Mitigation Sequence.	Same as p-07	Same as p-07	Same as p-07	Same as p-07
Public Health and Safety	Risks to public health, safety, utilities; fire or electrocution hazard; EMF emissions	With worker education programs, adherence to BMPS and APMs, risks for adverse impacts would be negligible to minor for all receptors. Impacts to public health and safety due to EMF during operations would be long-term negligible to minor.	Same as p-07	Same as p-07	Same as p-07	Same as p-07
Socioeconomics & Environmental Justice	Not available at this scale					

CHARACTERISTIC OR RESOURCE IMPACT		p-07	p-08	i-05	qn-01	qn-02
Traffic and Transportation	Increased roadway traffic; damage to roadways, access, or road systems; risk to aviation	All traffic and transportation risks reduced to negligible to minor with adherence to APMs, BMPs, and MMs TT-1, TT-2, and TT-3.	Same as p-07	Same as p-07	Same as p-07	Same as p-07
Visual Resources	Conflicts with visual standards, ordinances, or policies established; major and unmitigated visual changes that degrade or disrupt views of scenic landscapes from highly sensitive viewing locations; VRM class objectives that would not be met requiring an RMP Amendment.	Because guyed V structures would pose an unacceptable human health and safety risk to OHV users, self-supporting lattice structures or monopoles would replace the guyed V structures as mitigation to eliminate the hazards associated with guy wires. Level of development would be a major modification to the visual environment and dominate the view. Thus, VRM Class III objectives would not be met. Because of the presence of the large self-supporting lattice structures of the DPV1 transmission line, the addition of the Project structures would be a relatively minor addition.	Same as p-07	Same as p-07	VRM Class III objectives would not be met	Segment qn-02 would conform to BLM VRM Class objectives. Moderate to major impact on views of private landowners in this area.
Water Resources	Impacts to surface water or groundwater quantity or availability; impediments to floodplain function from channel alterations; impacts to water rights or water quality; violations of Section 404 of the Clean Water Act or Section 10 of the Rivers and Harbors Act.	Except where floodplains are too extensive to be spanned between structures impacts should be long-term negligible using BMPs, APMs, or avoidance through design and placement of structures. Otherwise must comply with 404 permitting or Section 10 permitting to minimize impacts.	Same as p-07	Same as p-07	Same as p-07	Same as p-07

[1]Site density calculations include sites that have been previously determined or recommended as ineligible for the NRHP. In cases where the projected counts of NRHP-eligible or site of unknown NRHP eligibility are 0 and the site density is greater than 0, the site density calculation includes NRHP ineligible sites.

Table 2.2-30b Quartzsite Zone Comparison of Impacts by Segment – qs and x Segments

CHARACTERISTIC OR RESOURCE IMPACT		qs-01	qs-02	x-05	x-06	x-07
Segment length (miles)		3.1	4.8	10.2	9.3	7.7
Land ownership (miles)	BLM	3.1	4.8	10.2	9.3	7.7
	Reclamation	-	-	-	-	-
	Arizona State	-	-	-	-	-
	Private	-	-	-	-	-
Ground disturbance	Short-term Acres	12.3	57.9	42.9	39.6	33.1
	Long-term Acres	5.3	9.4	2.9	1.1	3.8
BLM Yuma RMP conformance	VRM	Amendment required	Amendment required	Compliant	Amendment required	Amendment required
	Corridors	Partial	Partial	No	No	Yes
	RMP Conformance	No	No	No	No	Yes
Other Plan conformance (Federal, county, municipal)	Plan Conformance	No – crosses an LTVA and designated 14-day camping area (Town of Quartzsite General Plan)	No – crosses an LTVA and designated 14-day camping area (Town of Quartzsite General Plan)	Yes	Yes	No – crosses an LTVA and designated 14-day camping area (Town of Quartzsite General Plan)
Air Quality and Climate Change	Air Quality Emissions are proportional to the Proposed Action based on length of each segment. Due to the length of each segment, the impact of individual segments on air quality may be negligible to minor. However, the cumulative impact of all Project segments might have large total emissions, but the emissions are distributed across a long linear area. Climate Change is not available at this smaller scale.					
Geology, Minerals, and Soil Resources	Geological Hazards Minerals/Mining (access to known resources or claims) Soils	Earthquake risk long-term negligible; no mapped active faults. No active mines; negligible short-term potential for preclusion of access; Soil loss/erosion risk negligible to minor, short term to long term; adherence to APMs & BMPs reduces risks to negligible. Negligible disruption of sand transport or dunes during construction and operation.	Same as qs-01	Same as qs-01	Same as qs-01	Same as qs-01
Paleontological Resources	Potential Fossil Yield Classification	Unknown	Very low to unknown	Very low to unknown	Unknown	Unknown
Biological Resources (Vegetation Resources, Wildlife, including Special Status Species and Migratory Birds)	Loss of native habitat/communities; Noxious weeds; Special Status Species & animals); Increased risk of predation or electrocution re infrastructure; Displacement via construction; Displacement via human activity including recreation; Impacts to native habitat and designated management areas; and Migratory birds.	Additional disturbance associated with the Project would be indistinguishable from current conditions.		Golden eagle, Gila monster, elf owl, gilded flicker, and Lucy's warbler maybe impacted by segment development.	Due to existing development the Project would have minimal impact on wildlife species in these segments.	

CHARACTERISTIC OR RESOURCE IMPACT		qs-01	qs-02	x-05	x-06	x-07
Cultural Resources	Damage or loss of a cultural site or potential site under Federal or state registers; degradation of the setting for a cultural site where setting is significant to its listing eligibility; increased access leading to potential vandalism; disturbance of human remains	Known NRHP-eligible sites or sites requiring NRHP evaluation: 0 (cultural resources survey coverage: 94. %1). Known site density: 0.0 sites per 100 acres. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 0. Cultural resources potentially sensitive to visual considerations are located within the 1-mile corridor. No known indirect visual impacts to known historic properties from structures along this segment.	Known NRHP-eligible sites or sites requiring NRHP evaluation: 1 (cultural resources survey coverage: 38.4%). Known site density: 11.0 sites per 100 acres. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 3. No known historic properties sensitive to visual considerations. No known indirect visual impacts to known historic properties from structures along this segment.	Known NRHP-eligible sites or sites requiring NRHP evaluation: 2 (cultural resources survey coverage: 1.1%). Known site density: 87.0 sites per 100 acres. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 186. Due to the low percentage sample of existing survey coverage, the projected number of sites may be misrepresented. Cultural resources potentially sensitive to visual considerations are located within the 1-mile corridor. No known indirect visual impacts to known historic properties from structures along this segment	Known NRHP-eligible sites or sites requiring NRHP evaluation: 5 (cultural resources survey coverage: 23.7%). Known site density: 11.2 sites per 100 acres. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 21. Cultural resources potentially sensitive to visual considerations are located within the 1-mile corridor. No known indirect visual impacts to known historic properties from structures along this segment	Known NRHP-eligible sites or sites requiring NRHP evaluation: 1 (cultural resources survey coverage: 15.4%). Known site density: 32.5 sites per 100 acres. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 6. Cultural resources potentially sensitive to visual considerations are located within the 1-mile corridor. No known indirect visual impacts to known historic properties from structures along this segment
Issues of Concern to Indian Tribes	Existing and new access, native infrastructure and the interconnection of the cultural and natural environment, places of elevated spiritual important to tribes, the Colorado River, the treatment of human remains, and the disturbance of previously pristine landscapes.	Native infrastructure and the interconnectedness of the cultural and natural environment.	Places of elevated spiritual importance.	Native infrastructure and the interconnectedness of the cultural and natural environment; intrusion on pristine landscapes.	Native infrastructure and the interconnectedness of the cultural and natural environment.	Trails have been recorded on or within 0.5- mile of Segment x-07. Trails are of significance to Indian tribes as part of traditional native infrastructure associated with the interconnectedness of the cultural and natural environment.
Land Use	Land use authorizations and ROWs; Residential; Agricultural; Other (i.e., nuisance impacts)	Minor, short-term effects to residential land during construction. Minor, long-term effects to residential land during operations.	Minor, short-term effects to residential land during construction. Minor, long-term effects to residential land during operations.	See Alternatives 3 and 4D	See Alternatives 4 and 3F	See Alternatives 2 and 3E
Grazing and Rangeland	Access to range or improvements; Loss of range relative to AUMs; Fragmentation of allotments; Degradation of range quality	See Alternatives 1, 2, and 3E	See Alternative 1	See Alternatives 3 and 4D	See Alternatives 4 and 3F	See Alternatives 2 and 3E

CHARACTERISTIC OR RESOURCE IMPACT		qs-01	qs-02	x-05	x-06	x-07
Recreation	Physical, access, use, or functional changes to established, designated, or planned recreation areas, resources, experiences, or activities; conflicts with Federal, state, or local policies; affect OHV designations, access, or routes; impacts to hunting access.	Crosses La Posa LTVA and Dome Rock Camping Area (moderate to major, long-term effect).	Crosses La Posa LTVA and Dome Rock Camping Area (moderate to major, long-term effect).	See Alternatives 3 and 4D	See Alternatives 4 and 3F	Crosses La Posa LTVA and Dome Rock Camping Area (moderate to major, long-term effect).
Special Designations	Conflict with goals, objectives & resources an area is designated to protect	See Alternatives 1, 2, and 3E	See Alternative 1	See Alternatives 3 and 4D	See Alternatives 4 and 3F	See Alternatives 2 and 3E
Noise	Exceedance of regulations or guideline; exposure of receptors to excessive noise levels; generate noise levels that pose a health risk.	251 NSR are present, including residences including La-Z Daze Trailer Park, Rice Ranch RV Park, Church of Jesus Christ of Latter-Day Saints, and LTVAs in Quartzsite. See Full-route Alternatives.	54 NSR present, including residences associated with the Desert Gardens RV Park and Super 8 Hotel. See Full-route Alternatives.	No NSR present. See Alternatives 3 and 4D	Variable NSR; thousands per year as it is adjacent to La Posa LTVA. See Alternatives 4 and 3F	Variable NSR; thousands per year as it is through La Posa LTVA. See Alternatives 2 and 3E
Hazards and Hazardous Materials	Generation, use, handling, or disturbance of hazardous waste that: violates Federal, state, or local laws or regulations; poses a health or safety risk to public or environment; releases hazardous emissions; creates a safety hazard to public or private airstrips; or exposes workers, schools, or the public to hazardous materials.	Negligible risk with adherence to Federal, state, and local laws and regulations; BMPs, APMs, and a HMMP; and the Hazardous Materials Mitigation Sequence.	Same as qs-01	Same as qs-01	Same as qs-01	Same as qs-01
Public Health and Safety	Risks to public health, safety, utilities; fire or electrocution hazard; EMF emissions	With worker education programs, adherence to BMPS and APMs, risks for adverse impacts would be negligible to minor for all receptors. Impacts to public health and safety due to EMF during operations would be long-term negligible to minor.	Same as qs-01	Same as qs-01	Same as qs-01	Same as qs-01
Socioeconomics & Environmental Justice	Not available at this scale					
Traffic and Transportation	Increased roadway traffic; damage to roadways, access, or road systems; risk to aviation	All traffic and transportation risks reduced to negligible to minor with adherence to APMs, BMPs, and MMs TT-1, TT-2, and TT-3.	Same as qs-01	Same as qs-01	Same as qs-01	Same as qs-01

CHARACTERISTIC OR RESOURCE IMPACT		qs-01	qs-02	x-05	x-06	x-07
Visual Resources	Conflicts with visual standards, ordinances, or policies established; major and unmitigated visual changes that degrade or disrupt views of scenic landscapes from highly sensitive viewing locations; VRM class objectives that would not be met requiring an RMP Amendment.	Existing infrastructure begins to outsize the surrounding landscape features and dominate the view, and the Project would add to visual clutter. Guyed V structures would be replaced with monopoles to eliminate potential hazards to OHV recreation and reduce the contrast between the Project and the existing WAPA 161kV monopole structures. With monopole structures, it would have a moderate to major impact to the views of RV park residents by increasing the sense of development and visual clutter.	Guyed V structures would be replaced with monopoles to eliminate potential hazards to OHV recreation and reduce the visual clutter of the guy wires in the view. With monopole structures, it would have a negligible to minor impact to the views of RV park residents as the vertical structures would blend well with the other single pole vertical elements in the view.	Segment x-05 would conform to BLM VRM Class objectives.	VRM Class III objectives would not be met. Segment x-06 would be primarily viewed from within the LTVA; as well as the access road paralleling the DPV1 or other OHV routes east of SR 95 and the LTVA. Views would be most impacted from the outer eastern edge of the LTVA. The Project would be a major modification to the visual environment.	VRM Class III objectives would not be met. Same as Segment x-06.
Water Resources	Impacts to surface water or groundwater quantity or availability; impediments to floodplain function from channel alterations; impacts to water rights or water quality; violations of Section 404 of the Clean Water Act or Section 10 of the Rivers and Harbors Act.	Except where floodplains are too extensive to be spanned between structures impacts should be long-term negligible using BMPs, APMs, or avoidance through design and placement of structures. Otherwise must comply with 404 permitting or Section 10 permitting to minimize impacts.	Crossings of high risk floodplains associated with La Cholla Wash, likely greater than a single span (negligible effect). Otherwise the same as qs-01.	Same as qs-01	Same as qs-01	Same as qs-01

Table 2.2-31a Copper Bottom Zone Comparison of Impacts by Segment – p Segments

CHARACTERISTIC OR RESOURCE IMPACT		p-09	p-10	p-11	p-12	p-13	p-14
Segment length (miles)		6.9	1.2	4.1	2.5	3.5	0.9
Land ownership (miles)	BLM	6.7	1.2	4.1	1.1	3.5	0.9
	Reclamation	-	-	<0.1	1.5	-	-
	Arizona State	-	-	-	-	-	-
	Private	0.2	-	-	-	-	-
Ground disturbance	Short-term Acres	31.0	5.8	17.3	10.1	14.0	3.3
	Long-term Acres	9.8	1.3	7.4	4.3	4.6	1.0
BLM Yuma RMP conformance	VRM	Amendment required	Amendment required	Amendment required	Amendment required	Amendment required	Compliant
	Corridors	Yes	Yes	Yes	Yes	Yes	Yes
	RMP Conformance	Yes	Yes	Yes	Yes	Yes	Yes
Other Plan conformance (Federal, county, municipal)	Plan Conformance	Yes	Yes	Yes	Yes	Yes	Yes
Air Quality and Climate Change	Air Quality Emissions are proportional to the Proposed Action based on length of each segment. Due to the length of each segment, the impact of individual segments on air quality may be negligible to minor. However, the cumulative impact of all Project segments might have large total emissions, but the emissions are distributed across a long linear area. Climate Change is not available at this smaller scale.						

CHARACTERISTIC OR RESOURCE IMPACT		p-09	p-10	p-11	p-12	p-13	p-14
Geology, Minerals, and Soil Resources	Geological Hazards Minerals/Mining (access to known resources or claims) Soils	Earthquake risk long-term negligible; no mapped active faults. No active mines; negligible short-term potential for preclusion of access; Soil loss/erosion risk negligible to minor, short term to long term; adherence to APMs & BMPs reduces risks to negligible. Negligible disruption of sand transport or dunes during construction and operation.	Same as p-09	Same as p-09	Same as p-09	Same as p-09	Same as p-09
Paleontological Resources	Potential Fossil Yield Classification	High to unknown	Very low to high	Very low	Very low to unknown	Unknown	Unknown
Biological Resources (Vegetation Resources, Wildlife, including Special Status Species and Migratory Birds)	Loss of native habitat/communities; Noxious weeds; Special Status Species & animals); Increased risk of predation or electrocution re infrastructure; Displacement via construction; Displacement via human activity including recreation; Impacts to native habitat and designated management areas; and Migratory birds.	The impacts of Project development would be additive to the existing habitat fragmentation for Lucy's warblers and desert toads through the narrow Copper Bottom Pass.		The impacts of Project development would be additive to the existing habitat fragmentation for desert bighorn sheep through the narrow Copper Bottom Pass.	Project development would add disturbance to a remote area in very harsh desert conditions with large areas of desert pavement.		

CHARACTERISTIC OR RESOURCE IMPACT		p-09	p-10	p-11	p-12	p-13	p-14
Cultural Resources	Damage or loss of a cultural site or potential site under Federal or state registers; degradation of the setting for a cultural site where setting is significant to its listing eligibility; increased access leading to potential vandalism; disturbance of human remains	Known NRHP-eligible sites or sites requiring NRHP evaluation: 0 (cultural resources survey coverage: 59.4%). Known site density: 5.0 sites per 100 acres. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 0. Cultural resources potentially sensitive to visual considerations are located within the 1-mile corridor. No known indirect visual impacts to known historic properties from structures along this segment.	Known NRHP-eligible sites or sites requiring NRHP evaluation: 0 (cultural resources survey coverage: 41.9%). Known site density: 8.5 sites per 100 acres[1]. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 0. Cultural resources potentially sensitive to visual considerations are located within the 1-mile corridor. No known indirect visual impacts to known historic properties from structures along this segment.	Known NRHP-eligible sites or sites requiring NRHP evaluation: 1 (cultural resources survey coverage: 66.2%). Known site density: 3.1 sites per 100 acres. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 2. Cultural resources potentially sensitive to visual considerations are located within the 1-mile corridor. No known indirect visual impacts to known historic properties from structures along this segment.	Known NRHP-eligible sites or sites requiring NRHP evaluation: 0 (cultural resources survey coverage: 9.8%). Known site density: 0.0 sites per 100 acres. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 0. Cultural resources potentially sensitive to visual considerations are located within the 1-mile corridor. No known indirect visual impacts to known historic properties from structures along this segment.	Known NRHP-eligible sites or sites requiring NRHP evaluation: 2 (cultural resources survey coverage: 97.5%). Known site density: 7.3 sites per 100 acres. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 2. An NRHP-eligible intaglio site has been recorded within the 200-foot analysis corridor. Analysis of potential visual impacts to this historic property would be required as part of the indirect effects analysis. ●	Known NRHP-eligible sites or sites requiring NRHP evaluation: 0 (cultural resources survey coverage: 75.2%). Known site density: 23.1 sites per 100 acres[1]. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 0. No known historic properties sensitive to visual considerations. No known indirect visual impacts to known historic properties from structures along this segment.
Issues of Concern to Indian Tribes	Existing and new access, native infrastructure and the interconnection of the cultural and natural environment, places of elevated spiritual important to tribes, the Colorado River, the treatment of human remains, and the disturbance of previously pristine landscapes.	Native infrastructure and the interconnectedness of the cultural and natural environment.	Native infrastructure and the interconnectedness of the cultural and natural environment.	Native infrastructure and the interconnectedness of the cultural and natural environment.	Native infrastructure and the interconnectedness of the cultural and natural environment.	Native infrastructure and the interconnectedness of the cultural and natural environment; places of elevated spiritual importance.	Native infrastructure and the interconnectedness of the cultural and natural environment.
Land Use	Land use authorizations and ROWs; Residential; Agricultural; Other (i.e., nuisance impacts)	See Proposed Action and Alternatives 2, 3, and 4	See Proposed Action and Alternatives 2, 4, and 3K	Crosses CRIT land (would require an easement)	See Proposed Action and Alternatives 2, 3L, and 4G	See Proposed Action and Alternatives 2, 4, and 3L	See Proposed Action and Alternatives 2, 3, and 4
Grazing and Rangeland	Access to range or improvements; Loss of range relative to AUMs; fragmentation of allotments Degradation of range quality	See Proposed Action and Alternatives 2, 3, and 4	See Proposed Action and Alternatives 2, 4, and 3K	See Proposed Action and Alternatives 2 and 4G	See Proposed Action and Alternatives 2, 3L, and 4G	See Proposed Action and Alternatives 2, 4, and 3L	See Proposed Action and Alternatives 2, 3, and 4

CHARACTERISTIC OR RESOURCE IMPACT		p-09	p-10	p-11	p-12	p-13	p-14
Recreation	Physical, access, use, or functional changes to established, designated, or planned recreation areas, resources, experiences, or activities; conflicts with Federal, state, or local policies; affect OHV designations, access, or routes; impacts to hunting access.	See Proposed Action and Alternatives 2, 3, and 4	See Proposed Action and Alternatives 2, 4, and 3K	See Proposed Action and Alternatives 2 and 4G	See Proposed Action and Alternatives 2, 3L, and 4G	See Proposed Action and Alternatives 2, 4, and 3L	See Proposed Action and Alternatives 2, 3, and 4
Special Designations	Conflict with goals, objectives & resources an area is designated to protect	Negligible loss of acreage to LWC Polygon 23	See Proposed Action and Alternatives 2, 4, and 3K	See Proposed Action and Alternatives 2 and 4G	See Proposed Action and Alternatives 2, 3L, and 4G	See Proposed Action and Alternatives 2, 4, and 3L	See Proposed Action and Alternatives 2, 3, and 4
Noise	Exceedance of regulations or guideline; exposure of receptors to excessive noise levels; generate noise levels that pose a health risk.	No NSR present.	No NSR present.	No NSR present.	No NSR present.	No NSR present.	No NSR present.
Hazards and Hazardous Materials	Generation, use, handling, or disturbance of hazardous waste that: violates Federal, state, or local laws or regulations; poses a health or safety risk to public or environment; releases hazardous emissions; creates a safety hazard to public or private airstrips; or exposes workers, schools, or the public to hazardous materials.	Negligible risk with adherence to Federal, state, and local laws and regulations; BMPs, APMs, and a HMMP; and the Hazardous Materials Mitigation Sequence.	Same as p-09	Same as p-09	Same as p-09	Same as p-09	Same as p-09
Public Health and Safety	Risks to public health, safety, utilities; fire or electrocution hazard; EMF emissions	With worker education programs, adherence to BMPS and APMs, risks for adverse impacts would be negligible to minor for all receptors. Impacts to public health and safety due to EMF during operations would be long-term negligible to minor.	Same as p-09	Same as p-09	Same as p-09	Same as p-09	Same as p-09

CHARACTERISTIC OR RESOURCE IMPACT		p-09	p-10	p-11	p-12	p-13	p-14
Socioeconomics & Environmental Justice	Not available at this scale						
Traffic and Transportation	Increased roadway traffic; damage to roadways, access, or road systems; risk to aviation	All traffic and transportation risks reduced to negligible to minor with adherence to APMs, BMPs, and MMs TT-1, TT-2, and TT-3.	Same as p-09	Same as p-09	Same as p-09	Same as p-09	Same as p-09
Visual Resources	Conflicts with visual standards, ordinances, or policies established; major and unmitigated visual changes that degrade or disrupt views of scenic landscapes from highly sensitive viewing locations; VRM class objectives that would not be met requiring an RMP Amendment.	Structures would outsize the landscape features and portions would be skylined. The Project, in conjunction with the DPV1 infrastructure, would be a major modification to the landscape and would dominate the view, thus not conforming to VRM Class III objectives. Would require change from VRM Class III to VRM Class IV.	Same as p-09. Change to VRM Class IV limited to the viewshed where both the Project and DPV1 would be visible, while the rest of the BLM utility corridor would remain VRM Class III.	Same as p-09. Change to VRM Class IV limited to the viewshed where both the Project and DPV1 would be visible, while the rest of the BLM utility corridor would remain VRM Class III.	Same as p-09	Same as p-09	Conforms to VRM Class III standards and no RMP amendment or additional mitigation would be required.
Water Resources	Impacts to surface water or groundwater quantity or availability; impediments to floodplain function from channel alterations; impacts to water rights or water quality; violations of Section 404 of the Clean Water Act or Section 10 of the Rivers and Harbors Act.	Except where floodplains are too extensive to be spanned between structures impacts should be long-term negligible using BMPs, APMs, or avoidance through design and placement of structures. Otherwise must comply with 404 permitting or Section 10 permitting to minimize impacts.	Same as p-09	Same as p-09	Same as p-09	Same as p-09	Same as p-09

[1]Site density calculations include sites that have been previously determined or recommended as ineligible for the NRHP. In cases where the projected counts of NRHP-eligible or site of unknown NRHP eligibility are 0 and the site density is greater than 0, the site density calculation includes NRHP ineligible sites.

Table 2.2-31b Copper Bottom Zone Comparison of Impacts by Segment – cb-1 through 6

CHARACTERISTIC OR RESOURCE IMPACT		cb-01	cb-02	cb-03	cb-04	cb-05	cb-06
Segment length (miles)		3.2	2.1	4.4	1.9	4.4	1.9
Land ownership (miles)	BLM	3.2	2.1	2.4	1.7	3.9	1.3
	Reclamation	-	-	0.003	0.2	0.5	0.6
	Arizona State	-	-	-	-	-	-
	CRIT	-	-	2.0	-		-
Ground disturbance	Short-term Acres	23.5	16.1	21.7	9.6	18.9	7.9
	Long-term Acres	0.7	0.5	1.0	14.2	4.1	5.4
BLM Yuma RMP conformance	VRM	Amendment required	Amendment required	Amendment required	Amendment required	Amendment required	Amendment required
	Corridors	No	No	Yes	No	No	No
	RMP Conformance	No	No	Yes	No	No	No
Other Plan conformance (Federal, county, municipal)	Plan Conformance	Yes	Yes	Yes	Yes	Yes	Yes
Air Quality and Climate Change	Air Quality Emissions are proportional to the Proposed Action based on length of each segment. Due to the length of each segment, the impact of individual segments on air quality may be negligible to minor. However, the cumulative impact of all Project segments might have large total emissions, but the emissions are distributed across a long linear area. Climate Change is not available at this smaller scale.						
Geology, Minerals, and Soil Resources	Geological Hazards Minerals/Mining (access to known resources or claims) Soils	Earthquake risk long-term negligible; no mapped active faults. No active mines; negligible short-term potential for preclusion of access; Soil loss/erosion risk negligible to minor, short term to long term; adherence to APMs & BMPs reduces risks to negligible. Negligible disruption of sand transport or dunes during construction and operation.	Same as cb-01	Same as cb-01	Same as cb-01	Same as cb-01	Same as cb-01
Paleontological Resources	Potential Fossil Yield Classification	Very low	Very low	Very low	Very low to unknown	Unknown	Unknown

CHARACTERISTIC OR RESOURCE IMPACT		cb-01	cb-02	cb-03	cb-04	cb-05	cb-06
Biological Resources (Vegetation Resources, Wildlife, including Special Status Species and Migratory Birds)	Loss of native habitat/communities; Noxious weeds; Special Status Species & animals); Increased risk of predation or electrocution re infrastructure; Displacement via construction; Displacement via human activity including recreation; Impacts to native habitat and designated management areas; and Migratory birds.	. Project development may impact important bighorn sheep use area.	Temporary impact from reduced access by desert bighorn sheep and mule deer to reliable water sources and limit use of favored habitat areas during critical time period, including bighorn sheep lambing. Permanent disruption of near-pristine desert, mountain, and desert wash habitats for Gila monster, Sonoran desert tortoise, and Lucy's warbler.	The impacts of Project development would be additive to the existing habitat fragmentation for desert bighorn sheep through the narrow Copper Bottom Pass.	Temporary impact from reduced access by desert bighorn sheep and mule deer to reliable water sources and limit use of favored habitat areas during critical time period, including bighorn sheep lambing area. Permanent disruption of near-pristine desert, mountain, and desert wash habitats for Gila monster, Sonoran desert tortoise, and Lucy's warbler.	Project development would add disturbance to a remote area in very harsh desert conditions with large areas of desert pavement. Project development would add disturbance to a remote area.	
Cultural Resources	Damage or loss of a cultural site or potential site under Federal or state registers; degradation of the setting for a cultural site where setting is significant to its listing eligibility; increased access leading to potential vandalism; disturbance of human remains	Known NRHP-eligible sites or sites requiring NRHP evaluation: 0 (cultural resources survey coverage: 4.8%). Known site density: 0.0 sites per 100 acres. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 0. Cultural resources potentially sensitive to visual considerations are located within the 1-mile corridor. No known indirect visual impacts to known historic properties from structures along this segment.	Known NRHP-eligible sites or sites requiring NRHP evaluation: 0 (cultural resources survey coverage: 38.5%). Known site density: 3.2 sites per 100 acres.[1] Projected NRHP-eligible sites or sites requiring NRHP evaluation: 0. Cultural resources potentially sensitive to visual considerations are located within the 1-mile corridor. No known indirect visual impacts to known historic properties from structures along this segment.	Known NRHP-eligible sites or sites requiring NRHP evaluation: 1 (cultural resources survey coverage: 15.6%). Known site density: 12.0 sites per 100 acres. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 6. Cultural resources potentially sensitive to visual considerations are located within the 1-mile corridor. No known indirect visual impacts to known historic properties from structures along this segment.	Known NRHP-eligible sites or sites requiring NRHP evaluation: 3 (cultural resources survey coverage: 45.2%). Known site density: 14.6 sites per 100 acres. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 7. No known historic properties sensitive to visual considerations. No known indirect visual impacts to known historic properties from structures along this segment.	Known NRHP-eligible sites or sites requiring NRHP evaluation: 0 (cultural resources survey coverage: 8.7%). Known site density: 0.0 sites per 100 acres. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 0. Cultural resources potentially sensitive to visual considerations are located within the 1-mile corridor. No known indirect visual impacts to known historic properties from structures along this segment.	Known NRHP-eligible sites or sites requiring NRHP evaluation: 0 (cultural resources survey coverage: 0.3%). Known site density: 0.0 sites per 100 acres. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 0. Cultural resources potentially sensitive to visual considerations are located within the 1-mile corridor. No known indirect visual impacts to known historic properties from structures along this segment.
Issues of Concern to Indian Tribes	Existing and new access, native infrastructure and the interconnection of the cultural and natural environment, places of elevated spiritual important to tribes, the Colorado River, the treatment of human remains, and the disturbance of previously pristine landscapes.	Native infrastructure and the interconnectedness of the cultural and natural environment; intrusion on pristine landscapes.	Native infrastructure and the interconnectedness of the cultural and natural environment; intrusion on pristine landscapes.	Native infrastructure and the interconnectedness of the cultural and natural environment.	Native infrastructure and the interconnectedness of the cultural and natural environment; intrusion on pristine landscapes.	Native infrastructure and the interconnectedness of the cultural and natural environment; intrusion on pristine landscapes; places of elevated spiritual importance; intrusion on pristine landscapes.	Native infrastructure and the interconnectedness of the cultural and natural environment.

CHARACTERISTIC OR RESOURCE IMPACT		cb-01	cb-02	cb-03	cb-04	cb-05	cb-06
Land Use	Land use authorizations and ROWs; Residential; Agricultural; Other (i.e., nuisance impacts)	See Alternatives 3 and 4E	See Alternatives 4, 2C, and 3K	Crosses CRIT land (would require an easement)	See Alternatives 3, 4, and 2C	See Alternatives 3 and 4F	See Alternatives 4 and 2C
Grazing and Rangeland	Access to range or improvements; Loss of range relative to AUMs; Fragmentation of allotments; Degradation of range quality	See Alternatives 3 and 4E	See Alternatives 4, 2C, and 3K	See Alternative 2D	See Alternatives 3, 4, and 2C	See Alternatives 3 and 4F	See Alternatives 4 and 2C
Recreation	Physical, access, use, or functional changes to established, designated, or planned recreation areas, resources, experiences, or activities; conflicts with Federal, state, or local policies; affect OHV designations, access, or routes; impacts to hunting access.	See Alternatives 3 and 4E	See Alternatives 4, 2C, and 3K	See Alternative 2D	See Alternatives 3, 4, and 2C	See Alternatives 3 and 4F	See Alternatives 4 and 2C
Special Designations	Conflict with goals, objectives & resources an area is designated to protect	Major long-term impacts to LWC Polygon 23, reducing it to less than 5,000 acres, which does not meet the criteria for WAs	Major long-term impacts to LWC Polygon 23, reducing it to less than 5,000 acres, which does not meet the criteria for WAs	See Alternative 2D	Major long-term impacts to LWC Polygon 23, reducing it to less than 5,000 acres, which does not meet the criteria for WAs	See Alternatives 3 and 4F	See Alternatives 4 and 2C
Noise	Exceedance of regulations or guideline; exposure of receptors to excessive noise levels; generate noise levels that pose a health risk.	No NSR present. See Alternatives 3 and 4E	No NSR present. See Alternatives 4, 2C, and 3K	No NSR present. See Alternative 2D	No NSR present. See Alternatives 3, 4, and 2C	No NSR present. See Alternatives 3 and 4F	No NSR present. See Alternatives 4 and 2C
Hazards and Hazardous Materials	Generation, use, handling, or disturbance of hazardous waste that: violates Federal, state, or local laws or regulations; poses a health or safety risk to public or environment; releases hazardous emissions; creates a safety hazard to public or private airstrips; or exposes workers, schools, or the	Negligible risk with adherence to Federal, state, and local laws and regulations; BMPs, APMs, and a HMMP; and the Hazardous Materials Mitigation Sequence.	Same as cb-01	Same as cb-01	Same as cb-01	Same as cb-01	Same as cb-01

CHARACTERISTIC OR RESOURCE IMPACT		cb-01	cb-02	cb-03	cb-04	cb-05	cb-06
	public to hazardous materials.						
Public Health and Safety	Risks to public health, safety, utilities; fire or electrocution hazard; EMF emissions	With worker education programs, adherence to BMPS and APMs, risks for adverse impacts would be negligible to minor for all receptors. Impacts to public health and safety due to EMF during operations would be long-term negligible to minor.	Same as cb-01	Same as cb-01	Same as cb-01	Same as cb-01	Same as cb-01
Socioeconomics & Environmental Justice	Not available at this scale						
Traffic and Transportation	Increased roadway traffic; damage to roadways, access, or road systems; risk to aviation	All traffic and transportation risks reduced to negligible to minor with adherence to APMs, BMPs, and MMs TT-1, TT-2, and TT-3.	Same as cb-01	Same as cb-01	Same as cb-01	Same as cb-01	Same as cb-01
Visual Resources	Conflicts with visual standards, ordinances, or policies established; major and unmitigated visual changes that degrade or disrupt views of scenic landscapes from highly sensitive viewing locations; VRM class objectives that would not be met requiring an RMP Amendment.	Structures outsize landscape features and portions would be skylined. It would be a new visual addition in a heavily used, relatively scenic, and visually sensitive area. The Project would be a major modification to the landscape and would dominate the view, thus not conforming to VRM Class II objectives. RMP amendment to VRM Class IV limited to the viewshed where segment would be visible, while the rest of the BLM utility corridor unaffected by the Project would remain VRM Class III.	Same as cb-01	Structures would outsize the surrounding landscape features and portions may be skylined. Viewed in the context of DPV1, and taken together, it would be a major modification to the landscape and would dominate the view, thus not conforming to VRM Class III objectives. RMP amendment to VRM Class IV limited to the viewshed where segment would be visible, while the rest of the BLM utility corridor unaffected by the Project would remain VRM Class III.	Same as cb-01	Predominantly open panoramic views heavily used for OHV recreation. Proposed guyed V structures would be replaced with self-supporting lattice structures to eliminate potentially hazardous guy wires and reduce contrast with the existing DPV1 infrastructure, where viewed in conjunction with the Project. VRM Class III objectives would not be met.	Same as cb-05. VRM Class II objectives would not be met.

CHARACTERISTIC OR RESOURCE IMPACT		cb-01	cb-02	cb-03	cb-04	cb-05	cb-06
Water Resources	Impacts to surface water or groundwater quantity or availability; impediments to floodplain function from channel alterations; impacts to water rights or water quality; violations of Section 404 of the Clean Water Act or Section 10 of the Rivers and Harbors Act.	Except where floodplains are too extensive to be spanned between structures impacts should be long-term negligible using BMPs, APMs, or avoidance through design and placement of structures. Otherwise must comply with 404 permitting or Section 10 permitting to minimize impacts.	Same as cb-01	Same as cb-01	Same as cb-01	Same as cb-01	Same as cb-01

[1]Site density calculations include sites that have been previously determined or recommended as ineligible for the NRHP. In cases where the projected counts of NRHP-eligible or site of unknown NRHP eligibility are 0 and the site density is greater than 0, the site density calculation includes NRHP ineligible sites.

Table 2.2-31c Copper Bottom Zone Comparison of Impacts by Segment – i segments

CHARACTERISTIC OR RESOURCE IMPACT		i-06	i-07	x-08
Segment length (miles)		7.2	6.3	1.3
Land ownership (miles)	BLM	3.9	-	-
	Reclamation	0.1	5.1	1.3
	Arizona State	1.7	1.2	-
	CRIT	1.4	-	-
Ground disturbance	Short-term Acres	33.0	28.5	8.5
	Long-term Acres	4.1	0.7	4.9
BLM Yuma RMP conformance	VRM	Amendment required	Compliant	Compliant
	Corridors	Yes	Yes	Yes
	RMP Conformance	Yes	Yes	Yes
Other Plan conformance (Federal, county, municipal)	Plan Conformance	Yes	Yes	Yes
Air Quality and Climate Change	Air Quality Emissions are proportional to the Proposed Action based on length of each segment. Due to the length of each segment, the impact of individual segments on air quality may be negligible to minor. However, the cumulative impact of all Project segments might have large total emissions, but the emissions are distributed across a long linear area. Climate Change is not available at this smaller scale.			
Geology, Minerals, and Soil Resources	Geological Hazards Minerals/Mining (access to known resources or claims) Soils	Earthquake risk long-term negligible; no mapped active faults. No active mines; negligible short-term potential for preclusion of access; Soil loss/erosion risk negligible to minor, short term to long term; adherence to APMs & BMPs reduces risks to negligible. Negligible disruption of sand transport or dunes during construction and operation.	Same as i-06	Same as i-06
Paleontological Resources	Potential Fossil Yield Classification	Very low to unknown	Unknown	Very low to unknown

CHARACTERISTIC OR RESOURCE IMPACT		i-06	i-07	x-08
Biological Resources (Vegetation Resources, Wildlife, including Special Status Species and Migratory Birds)	Loss of native habitat/communities; Noxious weeds; Special Status Species & animals); Increased risk of predation or electrocution re infrastructure; Displacement via construction; Displacement via human activity including recreation; Impacts to native habitat and designated management areas; and Migratory birds.	Project development of segments adjacent to I-10 would have minimal impact due to the on-going influence I-10 has on wildlife in the area.		Project development would add disturbance to a remote area in very harsh desert conditions with large areas of desert pavement. Project development would add disturbance to a remote area.
Cultural Resources	Damage or loss of a cultural site or potential site under Federal or state registers; degradation of the setting for a cultural site where setting is significant to its listing eligibility; increased access leading to potential vandalism; disturbance of human remains	Known NRHP-eligible sites or sites requiring NRHP evaluation: 0 (cultural resources survey coverage: 37.7%). Known site density: 1.5 sites per 100 acres[1]. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 0. No known historic properties sensitive to visual considerations. No known indirect visual impacts to known historic properties from structures along this segment.	Known NRHP-eligible sites or sites requiring NRHP evaluation: 3 (cultural resources survey coverage: 33.3%). Known site density: 7.8 sites per 100 acres. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 9. Cultural resources potentially sensitive to visual considerations are located within the 1-mile corridor. No known indirect visual impacts to known historic properties from structures along this segment.	Known NRHP-eligible sites or sites requiring NRHP evaluation: 1 (cultural resources survey coverage: 23.5%). Known site density: 13.2 sites per 100 acres. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 4. Cultural resources potentially sensitive to visual considerations are located within the 1-mile corridor. No known indirect visual impacts to known historic properties from structures along this segment.
Issues of Concern to Indian Tribes	Existing and new access, native infrastructure and the interconnection of the cultural and natural environment, places of elevated spiritual important to tribes, the Colorado River, the treatment of human remains, and the disturbance of previously pristine landscapes.	Native infrastructure and the interconnectedness of the cultural and natural environment.	Native infrastructure and the interconnectedness of the cultural and natural environment.	Native infrastructure and the interconnectedness of the cultural and natural environment.
Land Use	Land use authorizations and ROWs; Residential; Agricultural; Other (i.e., nuisance impacts)	Crosses CRIT land (would require an easement); crosses state land	Minor, short-term effects to residential land during construction. Minor, long-term effects to residential land during operations. Crosses state land (moderate long-term impact).	See Alternatives 3L and 4H
Grazing and Rangeland	Access to range or improvements; Loss of range relative to AUMs; Fragmentation of allotments; Degradation of range quality	See Alternatives 1 and 3L	See Alternatives 1 and 4H	See Alternatives 3L and 4H
Recreation	Physical, access, use, or functional changes to established, designated, or planned recreation areas, resources, experiences, or activities; conflicts with Federal, state, or local policies; affect OHV designations, access, or routes; impacts to hunting access.	Bisects Dome Rock Camping Area (major long-term effect).	See Alternatives 1 and 4H	See Alternatives 3L and 4H
Special Designations	Conflict with goals, objectives & resources an area is designated to protect	See Alternatives 1 and 3L	See Alternatives 1 and 4H	See Alternatives 3L and 4H

CHARACTERISTIC OR RESOURCE IMPACT		i-06	i-07	x-08
Noise	Exceedance of regulations or guideline; exposure of receptors to excessive noise levels; generate noise levels that pose a health risk.	No NSR present. See Alternatives 1 and 3L	No NSR present. See Alternatives 1 and 4H	No NSR present. See Alternatives 3L and 4H
Hazards and Hazardous Materials	Generation, use, handling, or disturbance of hazardous waste that: violates Federal, state, or local laws or regulations; poses a health or safety risk to public or environment; releases hazardous emissions; creates a safety hazard to public or private airstrips; or exposes workers, schools, or the public to hazardous materials.	Negligible risk with adherence to Federal, state, and local laws and regulations; BMPs, APMs, and a HMMP; and the Hazardous Materials Mitigation Sequence.	Same as i-06	Same as i-06
Public Health and Safety	Risks to public health, safety, utilities; fire or electrocution hazard; EMF emissions	With worker education programs, adherence to BMPS and APMs, risks for adverse impacts would be negligible to minor for all receptors. Impacts to public health and safety due to EMF during operations would be long-term negligible to minor.	Same as i-06	Same as i-06
Socioeconomics & Environmental Justice	Not available at this scale			
Traffic and Transportation	Increased roadway traffic; damage to roadways, access, or road systems; risk to aviation	All traffic and transportation risks reduced to negligible to minor with adherence to APMs, BMPs, and MMs TT-1, TT-2, and TT-3.	See i-06	See i-06
Visual Resources	Conflicts with visual standards, ordinances, or policies established; major and unmitigated visual changes that degrade or disrupt views of scenic landscapes from highly sensitive viewing locations; VRM class objectives that would not be met requiring an RMP Amendment.	I-10 viewers would be in close proximity. Change the VRM Class III to Class IV within the BLM utility corridor.	I-10 viewers would be in close proximity.	I-10 viewers would be in close proximity.
Water Resources	Impacts to surface water or groundwater quantity or availability; impediments to floodplain function from channel alterations; impacts to water rights or water quality; violations of Section 404 of the Clean Water Act or Section 10 of the Rivers and Harbors Act.	Except where floodplains are too extensive to be spanned between structures impacts should be long-term negligible using BMPs, APMs, or avoidance through design and placement of structures. Otherwise must comply with 404 permitting or Section 10 permitting to minimize impacts.	Crossings of high risk floodplains associated with Ehrenberg and Cinnabar Washes, likely greater than a single span (negligible effect). Otherwise the same as i-06.	Same as i-06

[1]Site density calculations include sites that have been previously determined or recommended as ineligible for the NRHP. In cases where the projected counts of NRHP-eligible or site of unknown NRHP eligibility are 0 and the site density is greater than 0, the site density calculation includes NRHP ineligible sites.

Table 2.2-32a Colorado River and California Zone Comparison of Impacts by Segment – p segments and cb-10

CHARACTERISTIC OR RESOURCE IMPACT		p-15e (Arizona)	p-15w (California)	p-16 (California)	p-17 (California)	p-18 (California)	cb-10 (Arizona)
Segment length (miles)		2.7	6.6	4.8	2.9	2.6	1.9
Land ownership (miles)	BLM	1.5	-	0.7	2.0	1.1	0.9
	Reclamation	-	-	-	-	-	1.0
	Arizona State	1.2	-	-	-	-	-
	California State	-	0.1	-	-	-	-
	Private	-	6.5	4.1	0.9	1.5	-
Ground disturbance	Short-term Acres	13.5	68.6	21.2	10.0	16.4	10.2
	Long-term Acres	2.8	1.7	1.7	3.3	3.0	0.3
BLM Yuma RMP conformance	VRM	Compliant	Not applicable	Not applicable	Not applicable	Not applicable	Compliant
	Corridors	Yes	Not applicable	Not applicable	Not applicable	Not applicable	Yes
	RMP Conformance	Compliant on BLM land	Not applicable	Not applicable	Not applicable	Not applicable	Compliant on BLM land
CDCA Plan	Plan Conformance	Not applicable	Amendment required	Amendment required	Amendment required	Amendment required	Amendment required
Other Plan conformance (Federal, county, municipal)	Plan Conformance	Yes	Yes	Yes	Yes	Yes	Yes
Air Quality and Climate Change	Air Quality Emissions are proportional to the Proposed Action based on length of each segment. Due to the length of each segment, the impact of individual segments on air quality may be negligible to minor. However, the cumulative impact of all Project segments might have large total emissions, but the emissions are distributed across a long linear area. Climate Change is not available at this smaller scale.						
Geology, Minerals, and Soil Resources	Geological Hazards Minerals/Mining (access to known resources or claims) Soils	Earthquake risk long-term negligible; no mapped active faults. No active mines; negligible short-term potential for preclusion of access; Soil loss/erosion risk negligible to minor, short term to long term; adherence to APMs & BMPs reduces risks to negligible. Negligible disruption of sand transport or dunes during construction and operation.	Same as p-15e	Same as p-15e	Negligible impact to sand dunes and sand transport corridor during construction and operation	Negligible impact to sand dunes and sand transport corridor during construction and operation	Same as p-15e
Paleontological Resources	Potential Fossil Yield Classification	Unknown	Unknown	High to unknown	Unknown	High to unknown	Unknown

CHARACTERISTIC OR RESOURCE IMPACT		p-15e (Arizona)	p-15w (California)	p-16 (California)	p-17 (California)	p-18 (California)	cb-10 (Arizona)
Biological Resources (Vegetation Resources, Wildlife, including Special Status Species and Migratory Birds)	Loss of native habitat/communities; Noxious weeds; Special Status Species & animals); Increased risk of predation or electrocution re infrastructure; Displacement via construction; Displacement via human activity including recreation; Impacts to native habitat and designated management areas; and Migratory birds.	Colorado River crossing open water spanned to avoid direct impacts to aquatic habitat, but 3-4 structures in river corridor would affect riparian vegetation. Reduced collision hazard to migratory birds along river corridor due to matching structure spacing and heights.	Spanned floodplain and canals west of the Colorado River but could be risk of avian mortality due to collision with towers and lines.		Permanent impacts to 2-3 acres of wash habitat for blue paloverde-ironwood. Potential impact to suitable habitat for Mojave desert tortoise near Mule Mountains.		Colorado River crossing, open water spanned to avoid direct impacts to aquatic habitat, but 3-4 structures in river corridor would affect riparian vegetation. Greater collision hazard to migratory birds along river corridor due to not adjacent to existing line.
Cultural Resources	Damage or loss of a cultural site or potential site under Federal or state registers; degradation of the setting for a cultural site where setting is significant to its listing eligibility; increased access leading to potential vandalism; disturbance of human remains	Known NRHP-eligible sites or sites requiring NRHP evaluation: 4 (cultural resources survey coverage: 42.9%). Known site density: 17.5 sites per 100 acres. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 9. One NRHP-listed intaglio site is within the indirect effects analysis area. Analysis of potential visual impacts to this historic property would be required as part of the indirect effects analysis.	Known NRHP-eligible sites or sites requiring NRHP evaluation: 2 (cultural resources survey coverage: 32.4%). Known site density: 15.3 sites per 100 acres. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 25. No known historic properties sensitive to visual considerations. No known indirect visual impacts to known historic properties from structures along this segment.	Known NRHP-eligible sites or sites requiring NRHP evaluation: 5 (cultural resources survey coverage: 14.6%). Known site density: 47.3 sites per 100 acres. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 34. Cultural resources potentially sensitive to visual considerations are located within the 1-mile corridor. No known indirect visual impacts to known historic properties from structures along this segment.	Known NRHP-eligible sites or sites requiring NRHP evaluation: 9 (cultural resources survey coverage: 100%). Known site density: 35.1 sites per 100 acres. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 9. One NRHP-listed archaeological district is within the 200-foot analysis corridor. • Analysis of potential visual impacts to this historic property would be required as part of the indirect effects analysis.	Known NRHP-eligible sites or sites requiring NRHP evaluation: 8 (cultural resources survey coverage: 100%). Known site density: 22.3 sites per 100 acres. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 8. The Palo Verde Mesa is considered a culturally sensitive area of great importance and may contain classes of archaeological sites considered to be sensitive to visual effects.	Known NRHP-eligible sites or sites requiring NRHP evaluation: 0 (cultural resources survey coverage: 14.1%). Known site density: 0.0 sites per 100 acres. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 0. Cultural resources potentially sensitive to visual considerations are located within the 1-mile corridor. No known indirect visual impacts to known historic properties from structures along this segment.
Issues of Concern to Indian Tribes	Existing and new access, native infrastructure and the interconnection of the cultural and natural environment, places of elevated spiritual important to tribes, the Colorado River, the treatment of human remains, and the disturbance of previously pristine landscapes.	Native infrastructure and the interconnectedness of the cultural and natural environment; places of elevated spiritual importance; Colorado River.	Colorado River.	Native infrastructure and the interconnectedness of the cultural and natural environment.	Native infrastructure and the interconnectedness of the cultural and natural environment; places of elevated spiritual importance; Colorado River.	Places of elevated spiritual importance.	Native infrastructure and the interconnectedness of the cultural and natural environment; Colorado River.

CHARACTERISTIC OR RESOURCE IMPACT		p-15e (Arizona)	p-15w (California)	p-16 (California)	p-17 (California)	p-18 (California)	cb-10 (Arizona)
Land Use	Land use authorizations and ROWs; Residential; Agricultural; Other (i.e., nuisance impacts)	Crosses state land (moderate, long-term impact).	Minor, short-term effects to residential land during construction. Minor, long-term effects to residential land during operations. Includes NRCS-classified farmland (negligible impact).	See Proposed Action and Alternatives 2 and 4P	See Proposed Action and Alternative 4P	Within or adjacent to existing or approved but not yet constructed solar energy facilities (minor short-term impacts).	Crosses state land (moderate, long-term impact).
Grazing and Rangeland	Access to range or improvements; Loss of range relative to AUMs; Fragmentation of allotments; Degradation of range quality	See Proposed Action and Alternatives 2, 4, and 3M	See Proposed Action and Alternatives 2, 4, and 3M	See Proposed Action and Alternatives 2 and 4P	See Proposed Action and Alternative 4P	See Proposed Action and Alternative 4P	See Alternatives 3 and 4L
Recreation	Physical, access, use, or functional changes to established, designated, or planned recreation areas, resources, experiences, or activities; conflicts with Federal, state, or local policies; affect OHV designations, access, or routes; impacts to hunting access.	See Proposed Action and Alternatives 2, 4, and 3M	See Proposed Action and Alternatives 2, 4, and 3M	See Proposed Action and Alternatives 2 and 4P	See Proposed Action and Alternative 4P	See Proposed Action and Alternative 4P	See Alternatives 3 and 4L
Special Designations	Conflict with goals, objectives & resources an area is designated to protect	See Proposed Action and Alternatives 2, 4, and 3M	See Proposed Action and Alternatives 2, 4, and 3M	See Proposed Action and Alternatives 2 and 4P	See Proposed Action and Alternative 4P	See Proposed Action and Alternative 4P	See Alternatives 3 and 4L
Noise	Exceedance of regulations or guideline; exposure of receptors to excessive noise levels; generate noise levels that pose a health risk.	No NSR present. See Proposed Action and Alternatives 2, 4, and 3M	8 NSR are present, including rural residential area near Ripley, CA. See Proposed Action and Alternatives 2, 4, and 3M	No NSR present. See Proposed Action and Alternatives 2 and 4P	No NSR present. See Proposed Action and Alternative 4P	No NSR present. See Proposed Action and Alternative 4P	No NSR present. See Alternatives 3 and 4L
Hazards and Hazardous Materials	Generation, use, handling, or disturbance of hazardous waste that: violates Federal, state, or local laws or regulations; poses a health or safety risk to public or environment; releases hazardous emissions; creates a safety hazard to public or private airstrips; or exposes workers, schools, or the public to hazardous materials.	Negligible risk with adherence to Federal, state, and local laws and regulations; BMPs, APMs, and a HMMP; and the Hazardous Materials Mitigation Sequence.	Same as p-15e	Same as p-15e	Same as p-15e	Same as p-15e	Same as p-15e

CHARACTERISTIC OR RESOURCE IMPACT		p-15e (Arizona)	p-15w (California)	p-16 (California)	p-17 (California)	p-18 (California)	cb-10 (Arizona)
Public Health and Safety	Risks to public health, safety, utilities; fire or electrocution hazard; EMF emissions	With worker education programs, adherence to BMPS and APMs, risks for adverse impacts would be negligible to minor for all receptors. Impacts to public health and safety due to EMF during operations would be long-term negligible to minor.	Same as p-15e	Same as p-15e	Same as p-15e	Same as p-15e	Same as p-15e
Socioeconomics & Environmental Justice	Not available at this scale						
Traffic and Transportation	Increased roadway traffic; damage to roadways, access, or road systems; risk to aviation	All traffic and transportation risks reduced to negligible to minor with adherence to APMs, BMPs, and MMs TT-1, TT-2, and TT-3.	Same as p-15e	Same as p-15e	Same as p-15e	Same as p-15e	Same as p-15e
Visual Resources	Conflicts with visual standards, ordinances, or policies established; major and unmitigated visual changes that degrade or disrupt views of scenic landscapes from highly sensitive viewing locations; VRM class objectives that would not be met requiring an RMP Amendment.	Conforms to VRM Class objectives no additional mitigation would be required.	Conforms to VRM Class objectives no additional mitigation would be required. The main impact to viewers would be added visual clutter, which would be a negligible to moderate impact.	Conforms to VRM Class objectives no additional mitigation would be required.	Conforms to VRM Class objectives no additional mitigation would be required.	Conforms to VRM Class objectives no additional mitigation would be required.	Conforms to VRM Class objectives no additional mitigation would be required.
Water Resources	Impacts to surface water or groundwater quantity or availability; impediments to floodplain function from channel alterations; impacts to water rights or water quality; violations of Section 404 of the Clean Water Act or Section 10 of the Rivers and Harbors Act.	Crossings of high risk floodplains associated with the Colorado River, likely greater than a single span (negligible impact). Otherwise the same as p-15w.	Same as p-15e	Except where floodplains are too extensive to be spanned between structures impacts should be long-term negligible using BMPs, APMs, or avoidance through design and placement of structures. Otherwise must comply with 404 permitting or Section 10 permitting to minimize impacts.	Same as p-16	Same as p-16	Crossings of high risk floodplains associated with the Colorado River, likely greater than a single span (negligible impact). Same as p-15e.

Table 2.2-32b Colorado River and California Zone Comparison of Impacts by Segment – i and ca Segments

CHARACTERISTIC OR RESOURCE IMPACT		i-08s (Arizona)	ca-01	ca-02	ca-04	ca-05	ca-06	ca-07	ca-09
Segment length (miles)		1.3	6.7	3.4	0.4	6.6	2.6	3.1	2.6
Land ownership (miles)	BLM	-	-	0.7	-	-	0.1	2.6	1.6
	Reclamation	0.1		-	-				
	Arizona State	-	-	-	-	-	-	-	-
	California State	1.0	-	-	-	-	-		
	Private	0.2	6.7	2.8	0.4	6.6	2.5	0.5	1.0
Ground disturbance	Short-term Acres	9.7	68.1	14.5	8.8	68	13.5	17.4	11.2
	Long-term Acres	2.5	0.2	6.7	0.1	1.4	0.3	3.0	1.6
BLM Yuma RMP conformance	VRM	Compliant	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
	Corridors	Yes	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
	RMP Conformance	Compliant on BLM land	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
CDCA Plan	Plan Conformance	Not applicable	Amendment required	Amendment required	Amendment required	Amendment required	Amendment required	Amendment required	Amendment required
Other Plan conformance (Federal, county, municipal	Plan Conformance	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Air Quality and Climate Change	Air Quality Emissions are proportional to the Proposed Action based on length of each segment. Due to the length of each segment, the impact of individual segments on air quality may be negligible to minor. However, the cumulative impact of all Project segments might have large total emissions, but the emissions are distributed across a long linear area. Climate Change is not available at this smaller scale.								
Geology, Minerals, and Soil Resources	Geological Hazards Minerals/Mining (access to known resources or claims) Soils	Earthquake risk long-term negligible; no mapped active faults. No active mines; negligible short-term potential for preclusion of access; Soil loss/erosion risk negligible to minor, short term to long term; adherence to APMs & BMPs reduces risks to negligible. Negligible disruption of sand transport or dunes during construction and operation.	Same as i-08s	Same as i-08s	Same as i-08s	Same as i-08s	Same as i-08s	Negligible to minor impact on sand transport corridor and dunes during construction and operation	Negligible to minor impact on sand transport corridor and dunes during construction and operation
Paleontological Resources	Potential Fossil Yield Classification	Low to unknown	Unknown	Unknown to high	Unknown	Unknown	Unknown to high	Unknown to high	Unknown

CHARACTERISTIC OR RESOURCE IMPACT		i-08s (Arizona)	ca-01	ca-02	ca-04	ca-05	ca-06	ca-07	ca-09
Biological Resources (Vegetation Resources Wildlife, including Special Status Species and Migratory Birds)	Loss of native habitat/communities; Noxious weeds; Special Status Species & animals); Increased risk of predation or electrocution re infrastructure; Displacement via construction; Displacement via human activity including recreation; Impacts to native habitat and designated management areas; and Migratory birds.	Colorado River crossing not adjacent to existing lines or development adding additional collision risk for birds moving along the river corridor. Open water crossing spanned so no direct impact to aquatic habitats; Reduced potential loss of riparian vegetation due to narrower crossing.	Spanned floodplain and canals west of the Colorado River, now agricultural, used by foraging and migrating birds but risk of avian mortality due to collision with towers and lines.	Spanned floodplain and canals west of the Colorado River, now agricultural, used by foraging and migrating birds but risk of avian mortality due to collision with towers and lines. Permanent impact to <1 acre of honey mesquite Alliance.	West of the Colorado River in historic floodplain, now agricultural, used by foraging and migrating birds. Risk of avian mortality due to collision with towers and lines.	Spanned floodplain and canals west of the Colorado River, now agricultural, used by foraging and migrating birds but risk of avian mortality due to collision with towers and lines. Less than 0.1 mile of arrowweed Alliance impacted on private land for ca-06.		Potential long-term impact to active windblown sand depositional areas with resulting potential impact to Harwood's eriastrum and Mojave fringe-toed lizard. Impact to blue paloverde-ironwood along wash crossing on one acre in ca-07. Potential impacts to stands of big galleta Alliance along 0.3 miles of ca-07.	
Cultural Resources	Damage or loss of a cultural site or potential site under Federal or state registers; degradation of the setting for a cultural site where setting is significant to its listing eligibility; increased access leading to potential vandalism; disturbance of human remains	Known NRHP-eligible sites or sites requiring NRHP evaluation: 0 (cultural resources survey coverage: 28.9%). Known site density: 0.0 sites per 100 acres. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 0. Cultural resources potentially sensitive to visual considerations are located within the 1-mile corridor. No known indirect visual impacts to known historic properties from structures along this segment.	Known NRHP-eligible sites or sites requiring NRHP evaluation: 9 (cultural resources survey coverage: 2.0%). Known site density: 272.7 sites per 100 acres. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 442. No known historic properties sensitive to visual considerations. No known indirect visual impacts to known historic properties from structures along this segment.	Known NRHP-eligible sites or sites requiring NRHP evaluation: 3 (cultural resources survey coverage: 10.1%). Known site density: 35.7 sites per 100 acres. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 30. No known historic properties sensitive to visual considerations. No known indirect visual impacts to known historic properties from structures along this segment.	Known NRHP-eligible sites or sites requiring NRHP evaluation: 0 (cultural resources survey coverage: 21.3%). Known site density: 0.0 sites per 100 acres. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 0.0. No known historic properties sensitive to visual considerations. No known indirect visual impacts to known historic properties from structures along this segment.	Known NRHP-eligible sites or sites requiring NRHP evaluation: 6 (cultural resources survey coverage: 3.4%). Known site density: 109.1 sites per 100 acres. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 177. No known historic properties sensitive to visual considerations. No known indirect visual impacts to known historic properties from structures along this segment.	Known NRHP-eligible sites or sites requiring NRHP evaluation: 1 (cultural resources survey coverage: 33.1%). Known site density: 4.7 sites per 100 acres. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 3. No known historic properties sensitive to visual considerations. No known indirect visual impacts to known historic properties from structures along this segment.	Known NRHP-eligible sites or sites requiring NRHP evaluation: 0 (cultural resources survey coverage: 66.2%). Known site density: 7.9 sites per 100 acres. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 0. No known historic properties sensitive to visual considerations. No known indirect visual impacts to known historic properties from structures along this segment.	Known NRHP-eligible sites or sites requiring NRHP evaluation: 0 (cultural resources survey coverage: 100%). Known site density: 3.2 sites per 100 acres. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 3. No known historic properties sensitive to visual considerations. No known indirect visual impacts to known historic properties from structures along this segment.

CHARACTERISTIC OR RESOURCE IMPACT		i-08s (Arizona)	ca-01	ca-02	ca-04	ca-05	ca-06	ca-07	ca-09
Issues of Concern to Indian Tribes	Existing and new access, native infrastructure and the interconnection of the cultural and natural environment, places of elevated spiritual important to tribes, the Colorado River, the treatment of human remains, and the disturbance of previously pristine landscapes.	Places of elevated spiritual importance; Colorado River.	No known concerns to Indian tribes.	No known concerns to Indian tribes.	Colorado River	No known concerns to Indian tribes.	No known concerns to Indian tribes.	No known concerns to Indian tribes.	No known concerns to Indian tribes.
Land Use	Land use authorizations and ROWs; Residential; Agricultural; Other (i.e., nuisance impacts)	Crosses state land (moderate, long-term impact).	Minor, short-term effects to residential land during construction. Minor, long-term effects to residential land during operations. Crosses NRCS-classified farmland (negligible impact).	See Alternatives 2 and 2E	See Alternatives 1 and 4K	Minor, short-term effects to residential land during construction. Minor, long-term effects to residential land during operations. Crosses NRCS-classified farmland (negligible impact).	Within or adjacent to existing or approved but not yet constructed solar energy facilities (minor, short-term impact).	Within or adjacent to existing or approved but not yet constructed solar energy facilities (minor, short-term impact).	Within or adjacent to existing or approved but not yet constructed solar energy facilities (minor, short-term impact).
Grazing and Rangeland	Access to range or improvements; Loss of range relative to AUMs; Fragmentation of allotments; Degradation of range quality	See Alternatives 1 and 4K	See Alternatives 3, 1E, and 4M	See Alternatives 2 and 2E	See Alternatives 1 and 4K	See Alternative 1	See Alternatives 1, 3, and 4	See Alternatives 1, 2, 3, and 4	See Alternatives 1, 2, 3, and 4
Recreation	Physical, access, use, or functional changes to established, designated, or planned recreation areas, resources, experiences, or activities; conflicts with Federal, state, or local policies; affect OHV designations, access, or routes; impacts to hunting access.	Crosses a portion of the Ehrenberg Sandbowl OHV Area (minor long-term impact).	See Alternatives 3, 1E, and 4M	See Alternatives 2 and 2E	See Alternatives 1 and 4K	See Alternative 1	See Alternatives 1, 3, and 4	See Alternatives 1, 2, 3, and 4	See Alternatives 1, 2, 3, and 4
Special Designations	Conflict with goals, objectives & resources an area is designated to protect	See Alternatives 1 and 4K	See Alternatives 3, 1E, and 4M	See Alternatives 2 and 2E	See Alternatives 1 and 4K	See Alternative 1	See Alternatives 1, 3, and 4	See Alternatives 1, 2, 3, and 4	See Alternatives 1, 2, 3, and 4

CHARACTERISTIC OR RESOURCE IMPACT		i-08s (Arizona)	ca-01	ca-02	ca-04	ca-05	ca-06	ca-07	ca-09
Noise	Exceedance of regulations or guideline; exposure of receptors to excessive noise levels; generate noise levels that pose a health risk.	No NSR present. See Alternatives 1 and 4K	8 NSR are present in rural residential area south of Blythe, CA. See Alternatives 3, 1E, and 4M	No NSR present. See Alternatives 2 and 2E	No NSR present. See Alternatives 1 and 4K	21 NSR present in rural residential area near the Cyr Airfield near Blythe, CA. See Alternative 1	3 NSR present in rural residential area near Blyther, CA. See Alternatives 1, 3, and 4	No NSR present. See Alternatives 1, 2, 3, and 4	No NSR present. See Alternatives 1, 2, 3, and 4
Hazards and Hazardous Materials	Generation, use, handling, or disturbance of hazardous waste that: violates Federal, state, or local laws or regulations; poses a health or safety risk to public or environment; releases hazardous emissions; creates a safety hazard to public or private airstrips; or exposes workers, schools, or the public to hazardous materials.	Negligible risk with adherence to Federal, state, and local laws and regulations; BMPs, APMs, and a HMMP; and the Hazardous Materials Mitigation Sequence.	Same as i-08s	Same as i-08s	Same as i-08s	Same as i-08s	Same as i-08s	Same as i-08s	Same as i-08s
Public Health and Safety	Risks to public health, safety, utilities; fire or electrocution hazard; EMF emissions	With worker education programs, adherence to BMPS and APMs, risks for adverse impacts would be negligible to minor for all receptors. Impacts to public health and safety due to EMF during operations would be long-term negligible to minor.	Same as i-08s	Same as i-08s	Same as i-08s	Same as i-08s	Same as i-08s	Same as i-08s	Same as i-08s
Socioeconomics & Environmental Justice	Not available at this scale								
Traffic and Transportation	Increased roadway traffic; damage to roadways, access, or road systems; risk to aviation	All traffic and transportation risks reduced to negligible to minor with adherence to APMs, BMPs, and MMs TT-1, TT-2, and TT-3.	Same as i-08s	Same as i-08s	Same as i-08s	Same as i-08s	Potential long-term major impact to Blythe Airport reduced to negligible with implementation of TT-3. Otherwise the same impacts as i-08.	Potential long-term major impact to Blythe Airport reduced to negligible with implementation of TT-3. Otherwise the same impacts as i-08.	Potential long-term major impact to Blythe Airport reduced to negligible with implementation of TT-3. Otherwise the same impacts as i-08.

CHARACTERISTIC OR RESOURCE IMPACT		i-08s (Arizona)	ca-01	ca-02	ca-04	ca-05	ca-06	ca-07	ca-09
Visual Resources	Conflicts with visual standards, ordinances, or policies established; major and unmitigated visual changes that degrade or disrupt views of scenic landscapes from highly sensitive viewing locations; VRM class objectives that would not be met requiring an RMP Amendment.	Conforms to VRM Class objectives no additional mitigation would be required.	Conforms to VRM Class objectives no additional mitigation would be required. The impact to viewers would be negligible for Segment ca-01.	Conforms to VRM Class objectives no additional mitigation would be required. The impact to viewers would be negligible for Segment ca-02.	Conforms to VRM Class objectives no additional mitigation would be required. The Project would be proportional to the surrounding landscape, thus would not dominate or be a major modification; however, because it would be a new development added to a view that contains very little development, it would be a moderate to major impact on the views of nearby residents.	Conforms to VRM Class objectives no additional mitigation would be required. The impact to would be minor to major for Segment ca-05 for local viewers.	Conforms to VRM Class objectives no additional mitigation would be required. The Project would be a major new addition to the view that would be a moderate to major impact for local viewers.	Conforms to VRM Class objectives no additional mitigation would be required. The Project would be a negligible to minor addition to the landscape, but would likely reach a moderate to major level for closer viewers.	Conforms to VRM Class objectives no additional mitigation would be required. The Project would be a negligible to minor addition to the landscape, but would likely reach a moderate to major level for closer viewers and add to visual clutter.
Water Resources	Impacts to surface water or groundwater quantity or availability; impediments to floodplain function from channel alterations; impacts to water rights or water quality; violations of Section 404 of the Clean Water Act or Section 10 of the Rivers and Harbors Act.	Same as p-15e	Except where floodplains are too extensive to be spanned between structures impacts should be long-term negligible using BMPs, APMs, or avoidance through design and placement of structures. Otherwise must comply with 404 permitting or Section 10 permitting to minimize impacts.	Same as p-15e	Same as p-15e	Same as ca-01	Same as ca-01	Same as ca-01	Same as ca-01

Table 2.2-32c Colorado River and California Zone Comparison of Impacts by Segment – x Segments East, Located in California

CHARACTERISTIC OR RESOURCE IMPACT		x-09	x-10	x-11	x-12	x-13
Segment length (miles)		0.8	1.3	2.1	1.2	2.0
Land ownership (miles)	BLM	-	-	-	-	-
	Reclamation	-	-	-	-	-
	Arizona State	-	-	0.1	-	-
	California State	-	-	-	-	-
	Private	0.8	1.3	2.1	1.2	2.0
Ground disturbance	Short-term Acres	3.3	8.6	9.1	5.5	9.0
	Long-term Acres	0.2	0.7	2.1	0.7	1.2
CDCA Plan	VRM	Compliant	Compliant	Compliant	Compliant	Compliant
	Corridors	Yes	Yes	Yes	Yes	Yes
	Plan Conformance	Amendment required	Amendment required	Amendment required	Amendment required	Amendment required
Other Plan (Federal, county, municipal)	Plan Conformance	Yes	Yes	Yes	Yes	Yes
Air Quality and Climate Change	Air Quality Emissions are proportional to the Proposed Action based on length of each segment. Due to the length of each segment, the impact of individual segments on air quality may be negligible to minor. However, the cumulative impact of all Project segments might have large total emissions, but the emissions are distributed across a long linear area. Climate Change is not available at this smaller scale.					
Geology, Minerals, and Soil Resources	Geological Hazards Minerals/Mining (access to known resources or claims) Soils	Earthquake risk long-term negligible; no mapped active faults. No active mines; negligible short-term potential for preclusion of access; Soil loss/erosion risk negligible to minor, short term to long term; adherence to APMs & BMPs reduces risks to negligible. Negligible disruption of sand transport or dunes during construction and operation.	Same as x-09	Same as x-09	Same as x-09	Same as x-09
Paleontological Resources	Potential Fossil Yield Classification	Unknown	Unknown	Unknown	Unknown	Unknown
Biological Resources (Vegetation Resources, Wildlife, including Special Status Species and Migratory Birds)	Loss of native habitat/communities; Noxious weeds; Special Status Species & animals); Increased risk of predation or electrocution re infrastructure; Displacement via construction; Displacement via human activity including recreation; Impacts to native habitat and designated management areas; and Migratory birds.	Spanned floodplain and canals west of the Colorado River, now agricultural, used by foraging and migrating birds, but risk of avian mortality due to collision with towers and lines.				

CHARACTERISTIC OR RESOURCE IMPACT		x-09	x-10	x-11	x-12	x-13
Cultural Resources	Damage or loss of a cultural site or potential site under Federal or state registers; degradation of the setting for a cultural site where setting is significant to its listing eligibility; increased access leading to potential vandalism; disturbance of human remains	Known NRHP-eligible sites or sites requiring NRHP evaluation: 0 (cultural resources survey coverage: 30.3%). Known site density: 0.0 sites per 100 acres. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 0. No known historic properties sensitive to visual considerations. No known indirect visual impacts to known historic properties from structures along this segment.	Known NRHP-eligible sites or sites requiring NRHP evaluation: 0 (cultural resources survey coverage: 60.8%). Known site density: 0.0 sites per 100 acres. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 0. No known historic properties sensitive to visual considerations. No known indirect visual impacts to known historic properties from structures along this segment.	Known NRHP-eligible sites or sites requiring NRHP evaluation: 1 (cultural resources survey coverage: 1.5%). Known site density: 125.0 sites per 100 acres. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 65. Cultural resources potentially sensitive to visual considerations are located within the 1-mile corridor. No known indirect visual impacts to known historic properties from structures along this segment.	Known NRHP-eligible sites or sites requiring NRHP evaluation: 2 (cultural resources survey coverage: 4.9%). Known site density: 133.3 sites per 100 acres. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 3. No known historic properties sensitive to visual considerations. No known indirect visual impacts to known historic properties from structures along this segment.	Known NRHP-eligible sites or sites requiring NRHP evaluation: 1 (cultural resources survey coverage: 3.3%). Known site density: 62.5 sites per 100 acres. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 30. No known historic properties sensitive to visual considerations. No known indirect visual impacts to known historic properties from structures along this segment.
Issues of Concern to Indian Tribes	Existing and new access, native infrastructure and the interconnection of the cultural and natural environment, places of elevated spiritual important to tribes, the Colorado River, the treatment of human remains, and the disturbance of previously pristine landscapes.	No known concerns to Indian tribes.	No known concerns to Indian tribes.	Colorado River	No known concerns to Indian tribes.	No known concerns to Indian tribes.
Land Use	Land use authorizations and ROWs; Residential; Agricultural; Other (i.e., nuisance impacts)	See Alternatives 1 and 4K	See Alternatives 1E and 4N	See Alternatives 3 and 4L	See Alternatives 3, 4, and 1E	See Alternatives 4, 2E, and 3M
Grazing and Rangeland	Access to range or improvements; Loss of range relative to AUMs; Fragmentation of allotments; Degradation of range quality	See Alternatives 1 and 4K	See Alternatives 1E and 4N	See Alternatives 3 and 4L	See Alternatives 3, 4, and 1E	See Alternatives 4, 2E, and 3M

CHARACTERISTIC OR RESOURCE IMPACT		x-09	x-10	x-11	x-12	x-13
Recreation	Physical, access, use, or functional changes to established, designated, or planned recreation areas, resources, experiences, or activities; conflicts with Federal, state, or local policies; affect OHV designations, access, or routes; impacts to hunting access.	See Alternatives 1 and 4K	See Alternatives 1E and 4N	See Alternatives 3 and 4L	See Alternatives 3, 4, and 1E	See Alternatives 4, 2E, and 3M
Special Designations	Conflict with goals, objectives & resources an area is designated to protect	See Alternatives 1 and 4K	See Alternatives 1E and 4N	See Alternatives 3 and 4L	See Alternatives 3, 4, and 1E	See Alternatives 4, 2E, and 3M
Noise	Exceedance of regulations or guideline; exposure of receptors to excessive noise levels; generate noise levels that pose a health risk.	2 NSR present, residences along Colorado River in Blythe, CA. See Full-route Alternatives.	63 NSR present, all residences along the Colorado River in Blythe, CA. See Full-route Alternatives.	8 NSR present, all residences along the Colorado River in Blythe, CA. See Full-route Alternatives.	2 NSR present, rural residential area southwest of Blythe, CA. See Full-route Alternatives.	2 NSR present, rural residential area near Blythe, CA. See Full-route Alternatives.
Hazards and Hazardous Materials	Generation, use, handling, or disturbance of hazardous waste that: violates Federal, state, or local laws or regulations; poses a health or safety risk to public or environment; releases hazardous emissions; creates a safety hazard to public or private airstrips; or exposes workers, schools, or the public to hazardous materials.	Negligible risk with adherence to Federal, state, and local laws and regulations; BMPs, APMs, and a HMMP; and the Hazardous Materials Mitigation Sequence.	Same as x-09	Same as x-09	Same as x-09	Same as x--09
Public Health and Safety	Risks to public health, safety, utilities; fire or electrocution hazard; EMF emissions	With worker education programs, adherence to BMPS and APMs, risks for adverse impacts would be negligible to minor for all receptors. Impacts to public health and safety due to EMF during operations would be long-term negligible to minor.	Same as x-09	Same as x-09	Same as x-09	Same as x-09

CHARACTERISTIC OR RESOURCE IMPACT		x-09	x-10	x-11	x-12	x-13
Socioeconomics & Environmental Justice	Not available at this scale					
Traffic and Transportation	Increased roadway traffic; damage to roadways, access, or road systems; risk to aviation	All traffic and transportation risks reduced to negligible to minor with adherence to APMs, BMPs, and MMs TT-1, TT-2, and TT-3.	Same as x-09	Same as x-09	Same as x-09	Same as x-09
Visual Resources	Conflicts with visual standards, ordinances, or policies established; major and unmitigated visual changes that degrade or disrupt views of scenic landscapes from highly sensitive viewing locations; VRM class objectives that would not be met requiring an RMP Amendment.	Conforms to VRM Class objectives no additional mitigation would be required.	Conforms to VRM Class objectives no additional mitigation would be required. The Project would be proportional to the surrounding landscape, thus would not dominate or be a major modification; however, because it would be a new development added to a view that contains very little development, it would be a moderate to major impact on the views of nearby residents.	Conforms to VRM Class objectives no additional mitigation would be required.	Conforms to VRM Class objectives no additional mitigation would be required.	Conforms to VRM Class objectives no additional mitigation would be required.
Water Resources	Impacts to surface water or groundwater quantity or availability; impediments to floodplain function from channel alterations; impacts to water rights or water quality; violations of Section 404 of the Clean Water Act or Section 10 of the Rivers and Harbors Act.	Except where floodplains are too extensive to be spanned between structures impacts should be long-term negligible using BMPs, APMs, or avoidance through design and placement of structures. Otherwise must comply with 404 permitting or Section 10 permitting to minimize impacts.	Same as x-09	Same as x-09	Same as x-09	Same as x-09

Table 2.2-32d Colorado River and California Zone Comparison of Impacts by Segment – x Segments West, Located in California

CHARACTERISTIC OR RESOURCE IMPACT		x-15	x-16	x-19
Segment length (miles)		1.4	2.2	0.9
Land ownership (miles)	BLM	1.4	1.9	0.9
	Reclamation	-	-	-
	Arizona State	-	-	-
	California State	-	-	-
	Private	-	0.3	-
Ground disturbance	Short-term Acres	8.5	10.1	7.9
	Long-term Acres	2.3	8.6	13.3
CDCA Plan	VRM	Compliant	Compliant	Compliant
	Corridors	Yes	Yes	Yes
	Plan Conformance	Amendment required	Amendment required	Amendment required
Other Plans (Federal, county, municipal)	Plan Conformance	Yes	Yes	Yes
Air Quality and Climate Change	Air Quality Emissions are proportional to the Proposed Action based on length of each segment. Due to the length of each segment, the impact of individual segments on air quality may be negligible to minor. However, the cumulative impact of all Project segments might have large total emissions, but the emissions are distributed across a long linear area. Climate Change is not available at this smaller scale.			
Geology, Minerals, and Soil Resources	Geological Hazards Minerals/Mining (access to known resources or claims) Soils	Earthquake risk long-term negligible; no mapped active faults. No active mines; negligible short-term potential for preclusion of access; Soil loss/erosion risk negligible to minor, short term to long term; adherence to APMs & BMPs reduces risks to negligible. Negligible disruption of sand transport or dunes during construction and operation.	Same as x-15	Negligible to minor impact on sand transport corridor and dunes during construction and operation
Paleontological Resources	Potential Fossil Yield Classification	High to unknown	High to unknown	Unknown
Biological Resources (Vegetation Resources, Wildlife, including Special Status Species and Migratory Birds)	Loss of native habitat/communities; Noxious weeds; Special Status Species & animals); Increased risk of predation or electrocution re infrastructure; Displacement via construction; Displacement via human activity including recreation; Impacts to native habitat and designated management areas; and Migratory birds.	Potential long-term impact to active windblown sand depositional areas with resulting potential impact to Harwood's eriastrum. Potential impacts to stands of big galleta Alliance along x-15 and x-16.		

CHARACTERISTIC OR RESOURCE IMPACT		x-15	x-16	x-19
Cultural Resources	Damage or loss of a cultural site or potential site under Federal or state registers; degradation of the setting for a cultural site where setting is significant to its listing eligibility; increased access leading to potential vandalism; disturbance of human remains	Known NRHP-eligible sites or sites requiring NRHP evaluation: 0 (cultural resources survey coverage: 62.9%). Known site density: 0.0 sites per 100 acres. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 0. Cultural resources potentially sensitive to visual considerations are located within the 1-mile corridor. No known indirect visual impacts to known historic properties from structures along this segment.	Known NRHP-eligible sites or sites requiring NRHP evaluation: 1 (cultural resources survey coverage: 12.3%). Known site density: 71.4 sites per 100 acres. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 8. Cultural resources potentially sensitive to visual considerations are located within the 1-mile corridor. No known indirect visual impacts to known historic properties from structures along this segment.	Known NRHP-eligible sites or sites requiring NRHP evaluation: 3 (cultural resources survey coverage: 100.0%). Known site density: 16.5 sites per 100 acres. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 3. No known historic properties sensitive to visual considerations. No known indirect visual impacts to known historic properties from structures along this segment.
Issues of Concern to Indian Tribes	Existing and new access, native infrastructure and the interconnection of the cultural and natural environment, places of elevated spiritual important to tribes, the Colorado River, the treatment of human remains, and the disturbance of previously pristine landscapes.	Native infrastructure and the interconnectedness of the cultural and natural environment; places of spiritual importance; Colorado River	Native infrastructure and the interconnectedness of the cultural and natural environment.	No known concerns to Indian tribes.
Land Use	Land use authorizations and ROWs; Residential; Agricultural; Other (i.e., nuisance impacts)	See Alternative 2	See Alternative 2	Within or adjacent to existing or approved but not yet constructed solar energy facilities (minor short-term impact).
Grazing and Rangeland	Access to range or improvements; Loss of range relative to AUMs; Fragmentation of allotments; Degradation of range quality	See Alternative 2	See Alternative 2	See Alternatives 1, 2, 3, and 4
Recreation	Physical, access, use, or functional changes to established, designated, or planned recreation areas, resources, experiences, or activities; conflicts with Federal, state, or local policies; affect OHV designations, access, or routes; impacts to hunting access.	See Alternative 2	See Alternative 2	See Alternatives 1, 2, 3, and 4
Special Designations	Conflict with goals, objectives & resources an area is designated to protect	See Alternative 2	See Alternative 2	See Alternatives 1, 2, 3, and 4
Noise	Exceedance of regulations or guideline; exposure of receptors to excessive noise levels; generate noise levels that pose a health risk.	No NSR present. See Alternative 2	No NSR present. See Alternative 2	No NSR present. See Alternatives 1, 2, 3, and 4

CHARACTERISTIC OR RESOURCE IMPACT		x-15	x-16	x-19
Hazards and Hazardous Materials	Generation, use, handling, or disturbance of hazardous waste that: violates Federal, state, or local laws or regulations; poses a health or safety risk to public or environment; releases hazardous emissions; creates a safety hazard to public or private airstrips; or exposes workers, schools, or the public to hazardous materials.	Negligible risk with adherence to Federal, state, and local laws and regulations; BMPs, APMs, and a HMMP; and the Hazardous Materials Mitigation Sequence.	Same as x-16	Same as x-16
Public Health and Safety	Risks to public health, safety, utilities; fire or electrocution hazard; EMF emissions	Same as x-09	Same as x-09	Same as x-09
Socioeconomics & Environmental Justice	Not available at this scale			
Traffic and Transportation	Increased roadway traffic; damage to roadways, access, or road systems; risk to aviation	All traffic and transportation risks reduced to negligible to minor with adherence to APMs, BMPs, and MMs TT-1, TT-2, and TT-3.	Same as x-15	Same as x-15
Visual Resources	Conflicts with visual standards, ordinances, or policies established; major and unmitigated visual changes that degrade or disrupt views of scenic landscapes from highly sensitive viewing locations; VRM class objectives that would not be met requiring an RMP Amendment.	Conforms to VRM Class objectives no additional mitigation would be required.	Conforms to VRM Class objectives no additional mitigation would be required.	Conforms to VRM Class objectives no additional mitigation would be required.
Water Resources	Impacts to surface water or groundwater quantity or availability; impediments to floodplain function from channel alterations; impacts to water rights or water quality; violations of Section 404 of the Clean Water Act or Section 10 of the Rivers and Harbors Act.	Same as x-09	Same as x-09	Same as x-09

Table 2.2-33 Alternative 1 and Subalternative Impact Summary

CHARACTERISTIC OR RESOURCE IMPACT		ALTERNATIVE 1	1A	1B	1C	1D	1E
Land ownership (miles)	BLM	59.9	-	-	-	-	-
	Reclamation	6.5	-	-	-	-	-
	Arizona State	20.4	-	-	-	-	-
	Private	23.3	-	-	-	-	-
	Indian Lands	1.4	-	-	-	-	-
	Total Length	111.5	9.1	9.1	13.9	0.6	9.1
Ground disturbance	Short-term Acres	470.1	45.2	48.5	142.8	6.3	82.2
	Long-term Acres	26.7	20.7	25.9	43	13.8	1.6
BLM RMP conformance	VRM	Amendment required for 1 segment	Amendment required for 2 segments	Amendment required for 1 segment	Same as Alternative 1	Same as Alternative 1	Same as Alternative 1
	Corridors	Except 1 segment	Except 2 segments	Except 2 segments	Same as Alternative 1	Same as Alternative 1	Same as Alternative 1
	RMP Conformance	Amendments required (YFO)	Amendments required (YFO)	Amendments required (YFO)	Amendments required (YFO and Lake Havasu)	Amendments required (YFO)	Amendments required (YFO)
	CDCA Plan	Amendment required	Amendment required	Amendment required	Amendment required	Amendment required	Amendment required
Other Plan conformance (Federal, county, municipal)	Plan Conformance	Not consistent with La Paz County Zoning Plan and Town of Quartzsite General Plan	Not consistent with La Paz County Zoning Plan and Town of Quartzsite General Plan	Not consistent with La Paz County Zoning Plan and Town of Quartzsite General Plan	Not consistent with La Paz County Zoning Plan and Town of Quartzsite General Plan	Not consistent with La Paz County Zoning Plan and Town of Quartzsite General Plan	Not consistent with La Paz County Zoning Plan and Town of Quartzsite General Plan
Air Quality and Climate Change	Criteria Air Pollutants – Construction	Same as Proposed Action	Same as Proposed Action				
	CO	21.5 tpy	Proportional to Total Length				
	NO_x	33.5 tpy	Proportional to Total Length				
	PM_{10}	2.3 tpy	Proportional to Total Length				
	$PM_{2.5}$	2.2 tpy	Proportional to Total Length				
	SO_2	0.1 tpy	Proportional to Total Length				
	VOC	3.5 tpy	Proportional to Total Length				
	CO_{2e}	10,465 tpy	Proportional to Total Length				
	GHGs – Construction CO_{2e}	Same as Proposed Action	Same as Proposed Action				
	Criteria Air Pollutants – O&M	Would not exceed NAAQS or CAAQS	Would not exceed NAAQS or CAAQS				
	GHGs – SF_6 – O&M	Same as Proposed Action	Same as Proposed Action				
Geology, Minerals, and Soil Resources	Geological Hazards Minerals/Mining (access to known resources or claims) Soils	Uses segments ca-07, ca-09, and x-19 which would have negligible to minor impact on sand transport and dunes during construction and operation	Same as Alternative 1	Same as Alternative 1	Same as Alternative 1	Same as Alternative 1	Same as Alternative 1
Paleontological Resources	Potential damage to known paleontological resources or formations with potential to contain paleontological resources	Same as Proposed Action	Same as Alternative 1	Same as Alternative 1	Same as Alternative 1	Same as Alternative 1	Same as Alternative 1

CHARACTERISTIC OR RESOURCE IMPACT		ALTERNATIVE 1	1A	1B	1C	1D	1E
Biological Resources (Vegetation Resources, Wildlife, including Special Status Species and Migratory Birds)	Loss of native habitat/communities; Noxious weeds; Special Status Species & animals); Increased risk of predation or electrocution re infrastructure; Displacement via construction; Displacement via human activity including recreation; Impacts to native habitat and designated management areas; and Migratory birds.	• Minor short- and long-term impacts to native vegetation pending successful restoration. • Minor long-term impacts due to facilitating increased abundance of non-native plants, especially in dune habitats. • Moderate short- and long-term impacts of ground disturbance on protected and special status plants and plant communities. Negligible impacts to bighorn sheep. • Negligible long-term impacts to wildlife and habitats by facilitating increased recreational access to remote areas. • Minor short- and long-term impact to Mojave fringe-toed lizard due to possible mortality by Project activities and habitat impacts on 4 miles of habitat. • Negligible short- and long-term impacts to sensitive wildlife species (excluding Mojave fringe-toed lizard), including nests of migratory birds. • Negligible long-term impacts associated with contributing to an increase in abundance of non-native plants degrading wildlife habitat. Minor short- and long-term impacts to migratory birds due to potential collision hazard with structures, conductors, and guy lines, and additional hazard at the Colorado River crossing.	Slightly greater, but still negligible impact to native vegetation communities and general wildlife habitat compared to Alternative 1.		Impacts to wildlife and vegetation the same as for Alternative 1.		

CHARACTERISTIC OR RESOURCE IMPACT		ALTERNATIVE 1	1A	1B	1C	1D	1E
Cultural Resources	Damage or loss of a cultural site or potential site under federal or state registers; degradation of the setting for a cultural site where setting is significant to its listing eligibility; increased access leading to potential vandalism; disturbance of human remains	Known NRHP-eligible sites or sites requiring NRHP evaluation: 7 (cultural resources survey coverage: 31.0%). Known site density: 5.3 sites per 100 acres. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 81. Key resources projected to occur include trails and intaglios.	Known NRHP-eligible sites or sites requiring NRHP evaluation: 1 (cultural resources survey coverage: 7.6%). Known site density: 16.6 sites per 100 acres. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 26. Subalternative 1A would result in a reduced visual impact and less potential to affect cultural resources by ground disturbance compared to Alternative 1.	Known NRHP-eligible sites or sites requiring NRHP evaluation: 0 (cultural resources survey coverage: 3.5%). Known site density: 8.8 sites per 100 acres[1]. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 0. Subalternative 1B results in a greater visual impact and a greater potential to affect cultural resources by ground disturbance compared to Alternative 1.	Known NRHP-eligible sites or sites requiring NRHP evaluation: 2 (cultural resources survey coverage: 2.0%). Known site density: 30.3 sites per 100 acres. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 102. Subalternative 1C results in a greater visual impact and a greater potential to affect cultural resources by ground disturbance compared to Alternative 1.	Known NRHP-eligible sites or sites requiring NRHP evaluation: 0 (cultural resources survey coverage: 94.1%). Known site density: 0.0 sites per 100 acres. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 0. Subalternative 1D would result in a reduced visual impact and less potential to affect cultural resources by ground disturbance compared to Alternative 1.	Known NRHP-eligible sites or sites requiring NRHP evaluation: 0 (cultural resources survey coverage: 10.6%). Known site density: 46.4 sites per 100 acres. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 104. Subalternative 1E results in a greater visual impact and a greater potential to affect cultural resources by ground disturbance compared to Alternative 1.
Issues of Concern to Indian Tribes	Existing and new access, native infrastructure and the interconnection of the cultural and natural environment, places of elevated spiritual important to tribes, the Colorado River, the treatment of human remains, and the disturbance of previously pristine landscapes.	Native infrastructure and the interconnectedness of the cultural and natural environment, places of elevated spiritual importance, and the Colorado River.	Native infrastructure and the interconnectedness of the cultural and natural environment	Native infrastructure and the interconnectedness of the cultural and natural environment	No known concerns to Indian tribes	No known concerns to Indian tribes	No known concerns to Indian tribes
Land Use	Land use authorizations and ROWs; Residential; Agricultural; Other (i.e., nuisance impacts)	Same as Proposed Action except Alternative 1 would avoid the Kofa NWR and the YPG, would cross through more ASLD land, would affect more residential land and NRCS-classified farmland in California, and affect more solar facilities. It would not be consistent with Town of Quartzsite or La Paz County plans. In California, it would not be in compliance with the CDCA Plan so would require an amendment.	One additional RMP ROW amendment and one additional VRM amendment than Alternative 1.	One additional RMP ROW amendment than Alternative 1.	Same as Alternative 1	Same as Alternative 1	Same as Alternative 1
Grazing and Rangeland	Access to range or improvements; Loss of range relative to AUMs; Fragmentation of allotments; Degradation of range quality	Would impede access to three stock tanks versus two under the Proposed Action. Otherwise the Same as Proposed Action.	Same as Proposed Action	Same as Proposed Action with MM GR-1 mitigation	Same as Alternative 1	Same as Alternative 1	Same as Alternative 1

CHARACTERISTIC OR RESOURCE IMPACT		ALTERNATIVE 1	1A	1B	1C	1D	1E
Recreation	Physical, access, use, or functional changes to established, designated, or planned recreation areas, resources, experiences, or activities; conflicts with Federal, state, or local policies; affect OHV designations, access, or routes; impacts to hunting access.	Greater impacts to long-term recreation where route varies from Proposed Action as power lines would be new and may impact the quality of the recreation experience. Minor to major effects to La Posa LTVA, Dome Rock Camping Area, and the Ehrenberg Sandbowl OHV area. Kofa NWR would not be crossed. Otherwise the Same as Proposed Action.	Same as Alternative 1	Same as Alternative 1	Same as Alternative 1	Same as Alternative 1	Same as Alternative 1
Special Designations	Conflict with goals, objectives & resources an area is designated to protect	Same as Proposed Action	Same as Alternative 1	Same as Alternative 1	Same as Alternative 1	Same as Alternative 1	Same as Alternative 1
Noise	Exceedance of regulations or guideline; exposure of receptors to excessive noise levels; generate noise levels that pose a health risk.	Although there would be a difference in number of NSR, impacts would be the same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action
Hazards and Hazardous Materials	Generation, use, handling, or disturbance of hazardous waste that: violates Federal, state, or local laws or regulations; poses a health or safety risk to public or environment; releases hazardous emissions; creates a safety hazard to public or private airstrips; or exposes workers, schools, or the public to hazardous materials.	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action
Public Health and Safety	Risks to public health, safety, utilities; fire or electrocution hazard; EMF emissions	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action

CHARACTERISTIC OR RESOURCE IMPACT		ALTERNATIVE 1	1A	1B	1C	1D	1E
Socioeconomics & Environmental Justice	Employment; Tax collection & revenue; Population or population displacement; Non-market values and ecosystem services; Revenue from recreation sector; Local economy; Reductions in property values; EJ Populations; disproportionate adverse impacts to EJ populations	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action
Traffic and Transportation	Increased roadway traffic; damage to roadways, access, or road systems; risk to aviation	Alternative 1 would be within 0.3-mile of the Cyr Aviation Airport. However, impacts would be the same as Proposed Action as all risks reduced to negligible to minor with adherence to APMs, BMPs, and MM-TT-01, MM-TT-02, and MM-TT-03.	Same as Alternative 1	Same as Alternative 1	Same as Alternative 1	Same as Alternative 1	Same as Proposed Action
Visual Resources	Conflicts with visual standards, ordinances, or policies established; major and unmitigated visual changes that degrade or disrupt views of scenic landscapes from highly sensitive viewing locations; VRM class objectives that would not be met requiring an RMP Amendment.	Impacts to viewers along I-10 are going to be minor to moderate. Additionally, there are larger areas of higher scenic quality south of I-10 than there are to the north, meaning that viewers along I-10 attracted to the distant scenic views to the south would be viewing these areas with the Project in the intervening landscape. In areas of moderate impact, the visibility of distant scenic quality A areas may further increase the adverse visual impact of the Project, notably Segment i-04. Addition of the transmission line would add a visible and, in many cases, noticeable development. However, most of the areas crossing BLM-managed public land would meet established VRM Class objectives.	Subalternative 1A would further remove the Project from proximity to I-10 viewers and reducing visual impacts.	Subalternative 1B would further remove the Project from proximity to I-10 viewers and reducing visual impacts.	Impacts would be similar to Alternative 1 with two additional crossings of I-10, increasing impacts in those locations.	Under Subalternative 1D, impacts to I-10 travelers would be minor.	Subalternative 1E would be further south of I-10 reducing the visual impacts.

CHARACTERISTIC OR RESOURCE IMPACT		ALTERNATIVE 1	1A	1B	1C	1D	1E
Water Resources	Impacts to surface water or groundwater quantity or availability; impediments to floodplain function from channel alterations; impacts to water rights or water quality; violations of Section 404 of the Clean Water Act or Section 10 of the Rivers and Harbors Act.	Same as Proposed Action	Same as Alternative 1	Same as Alternative 1	Same as Alternative 1	Same as Alternative 1	Same as Alternative 1

[1]Site density calculations include sites that have been previously determined or recommended as ineligible for the NRHP. In cases where the projected counts of NRHP-eligible or site of unknown NRHP eligibility are 0 and the site density is greater than 0, the site density calculation includes NRHP ineligible sites.

Table 2.2-34 Alternative 2 and Subalternatives Impact Summary

CHARACTERISTIC OR RESOURCE IMPACT		ALTERNATIVE 2	2A	2B	2C	2D	2E
Land ownership (miles)	BLM	81.4	-	-	-	-	-
	Reclamation	1.7	-	-	-	-	-
	DOD	0.4	-	-	-	-	-
	Arizona State	18.7	-	-	-	-	-
	Private	24.0	-	-	-	-	-
	Total Length	126.1	32.0	14.3	5.9	4.4	5.5
Ground disturbance	Short-term Acres	571.22	328.7	60.3	33.6	21.7	23.5
	Long-term Acres	59.62	44.6	52.7	20.1	1	7.5
BLM RMP conformance	VRM	Amendments required for five segments	Amendments required for eight segments	Amendments required for six segments	Amendments required for eight segments	Amendments required for six segments	Amendments required for nine segments.
	Corridors	Except one segment	Except two segments	Except two segments	Except four segments	Same as Alternative 2	Same as Alternative 2
	RMP Conformance	Amendments required (YFO)	Amendments required (YFO)	Amendments required (YFO)	Amendments required (YFO)	Amendments required (YFO)	Amendments required (YFO)
	CDCA Plan	Amendment required	Amendment required	Amendment required	Amendment required	Amendment required	Amendment required
Other Plan conformance (Federal, county, municipal)	Plan Conformance	Not consistent with La Paz County Zoning Plan and Town of Quartzsite General Plan	Not consistent with La Paz County Zoning Plan and Town of Quartzsite General Plan	Not consistent with La Paz County Zoning Plan and Town of Quartzsite General Plan	Not consistent with La Paz County Zoning Plan and Town of Quartzsite General Plan	Not consistent with La Paz County Zoning Plan and Town of Quartzsite General Plan	Not consistent with La Paz County Zoning Plan and Town of Quartzsite General Plan

CHARACTERISTIC OR RESOURCE IMPACT		ALTERNATIVE 2	2A	2B	2C	2D	2E
Air Quality and Climate Change	Criteria Air Pollutants – Const.	Same as Proposed Action	Same as Proposed Action				
	CO	24.3	Proportional to Total Length				
	NO_x	37.9	Proportional to Total Length				
	PM_{10}	2.6	Proportional to Total Length				
	$PM_{2.5}$	2.5	Proportional to Total Length				
	SO_2	0.1	Proportional to Total Length				
	VOC	3.9	Proportional to Total Length				
	CO_{2e}	11,835	Proportional to Total Length				
	GHGs – Construction CO_{2e}	Same as Proposed Action	Same as Proposed Action				
	Criteria Air Pollutants – O&M	Would not exceed NAAQS or CAAQS	Would not exceed NAAQS or CAAQS				
	GHGs – SF_6 – O&M	Same as Proposed Action	Same as Proposed Action				
Geology, Minerals, and Soil Resources	Geological Hazards Minerals/Mining (access to known resources or claims) Soils	Uses segments ca-07, ca-09, and x-19 which would have negligible to minor impact on sand transport and dunes during construction and operation	Same as Alternative 2	Same as Alternative 2	Same as Alternative 2	Same as Alternative 2	Same as Alternative 2
Paleontological Resources	Potential damage to known paleontological resources or formations with potential to contain paleontological resources	Potentially increased impacts from Proposed Action with three segments having high to very high PFYC – negligible to minor long-term impacts with mitigations	Same as Alternative 2	Same as Alternative 2	Same as Alternative 2	Same as Alternative 2	Same as Alternative 2

CHARACTERISTIC OR RESOURCE IMPACT		ALTERNATIVE 2	2A	2B	2C	2D	2E
Biological Resources (Vegetation Resources, Wildlife, including Special Status Species and Migratory Birds)	Loss of native habitat/communities; Noxious weeds; Special Status Species & animals); Increased risk of predation or electrocution re infrastructure; Displacement via construction; Displacement via human activity including recreation; Impacts to native habitat and designated management areas; and Migratory birds.	Minor short- and long-term impacts to native vegetation pending successful restoration; Minor long-term impacts due to facilitating increased abundance of non-native plants, especially in dune habitats. Moderate short- and long-term impacts of ground disturbance on protected and special status plants and plant communities. More than one mile of big galleta Alliance intersected. Minor short-term impacts to bighorn sheep in the Copper Bottom Pass area. Minor short- and long-term impacts to Mojave fringe-toed lizard due to possible mortality by Project activities and habitat impacts. Negligible short- and long-term impacts to sensitive wildlife species (excluding Mojave fringe-toed lizard), including nests of migratory birds. Minor long-term impact to wildlife habitat by contributing to an increase in abundance of non-native plants, especially in dune habitat. Minor short- and long-term impacts to migratory birds due to potential collision hazard with structures, conductors, and guy lines.	Subalternative 2 would avoid potential disturbance associated with Segment p-01 at a developed wildlife water in the Big Horn Mountains that may be used by bighorn sheep; and avoid crossing a bighorn sheep dispersal corridor between Burnt Mountain and the Big Horn Mountains.	Overall substantially similar to Alternative 2	The increased human presence associated with constructing and operating the line could interfere with wildlife use of the developed wildlife water in Johnson Canyon. Development of Subalternative 2C could increase public access into remote habitats, and could permanently alter the character and function of the area for wildlife. Subalternative 2C would result in substantially more impacts to biological resources than Alternative 2, which is parallel to existing development through Copper Bottom Pass.	Overall substantially similar to Alternative 2	Overall substantially similar to Alternative 2

CHARACTERISTIC OR RESOURCE IMPACT		ALTERNATIVE 2	2A	2B	2C	2D	2E
Cultural Resources	Damage or loss of a cultural site or potential site under Federal or state registers; degradation of the setting for a cultural site where setting is significant to its listing eligibility; increased access leading to potential vandalism; disturbance of human remains	Known NRHP-eligible sites or sites requiring NRHP evaluation: 9 (cultural resources survey coverage: 34.2%). Known site density: 7.4 sites per 100 acres. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 120. Key resources projected to occur include trails and intaglios. Areas of Indian Tribal concern (NRHP-listed Ripley Intaglio Site and Limekiln Wash Intaglio Site) are in the vicinity of this alternative route. Continued consultation with Indian Tribes and/or other interested parties potentially may identify additional resources of concern.	Known NRHP-eligible sites or sites requiring NRHP evaluation: 0 (cultural resources survey coverage: 5.5%). Known site density: 4.7 sites per 100 acres. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 37. Subalternative 2A would result in a greater visual impact but a comparable amount of ground disturbance compared to Alternative 2.	Known NRHP-eligible sites or sites requiring NRHP evaluation: 3 (cultural resources survey coverage: 12.7%). Known site density: 23.1 sites per 100 acres. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 39. Subalternative 2B would result in a greater visual impact and a greater potential to affect cultural resources by ground disturbance compared with Alternative 2.	Known NRHP-eligible sites or sites requiring NRHP evaluation: 0 (cultural resources survey coverage: 29.9%). Known site density: 7.7 sites per 100 acres. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 10. Subalternative 2C has a higher potential to affect cultural resources based on projected site counts and the disturbance footprint, as compared to Alternative 2.	Known NRHP-eligible sites or sites requiring NRHP evaluation: 1 (cultural resources survey coverage: 15.7%). Known site density: 12.0 sites per 100 acres. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 6. Subalternative 2D would result in a greater visual impact but a reduced potential to affect cultural resources by ground disturbance compared to Alternative 2.	Known NRHP-eligible sites or sites requiring NRHP evaluation: 7.6 (cultural resources survey coverage: 7.6%). Known site density: 40.0 sites per 100 acres. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 53. Subalternative 2E would result in a greater potential to affect cultural resources by ground disturbance compared to Alternative 2.
Issues of Concern to Indian Tribes	Existing and new access, native infrastructure and the interconnection of the cultural and natural environment, places of elevated spiritual important to tribes, the Colorado River, the treatment of human remains, and the disturbance of previously pristine landscapes.	Native infrastructure and the interconnectedness of the cultural and natural environment, places of elevated spiritual importance, and the Colorado River.	Native infrastructure and the interconnectedness of the cultural and natural environment; places of elevated spiritual importance.	Native infrastructure and the interconnectedness of the cultural and natural environment.	Native infrastructure and the interconnectedness of the cultural and natural environment; intrusion on pristine landscapes.	Native infrastructure and the interconnectedness of the cultural and natural environment.	Native infrastructure and the interconnectedness of the cultural and natural environment.
Land Use	Land use authorizations and ROWs; Residential; Agricultural; Other (i.e., nuisance impacts)	Same as the Proposed Action except inconsistent with La Paz County Zoning Plan and possibly the Quartzsite General Plan. Avoids the Kofa NWR. Affects greater number of solar facilities. One ROW RMP amendment required and five VRM RMP amendments. In California, it would not be in compliance with the CDCA Plan so would require an amendment.	Passes through renewable energy development avoidance area and include more NRCS-classified farmland in CA. Would require two RMP ROW amendments and eight VRM RMP amendments. Otherwise similar to Alternative 2.	Would require two RMP ROW amendments and six VRM RMP amendments. Otherwise similar to Alternative 2.	Would require four RMP ROW amendments and eight VRM RMP amendments. Otherwise similar to Alternative 2.	Would require six VRM RMP amendments. Otherwise similar to Alternative 2.	Would require nine VRM RMP amendments and two RMP ROW amendments.

CHARACTERISTIC OR RESOURCE IMPACT		ALTERNATIVE 2	2A	2B	2C	2D	2E
Grazing and Rangeland	Access to range or improvements; Loss of range relative to UMs; Fragmentation of allotments; Degradation of range quality	Same as Alternative 1	No impediments to any stock tanks. Otherwise the Same as Proposed Action.	Same as Proposed Action.	Same as Alternative 2	Same as Alternative 2	Same as Alternative 2
Recreation	Physical, access, use, or functional changes to established, designated, or planned recreation areas, resources, experiences, or activities; conflicts with Federal, state, or local policies; affect OHV designations, access, or routes; impacts to hunting access.	Long-term recreation quality similar to Proposed Action except in Quartzsite Zone where powerline would be new to the landscape (negligible to minor). Two Alternative 2 segments would cross the La Posa LTVA (minor to moderate impact), but, by comparison to Alternative 1, Dome Rock Camping Area would not be crossed by Alternative 2. Otherwise similar to the Proposed Action.	Same as Alternative 2	Same as Alternative 2	Route would go through Johnson Canyon rather than the Copper Bottom Area, where the powerline would be a new feature of the landscape and may detract from the experience. Otherwise the same as Alternative 2.	Same as Alternative 2	Same as Alternative 2
Special Designations	Conflict with goals, objectives & resources an area is designated to protect	Same as for Proposed Action	Same as Alternative 2	Same as Alternative 2	Includes segments cb-02 and cb-04, which would have major long-term impacts on LWC Polygon 35_SW.	Same as Alternative 2	Same as Alternative 2
Noise	Exceedance of regulations or guideline; exposure of receptors to excessive noise levels; generate noise levels that pose a health risk.	Although there would be a difference in number of NSR, impacts would be the same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action

CHARACTERISTIC OR RESOURCE IMPACT		ALTERNATIVE 2	2A	2B	2C	2D	2E
Hazards and Hazardous Materials	Generation, use, handling, or disturbance of hazardous waste that: violates Federal, state, or local laws or regulations; poses a health or safety risk to public or environment; releases hazardous emissions; creates a safety hazard to public or private airstrips; or exposes workers, schools, or the public to hazardous materials.	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action
Public Health and Safety	Risks to public health, safety, utilities; fire or electrocution hazard; EMF emissions	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action
Socioeconomics & Environmental Justice	Employment; Tax collection & revenue; Population or population displacement; Non-market values and ecosystem services; Revenue from recreation sector; Local economy; Reductions in property values; EJ Populations; disproportionate adverse impacts to EJ populations	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action
Traffic and Transportation	Increased roadway traffic; damage to roadways, access, or road systems; risk to aviation	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action

CHARACTERISTIC OR RESOURCE IMPACT		ALTERNATIVE 2	2A	2B	2C	2D	2E
Visual Resources	Conflicts with visual standards, ordinances, or policies established; major and unmitigated visual changes that degrade or disrupt views of scenic landscapes from highly sensitive viewing locations; VRM class objectives that would not be met requiring an RMP Amendment.	Impacts along the eastern portion (Segments i-01 through i-05) would be the same as Alternative 1. The large lattice H-frame structures would be a major modification and would dominate the views for travelers on SR 95, particularly in conjunction with the existing utility infrastructure. An additional RMP amendment would change the VRM Class within the corridor to VRM Class IV.	Subalternative 2A would move the location of the Project south away from I-10, which would reduce the visual impacts.	Subalternative 2B would move the location of the Project south away from I-10, which would reduce the visual impacts.	Subalternative 2C would have no effect on visual resource impacts as viewed within the I-10 corridor.	Subalternative 2D would have no effect on visual resource impacts as viewed within the I-10 corridor.	Subalternative 2E would move the location of the Project north, roughly mid-way between the Proposed Action route and I-10; however, because of the predominate agricultural use and limited sensitive viewers, there would be no discernable change in visual impacts.
Water Resources	Impacts to surface water or groundwater quantity or availability; impediments to floodplain function from channel alterations; impacts to water rights or water quality; violations of Section 404 of the Clean Water Act or Section 10 of the Rivers and Harbors Act.	Same as for Proposed Action	Same as Alternative 2	Same as Alternative 2	Same as Alternative 2	Same as Alternative 2	Same as Alternative 2

Table 2.2-35 Alternative 3 Subalternative Impacts

CHARACTERISTIC OR RESOURCE IMPACT		ALTERNATIVE 3	3A	3B	3C	3D	3E	3F	3G	3H	3J	3K	3L	3M
Land ownership (miles)	BLM	83.6	-	-	-	-	-	-	-	-	-	-	-	-
	Reclamation	0.7	-	-	-	-	-	-	-	-	-	-	-	-
	DOD	0.4	-	-	-	-	-	-	-	-	-	-	-	-
	Arizona State	15.2	-	-	-	-	-	-	-	-	-	-	-	-
	Private	23.1	-	-	-	-	-	-	-	-	-	-	-	-
	Total Length	123.0	35.3	11.6	24.6	13.9	10.8	9.3	0.6	10.8	2.8	3.3	14.5	11.3
Ground disturbance	Short-term Acres	508.4	342.8	39.2	146.7	142.8	45.4	39.6	6.3	84.4	11.2	21.9	65.6	91.1
	Long-term Acres	47.8	57	20.5	19.3	43	9.1	1.1	13.8	3.4	21.9	1.8	17.9	5.7

CHARACTERISTIC OR RESOURCE IMPACT		ALTERNATIVE 3	3A	3B	3C	3D	3E	3F	3G	3H	3J	3K	3L	3M
BLM RMP conformance	VRM	6 segments required amendments	Same as for Alternative 3	Same as for Alternative 3	Same as for Alternative 3	Same as for Alternative 3	Same as for Alternative 3	Same as for Alternative 3	Same as for Alternative 3	Same as for Alternative 3	Same as for Alternative 3	7 segments required amendments	Same as for Alternative 3	Same as for Alternative 3
	Corridors	Except 5 segments	Except 6 segments	Same as for Alternative 3	Except 4 segments	Same as for Alternative 3	Same as for Alternative 3	Same as for Alternative 3	Same as for Alternative 3	Except 6 segments	Same as for Alternative 3	Same as for Alternative 3	Same as for Alternative 3	Same as for Alternative 3
	RMP Conformance	Amendments required (YFO)	Amendments required (YFO)	Amendments required (YFO)	Amendments required (YFO)	Amendments required (YFO and Lake Havasu)	Amendments required (YFO)	Amendments required (YFO)	Amendments required (YFO)	Amendments required (YFO)	Amendments required (YFO)	Amendments required (YFO)	Amendments required (YFO)	Amendments required (YFO)
	CDCA Plan	Amendment required	Amendment required	Amendment required	Amendment required	Amendment required	Amendment required	Amendment required	Amendment required	Amendment required	Amendment required	Amendment required	Amendment required	Amendment required
Other Plan conformance (Federal, county, municipal)	Plan Conformance	Not consistent with La Paz County Zoning Plan	Not consistent with La Paz County Zoning Plan	Not consistent with La Paz County Zoning Plan	Not consistent with La Paz County Zoning Plan	Not consistent with La Paz County Zoning Plan	Not consistent with La Paz County Zoning Plan and Town of Quartzsite General Plan	Not consistent with La Paz County Zoning Plan	Not consistent with La Paz County Zoning Plan	Not consistent with La Paz County Zoning Plan	Not consistent with La Paz County Zoning Plan	Not consistent with La Paz County Zoning Plan	Not consistent with La Paz County Zoning Plan	Not consistent with La Paz County Zoning Plan
Air Quality and Climate Change	Criteria Air Pollutants – Construction	Same as Proposed Action	Same as Proposed Action											
	CO	23.7	Proportional to Total Length											
	NO_x	37.0	Proportional to Total Length											
	PM_{10}	2.5	Proportional to Total Length											
	$PM_{2.5}$	2.4	Proportional to Total Length											
	SO_2	0.1	Proportional to Total Length											
	VOC	3.8	Proportional to Total Length											
	CO_{2e}	11,544	Proportional to Total Length											
	GHGs – Cons. CO_{2e}	Same as Proposed Action	Same as Proposed Action											
	Criteria Air Pollutants – O&M	Would not exceed NAAQS or CAAQS	Would not exceed NAAQS or CAAQS											
	GHGs – SF_6 – O&M	Same as Proposed Action	Same as Proposed Action											
Geology, Minerals, and Soil Resources	Geological Hazards Minerals/Mining (access to known resources or claims) Soils	Uses segments Ca-07, Ca-09, and X-19 which would have negligible to minor impact on sand transport and dunes during construction and operation.	Same as Alternative 33	Same as Alternative 33	Same as Alternative 3		Same as Alternative 3	Same as Alternative 3	Same as Alternative 3	Same as Alternative 3	Same as Alternative 3	Same as Alternative 3	Same as Alternative 3	Same as Alternative 3

CHARACTERISTIC OR RESOURCE IMPACT		ALTERNATIVE 3	3A	3B	3C	3D	3E	3F	3G	3H	3J	3K	3L	3M
Paleontological Resources	Potential damage to known paleontological resources or formations with potential to contain paleontological resources	Same as Proposed Action	Same as Alternative 3	Same as Alternative 3	Same as Alternative 3	Same as Alternative 3	Same as Alternative 3	Same as Alternative 3	Same as Alternative 3	Slightly higher potential for impacts than Alternative Route 3	Same as Alternative 3	Same as Alternative 3	Slightly higher potential for impacts than Alternative 3	Same as Alternative 3
Biological Resources (Vegetation Resources, Wildlife, including Special Status Species and Migratory Birds)	Loss of native habitat/communities; Noxious weeds; Special Status Species & animals); Increased risk of predation or electrocution re infrastructure; Displacement via construction; Displacement via human activity including recreation; Impacts to native habitat and designated management areas; and Migratory birds.	Moderate short-term impacts to native vegetation due to ground disturbance during construction pending restoration, and moderate long-term impacts to vegetation in areas where no linear facilities and few roads exist. Moderate long-term impacts due to facilitating spread and increased abundance of non-native plants into new areas, especially into the Dome Rock Mountains and dune habitats. Moderate short- and long-term impacts of ground disturbance on protected and special status plants and plant communities. Moderate short- and long-term impacts in areas where there are no	Same as Alternative 3	Same as Alternative 3	Subalternatives 3C and 3D would result in substantially greater impacts than Alternative 3, where habitats have been degraded adjacent to I-10.		Same as Alternative 3	Subalternative 3F would result in a reduction of impacts to vegetation and wildlife resources.	Same as Alternative 3	Subalternative 3H would result in a reduction of impacts to plant and wildlife resources by not utilizing Alternative 3 Segment x-05, which passes close to the Plomosa Mountains through good quality desert scrub habitat where several special status species may be present, and the area has not been impacted by linear facilities and developments.	Same as Alternative 3	Subalternative 3K passes through the remote, rugged slopes at Cunningham Peak and Johnson Canyon in the Dome Rock Mountains. The consequence of either option is the same—major adverse impacts to bighorn sheep and other wildlife in this near-pristine area.	Impacts to wildlife, especially to bighorn sheep, would be reduced by moving the Project out of Copper Bottom Pass, which is important to bighorn sheep	Potential impacts to biological resources from Subalternative 3M and Alternative 3 are very similar through the agricultural area just west of the Colorado River. At the river crossing, Subalternative 3M would cross adjacent to an existing utility line, where matching conductor height and structures could reduce potential collision by birds, affording a benefit to migratory birds.

CHARACTERISTIC OR RESOURCE IMPACT		ALTERNATIVE 3	3A	3B	3C	3D	3E	3F	3G	3H	3J	3K	3L	3M
		existing linear facilities and few roads resulting in impacts to near-pristine examples of desert wash communities. Major long-term impacts to bighorn sheep in the Dome Rock Mountains by degrading nearly pristine habitat and facilitating increased recreational access to remote areas. Minor short- and long-term impacts to Mojave fringe-toed lizard due to possible mortality by Project activities and habitat impacts. Negligible short- and long-term impacts to sensitive wildlife species (excluding Mojave fringe-toed lizard), including nests of migratory birds. Moderate long-term impact to wildlife habitat by contributing to an increase in abundance of non-native plants into remote areas and dune habitat. Minor short- and long-term impacts to migratory birds due to potential												

CHARACTERISTIC OR RESOURCE IMPACT		ALTERNATIVE 3	3A	3B	3C	3D	3E	3F	3G	3H	3J	3K	3L	3M
		collision hazard with structures, conductors, and guy lines, and additional hazard at the Colorado River.												
Cultural Resources	Damage or loss of a cultural site or potential site under Federal or state registers; degradation of the setting for a cultural site where setting is significant to its listing eligibility; increased access leading to potential vandalism; disturbance of human remains	Known NRHP-eligible sites or sites requiring NRHP evaluation: 10 (cultural resources survey coverage: 25.7%). Known site density: 8.8 sites per 100 acres. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 140. Key resources projected to occur include trails.	Known NRHP-eligible sites or sites requiring NRHP evaluation: 0 (cultural resources survey coverage: 5.0%). Known site density: 4.7 sites per 100 acres. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 40. Subalternative 3A would result in a greater visual impact and a greater potential to affect cultural resources compared to Alternative 3.	Known NRHP-eligible sites or sites requiring NRHP evaluation: 1 (cultural resources survey coverage: 7.4%). Known site density: 9.7 sites per 100 acres. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 27. Subalternative 3B would result in less ground disturbance and visual impact compared to Alternative 3.	Known NRHP-eligible sites or sites requiring NRHP evaluation: 1 (cultural resources survey coverage: 5.9%). Known site density: 11.0 sites per 100 acres. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 34. Subalternative 3C would result in a comparable visual impact and a lower potential to affect cultural resources by ground disturbance compared to Alternative 3.	Known NRHP-eligible sites or sites requiring NRHP evaluation: 2 (cultural resources survey coverage: 2.0%). Known site density: 30.3 sites per 100 acres. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 102. Subalternative 3D would result in a greater visual impact and a greater potential to affect cultural resources by ground disturbance compared to Alternative 3	Known NRHP-eligible sites or sites requiring NRHP evaluation: 3 (cultural resources survey coverage: 29.0%). Known site density: 9.2 sites per 100 acres. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 21. Subalternative 3E would result in a comparable visual impact but a greater potential to affect cultural resources by ground disturbance compared to Alternative 3.	Known NRHP-eligible sites or sites requiring NRHP evaluation: 3 (cultural resources survey coverage: 23.7%). Known site density: 11.2 sites per 100 acres. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 21. Subalternative 3F would result in a comparable visual impact but less potential to affect cultural resources by ground disturbance compared to Alternative 3.	Known NRHP-eligible sites or sites requiring NRHP evaluation: 1 (cultural resources survey coverage: 89.4%). Known site density: 22.2 sites per 100 acres. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 2. Subalternative 3G demonstrates a low sensitivity for cultural resources in the 200-foot analysis corridor compared to Alternative 3. The potential effect to cultural resources by Subalternative 3G must be further evaluated in	Known NRHP-eligible sites or sites requiring NRHP evaluation: 3 (cultural resources survey coverage: 56.6%). Known site density: 4.7 sites per 100 acres. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 7. The potential effect to cultural resources by Subalternative 3H must be further evaluated in conjunction with the pairing of Subalternative 3H with Subalternatives 3D and 3L compared to Alternative 3.	Known NRHP-eligible sites or sites requiring NRHP evaluation: 0 (cultural resources survey coverage: 36.2%). Known site density: 4.0 sites per 100 acres. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 3. The potential effect to cultural resources by Subalternative 3J must be further evaluated in conjunction with the pairing of Subalternative 3J with Subalternatives 3E, 3F, or 3G and 3H compared to Alternative 3.	Known NRHP-eligible sites or sites requiring NRHP evaluation: 0 (cultural resources survey coverage: 39.3%). Known site density: 4.6 sites per 100 acres[1]. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 0. Subalternative 3K would result in a greater visual impact but less potential to affect cultural resources by ground disturbance compared to Alternative 3.	Known NRHP-eligible sites or sites requiring NRHP evaluation: 3 (cultural resources survey coverage: 45.5%). Known site density: 4.9 sites per 100 acres. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 7. Subalternative 3L would result in a greater visual impact and a greater potential to affect cultural resources by ground disturbance compared to Alternative 3.	Known NRHP-eligible sites or sites requiring NRHP evaluation: 0 (cultural resources survey coverage: 29.8%). Known site density: 15.8 sites per 100 acres. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 44. Subalt 3M would result in a comparable visual impact but a greater potential to affect cultural resources by ground disturbance compared to Alternative 3.

CHARACTERISTIC OR RESOURCE IMPACT		ALTERNATIVE 3	3A	3B	3C	3D	3E	3F	3G	3H	3J	3K	3L	3M
									conjunction with the pairing of Subalternative 3G with Subalternatives 3D, 3E, 3F, 3H, and/or 3J.					
Issues of Concern to Indian Tribes	Existing and new access, native infrastructure and the interconnection of the cultural and natural environment, places of elevated spiritual important to tribes, the Colorado River, the treatment of human remains, and the disturbance of previously pristine landscapes.	Native infrastructure and the interconnectedness of the cultural and natural environment; the Colorado River; intrusion on pristine landscapes.	Native infrastructure and the interconnectedness of the cultural and natural environment; places of elevated spiritual importance.	No known concerns to Indian tribes.	Native infrastructure and the interconnectedness of the cultural and natural environment; intrusion on pristine landscapes.	No known concerns to Indian tribes.	Native infrastructure and the interconnectedness of the cultural and natural environment.	Native infrastructure and the interconnectedness of the cultural and natural environment.	No known concerns to Indian tribes.	Native infrastructure and the interconnectedness of the cultural and natural environment; places of elevated spiritual importance.	No known concerns to Indian tribes.	Native infrastructure and the interconnectedness of the cultural and natural environment; intrusion on pristine landscapes.	Native infrastructure and the interconnectedness of the cultural and places of elevated spiritual importance.	Native infrastructure and the interconnectedness of the cultural and places of elevated spiritual importance; the Colorado River.

CHARACTERISTIC OR RESOURCE IMPACT		ALTERNATIVE 3	3A	3B	3C	3D	3E	3F	3G	3H	3J	3K	3L	3M
Land Use	Land use authorizations and ROWs; Residential; Agricultural; Other (i.e., nuisance impacts)	Avoids Kofa NWR. Inconsistent with La Paz County Zoning Plan. Would affect more NRCS-classified farmland and solar energy facilities than Proposed Action. One amendment to Yuma RMP for ROW and six for VRM. In California, it would not be in compliance with the CDCA Plan so would require an amendment.	Passes avoidance area for renewable energy development. More ASLD & NRCS-class farm land. Two RMP ROW amendments. Otherwise same as Alternative 3.	More ASLD land. Otherwise same as Alternative 3.	More ASLD land; no ROW amendments to RMP. Otherwise same as Alternative 3.	Same as Alternative 3	Passes through La Posa LTVA which may be inconsistent with Quartzsite General Plan. Otherwise same as Alternative 3.	Same as Alternative 3	Same as Alternative 3	Passes Tier III growth area. Two ROW amendments to RMP. Otherwise same as Alternative 3. Otherwise same as Alternative 3.	Same as Alternative 3	Seven segments would require amendments to RMP for VRM. Otherwise same as Alternative 3.	Same as Alternative 3	Same as Alternative 3
Grazing and Rangeland	Access to range or improvements; Loss of range relative to AUMs; Fragmentation of allotments; Degradation of range quality	Same as the Proposed Action	Removes impediments to 2 tanks under the Proposed Action but impedes access to another tank. Otherwise the same as Alternative 3	Impediments to 3 stock tanks total; negligible impact with MM GR-1. Otherwise the same as Alternative 3.	Same as Alternative 3	Same as Alternative 3	Same as Alternative 3	Same as Alternative 3	Same as Alternative 3	Same as Alternative 3	Same as Alternative 3	Same as Alternative 3	Same as Alternative 3	Same as Alternative 3

CHARACTERISTIC OR RESOURCE IMPACT		ALTERNATIVE 3	3A	3B	3C	3D	3E	3F	3G	3H	3J	3K	3L	3M
Recreation	Physical, access, use, or functional changes to established, designated, or planned recreation areas, resources, experiences, or activities; conflicts with Federal, state, or local policies; affect OHV designations, access, or routes; impacts to hunting access.	Long-term recreation quality similar to Proposed Action except where powerline would be new to the landscape (negligible to minor). Would not cross the La Posa LTVA, Dome Rock Camping Area, Kofa NWR, Copper Bottom Pass, or Johnson Canyon. Otherwise similar to the Proposed Action.	Same as Alternative 3	Same as Alternative 3	Same as Alternative 3	Same as Alternative 3	Would go through La Posa LTVA. Otherwise the same as Alternative 3	Adjacent to La Posa LTVA. Otherwise the same as Alternative 3	Same as Alternative 3	Same as Alternative 3	Same as Alternative 3	Route would go through Johnson Canyon – minor impact with mitigation. Otherwise the same as Alternative 3	Route would go through Dome Rock Camping Area. Otherwise the same as Alternative 3	Same as Alternative 3
Special Designations	Conflict with goals, objectives & resources an area is designated to protect	Includes segment cb-04 with major long-term effect to LWC Polygon 35_SW.	Same as Alternative 3	Same as Alternative 3	Same as Alternative 3	Same as Alternative 3	Same as Alternative 3	Same as Alternative 3	Same as Alternative 3	Same as Alternative 3	Same as Alternative 3	Same as Alternative 3	Same as Alternative 3	Same as Alternative 3
Noise	Exceedance of regulations or guideline; exposure of receptors to excessive noise levels; generate noise levels that pose a health risk.	Although there would be a difference in number of NSR, impacts would be the same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action
Hazards and Hazardous Materials	Generation, use, handling, or disturbance of hazardous waste that: violates Federal, state, or local laws or regulations; poses a health or safety risk to public or environment;	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action

CHARACTERISTIC OR RESOURCE IMPACT		ALTERNATIVE 3	3A	3B	3C	3D	3E	3F	3G	3H	3J	3K	3L	3M
	releases hazardous emissions; creates a safety hazard to public or private airstrips; or exposes workers, schools, or the public to hazardous materials.													
Public Health and Safety	Risks to public health, safety, utilities; fire or electrocution hazard; EMF emissions	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action
Socioeconomics & Environmental Justice	Employment; Tax collection & revenue; Population or population displacement; Non-market values and ecosystem services; Revenue from recreation sector; Local economy; Reductions in property values; EJ Populations; disproportionate adverse impacts to EJ populations	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action
Traffic and Transportation	Increased roadway traffic; damage to roadways, access, or road systems; risk to aviation	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action

CHARACTERISTIC OR RESOURCE IMPACT		ALTERNATIVE 3	3A	3B	3C	3D	3E	3F	3G	3H	3J	3K	3L	3M
Visual Resources	Conflicts with visual standards, ordinances, or policies established; major and unmitigated visual changes that degrade or disrupt views of scenic landscapes from highly sensitive viewing locations; VRM class objectives that would not be met requiring an RMP Amendment.	Under Alternative 3, impacts to the I-10 corridor in the eastern portion of the Project Area would be the same as the Proposed Action. Alternative 3 would avoid any impacts to the SR 95 corridor. Impacts to the remainder of this route would the same as Alternative 2.	Subalternative 3A would reduce the effect on visual resources as viewed from I-10.	Subalternative 3B would have the same impact to this portion of the I-10 as described for Alternative 1.	Subalternative 3C would shift the Project nearly 5 miles south of I-10, virtually eliminating visual impacts in that area. Visual impacts would slowly increase as the Project approaches I-10.	Impacts from Subalternative 3D would be the same as those described for Subalternative 1C.	Subalternative 3E would have minor impacts to the views of I-10 travelers who would see the Project paralleling the WAPA 161kV transmission line; however, impacts to nearby residents would be moderate to major	Subalternative 3F would place the Project in closer proximity to I-10, with impacts as described under Alternative 1.	Subalternative 3G would have the same impacts as described for Subalternative 1D.	Subalternative 3H would have impacts to I-10 travelers similar to Alternative 3, the addition of other segments along I-10 west of Quartzsite would increase the visual impacts, as compared to Alternative 3.	Subalternative 3J would use Segment i-05 in conjunction with other segments. See analysis of Subalternative 3F.	Subalternative 3K would have no impacts as viewed within the I-10 corridor.	Subalt 3L would move the Project along I-10 for this segment; see analysis of impacts from this segment under Alternative 1.	Subalt 3M would have no effect on visual resource impacts as viewed within the I-10 corridor.
Water Resources	Impacts to surface water or groundwater quantity or availability; impediments to floodplain function from channel alterations; impacts to water rights or water quality; violations of Section 404 of the Clean Water Act or Section 10 of the Rivers and Harbors Act.	Same as Proposed Action	Same as Alternative 3	Same as Alternative 3	Same as Alternative 3	Same as Alternative 3	Same as Alternative 3	Same as Alternative 3	Same as Alternative 3	Same as Alternative 3	Same as Alternative 3	Same as Alternative 3	Same as Alternative 3	Same as Alternative 3

Table 2.2-36 Alternative 4 Subalternative 4A through 4H Impacts

CHARACTERISTIC OR RESOURCE IMPACT		ALTERNATIVE 4	4A	4B	4C	4D	4E	4F	4G	4H
Land ownership (miles)	BLM	86.8	-	-	-	-	-	-	-	-
	Reclamation	0.8	-	-	-	-	-	-	-	-
	State	6.0	-	-	-	-	-	-	-	-
	Private	27.9	-	-	-	-	-	-	-	-
	Total Length	121.8	29.4	25.6	10.4	12.4	3.2	4.4	6.6	7.7
Ground disturbance	Short-term Acres	668.96	316.7	140.6	98.4	53.6	23.5	18.9	27.4	37
	Long-term Acres	156.07	43.1	91.4	49.4	4.8	0.7	4.1	11.7	5.6
BLM RMP conformance	VRM	7 Segments require amendments	8 Segments require amendments	Same as Alternative 4	Same as Alternative 4	8 Segments require amendments	Same as Alternative 4	Same as Alternative 4	Same as Alternative 4	Same as Alternative 4
	Corridors	Except 5 segments	Same as Alternative 4	Except 6 segments	Same as Alternative 4	Except 6 segments	Same as Alternative 4	Same as Alternative 4	Same as Alternative 4	Same as Alternative 4
	RMP Conformance	Amendments required (YFO and Lake Havasu)	Amendments required (YFO)	Amendments required (YFO)	Amendments required (YFO)	Amendments required (YFO)	Amendments required (YFO)	Amendments required (YFO)	Amendments required (YFO)	Amendments required (YFO)
	CDCA Plan	Amendment required	Amendment required	Amendment required	Amendment required	Amendment required	Amendment required	Amendment required	Amendment required	Amendment required
Other Plan conformance (Federal, county, municipal)	Plan Conformance	Not consistent with La Paz County Zoning Plan	Not consistent with La Paz County Zoning Plan	Not consistent with La Paz County Zoning Plan	Not consistent with La Paz County Zoning Plan	Not consistent with La Paz County Zoning Plan	Not consistent with La Paz County Zoning Plan	Not consistent with La Paz County Zoning Plan	Not consistent with La Paz County Zoning Plan	Not consistent with La Paz County Zoning Plan
Air Quality and Climate Change	Criteria Air Pollutants – Construction	Same as Proposed Action	Same as Proposed Action							
	CO	23.5 tpy	Proportional to Total Length							
	NO_x	36.6 tpy	Proportional to Total Length							
	PM_{10}	2.5 tpy	Proportional to Total Length							
	$PM_{2.5}$	2.4 tpy	Proportional to Total Length							
	SO_2	0.1 tpy	Proportional to Total Length							
	VOC	3.8 tpy	Proportional to Total Length							
	CO_{2e}	11,431 tpy	Proportional to Total Length							
	GHGs – Cons. CO_{2e}	Same as Proposed Action	Same as Proposed Action							
	Criteria Air Pollutants – O&M	Would not exceed NAAQS or CAAQS	Would not exceed NAAQS or CAAQS							
	GHGs – SF_6 – O&M	Same as Proposed Action	Same as Proposed Action							

CHARACTERISTIC OR RESOURCE IMPACT		ALTERNATIVE 4	4A	4B	4C	4D	4E	4F	4G	4H
Geology, Minerals, and Soil Resources	Geological Hazards Minerals/ Mining (access to known resources or claims) Soils	Uses segments ca-07, ca-09, and x-19 which would have negligible to minor impact on sand transport and dunes during construction and operation	Same as Alternative 4	Same as Alternative 4	Same as Alternative 4	Same as Alternative 4	Same as Alternative 4	Same as Alternative 4	Same as Alternative 4	Same as Alternative 4
Paleontological Resources	Potential damage to known paleontological resources or formations with potential to contain paleontological resources	Same as Proposed Action but less than Alternative 2	Same as Alternative 4	Same as Alternative 4	Same as Alternative 4	Same as Alternative 4	Same as Alternative 4	Same as Alternative 4	Same as Alternative 4	Same as Alternative 4
Biological Resources (Vegetation Resources. Wildlife, including Special Status Species and Migratory Birds)	Loss of native habitat/communities; Noxious weeds; Special Status Species & animals); Increased risk of predation or electrocution re infrastructure; Displacement via construction; Displacement via human activity including recreation; Impacts to native habitat and designated management areas; and Migratory birds.	Moderate short- and long-term impacts to native vegetation pending restoration, and increased degradation of 20 miles of existing good quality desert habitats. Moderate long-term impacts due to facilitating spread and increased abundance of non-native plants into new areas, especially into the Dome Rock Mountains and dune habitats. Moderate short- and long-term impacts of ground disturbance on protected and special status plants and plant communities.	Slight increase of impacts to wildlife compared to Alternative 4 due in part to coming close to a wildlife water that may be used by desert bighorn sheep and mule deer.	Minor reduction of impacts from Alternative 4, crossing less desert habitat in moderate to good condition.	Parallels I-10 and would not contribute to any substantial new impacts	Greater impacts than for Alternative 4 as special status species may occur in desert scrub habitat within the corridor, mostly in the Plomosa Mountains.	As with Alternative 4, major adverse impacts to bighorn sheep and other wildlife in near-pristine area.	Slightly less impact to biological resources than Alternative 4 because it impacts approximately one mile less.	Impacts substantially less than for Alternative 4 by staying in an existing corridor through Copper Bottom Pass	Fewer impacts than Alternative 4

CHARACTERISTIC OR RESOURCE IMPACT		ALTERNATIVE 4	4A	4B	4C	4D	4E	4F	4G	4H
		Major long-term impacts to bighorn sheep in the Dome Rock Mountains by degrading nearly pristine habitat and facilitating increased recreational access to remote areas. Minor short- and long-term impacts to Mojave fringe-toed lizard due to possible mortality by Project activities and habitat impacts. Negligible short- and long-term impacts to sensitive wildlife species (excluding Mojave fringe-toed lizard), including nests of migratory birds. Moderate long-term impact to wildlife habitat by contributing to an increase in abundance of non-native plants into remote areas and dune habitat. Minor short- and long-term impacts to migratory birds due to potential collision hazard with structures, conductors, and guy lines.								

CHARACTERISTIC OR RESOURCE IMPACT		ALTERNATIVE 4	4A	4B	4C	4D	4E	4F	4G	4H
Cultural Resources	Damage or loss of a cultural site or potential site under Federal or state registers; degradation of the setting for a cultural site where setting is significant to its listing eligibility; increased access leading to potential vandalism; disturbance of human remains	Known NRHP-eligible sites or sites requiring NRHP evaluation: 11 (cultural resources survey coverage: 23.2%). Known site density: 10.1 sites per 100 acres. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 172. Key resources projected to occur include trails. Areas of Native American concern (NRHP-listed Ripley Intaglio Site, NRHP-listed Eagletail Petroglyph Site, and Limekiln Wash Intaglio Site) are in the vicinity of this alternative route. Continued consultation with Native American tribes and/or other interested parties potentially may identify additional resources of concern.	Known NRHP-eligible sites or sites requiring NRHP evaluation: 5 (cultural resources survey coverage: 50.5%). Known site density: 3.3 sites per 100 acres. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 12. Subalternative 4A would result in a greater visual impact and a greater potential to impact cultural resources by ground disturbance compared to Alternative 4.	Known NRHP-eligible sites or sites requiring NRHP evaluation: 1 (cultural resources survey coverage: 3.6%). Known site density: 17.5 sites per 100 acres. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 111. Subalternative 4B would result in a greater visual impact and a greater potential to affect cultural resources by ground disturbance compared to Alternative 4.	Known NRHP-eligible sites or sites requiring NRHP evaluation: 0 (cultural resources survey coverage: 2.1%). Known site density: 18.5 sites per 100 acres[1]. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 0. The potential effect to cultural resources by Subalternative 4C must be further evaluated in conjunction with the pairing of Subalternative 4C with Subalternatives 4D or 4J.	Known NRHP-eligible sites or sites requiring NRHP evaluation: 2 (cultural resources survey coverage: 6.0%). Known site density: 38.7 sites per 100 acres. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 67. Subalternative 4D would result in a comparable visual impact and a lower potential to affect cultural resources by ground disturbance compared to Alternative 4.	Known NRHP-eligible sites or sites requiring NRHP evaluation: 0 (cultural resources survey coverage: 4.9%). Known site density: 0.0 sites per 100 acres. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 0. Subalternative 4E would result in the same visual impact as Alternative 4.	Known NRHP-eligible sites or sites requiring NRHP evaluation: 0 (cultural resources survey coverage: 8.6%). Known site density: 0.0 sites per 100 acres. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 0. Subalternative 4F would result in the same visual impact but a lower potential to impact cultural resources by ground disturbance compared to Alternative 4.	Known NRHP-eligible sites or sites requiring NRHP evaluation: 1 (cultural resources survey coverage: 43.7%). Known site density: 2.8 sites per 100 acres. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 2. Subalternative 4G would result in a comparable visual impact but a lower potential to affect cultural resources by ground disturbance compared to Alternative 4.	Known NRHP-eligible sites or sites requiring NRHP evaluation: 1 (cultural resources survey coverage: 31.6%). Known site density: 8.4 sites per 100 acres. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 13. The potential effect to cultural resources by Subalternative 4H must be further evaluated in conjunction with the pairing of Subalternative 4H with Subalternatives 4G and 4K.

CHARACTERISTIC OR RESOURCE IMPACT		ALTERNATIVE 4	4A	4B	4C	4D	4E	4F	4G	4H
Issues of Concern to Indian Tribes	Existing and new access, native infrastructure and the interconnection of the cultural and natural environment, places of elevated spiritual important to tribes, the Colorado River, the treatment of human remains, and the disturbance of previously pristine landscapes.	Native infrastructure and the interconnectedness of the landscape; places of elevated spiritual importance; the Colorado River; intrusion on pristine landscapes.	No known concerns to Indian tribes.	Native infrastructure and the interconnectedness of the landscape.	No known concerns to Indian tribes.	Native infrastructure and the interconnectedness of the landscape; intrusion on pristine landscapes.	Native infrastructure and the interconnectedness of the landscape; intrusion on pristine landscapes.	Native infrastructure and the interconnectedness of the landscape; places of elevated spiritual importance; intrusion on pristine landscapes.	Native infrastructure and the interconnectedness of the landscape.	Native infrastructure and the interconnectedness of the landscape.
Land Use	Land use authorizations and ROWs; Residential; Agricultural; Other (i.e., nuisance impacts)	Would not cross Kofa NWR. Inconsistent with La Paz County Zoning Plan. Affects more NRCS-class farmland & solar facilities than Proposed Action. Five RMP amends for ROW and for VRM for seven segments. In California, it would not be in compliance with the CDCA Plan so would require an amendment.	Amendments for 8 segments for VRM. Otherwise the same as Alternative 4	Crosses more ASLD land. Six ROW amendments to RMP. Otherwise the same as Alternative 4	Same as Alternative 4	Six RMP amendments for ROW and eight for VRM. Otherwise the same as for Alternative 4.	Same as Alternative 4	Same as Alternative 4	Same as Alternative 4	Same as Alternative 4

CHARACTERISTIC OR RESOURCE IMPACT		ALTERNATIVE 4	4A	4B	4C	4D	4E	4F	4G	4H
Grazing and Rangeland	Access to range or improvements; Loss of range relative to AUMs; Fragmentation of allotments; Degradation of range quality	Only measurable effect is possible access impediment to one stock tank; impact reduced to negligible with MM GR-1.	Access to one additional stock tank vs Alternative 4; impact reduced to negligible with MM GR-1.	Same as Alternative 4	Same as Alternative 4	Same as Alternative 4	Same as Alternative 4	Same as Alternative 4	Same as Alternative 4	Same as Alternative 4
Recreation	Physical, access, use, or functional changes to established, designated, or planned recreation areas, resources, experiences, or activities; conflicts with Federal, state, or local policies; affect OHV designations, access, or routes; impacts to hunting access.	Long-term recreation quality similar to Proposed Action except where powerline would be new to the landscape (negligible to minor). Would run adjacent to the La Posa LTVA, but would avoid Dome Rock Camping Area and Kofa NWR. Would run through Johnson Canyon. Otherwise similar to the Proposed Action.	Same as Alternative 4	Same as Alternative 4	Same as Alternative 4	Same as Alternative 4	Same as Alternative 4 except that the route would cross Cunningham Peak, thus avoiding Johnson Canyon.	Same as Alternative 4	Same as Alternative 4	Same as Alternative 4
Special Designations	Conflict with goals, objectives & resources an area is designated to protect	Includes segments cb-2 and cb-04 with major long-term impacts to LWC Polygon 35_SW.	Same as Alternative 4	Same as Alternative 4	Same as Alternative 4	Same as Alternative 4	Same as Alternative 4	Same as Alternative 4	Same as Alternative 4	Same as Alternative 4

CHARACTERISTIC OR RESOURCE IMPACT		ALTERNATIVE 4	4A	4B	4C	4D	4E	4F	4G	4H
Noise	Exceedance of regulations or guideline; exposure of receptors to excessive noise levels; generate noise levels that pose a health risk.	Although there would be a difference in number of NSR, impacts would be the same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action
Hazards and Hazardous Materials	Generation, use, handling, or disturbance of hazardous waste that: violates Federal, state, or local laws or regulations; poses a health or safety risk to public or environment; releases hazardous emissions; creates a safety hazard to public or private airstrips; or exposes workers, schools, or the public to hazardous materials.	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action
Public Health and Safety	Risks to public health, safety, utilities; fire or electrocution hazard; EMF emissions	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action

CHARACTERISTIC OR RESOURCE IMPACT		ALTERNATIVE 4	4A	4B	4C	4D	4E	4F	4G	4H
Socioeconomics & Environmental Justice	Employment; Tax collection & revenue; Population or population displacement; Non-market values and ecosystem services; Revenue from recreation sector; Local economy; Reductions in property values; EJ Populations; disproportionate adverse impacts to EJ populations	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action
Traffic and Transportation	Increased roadway traffic; damage to roadways, access, or road systems; risk to aviation	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action

CHARACTERISTIC OR RESOURCE IMPACT		ALTERNATIVE 4	4A	4B	4C	4D	4E	4F	4G	4H
Visual Resources	Conflicts with visual standards, ordinances, or policies established; major and unmitigated visual changes that degrade or disrupt views of scenic landscapes from highly sensitive viewing locations; VRM class objectives that would not be met requiring an RMP Amendment.	Alternative 4 would remain south of and not impact the visual resources along the I-10 until Segment i-04; impacts were previously described as follows: Segment in-01 – Subalternative 1C Segments ca-06, ca-07, ca-09, x-19 – Alternative 3. All other segments would not impact views along I-10.	Subalternative 4A would have no effect on visual resource impacts as viewed within the I-10 corridor.	Subalternative 4B would place the Project in closer proximity to I-10 with impacts as described for Alternative 2.	Subalternative 4C would have the same impacts as described for Subalternative 3C.	Subalternative 4D would have the same impacts as described for Subalternative 3F and the Proposed Action.	Subalternative 4E would have no effect on the I-10 corridor.	Subalternative 4F would have no effect on the I-10 corridor.	Subalternative 4G would have no effect on the I-10 corridor.	Subalternative 4H would place the Project along I-10 in a narrow canyon area west of the Dome Rock Mountains that opens up to broad, panoramic views. It would impact visual resources similar to impacts in the eastern portion of the Project Area.
Water Resources	Impacts to surface water or groundwater quantity or availability; impediments to floodplain function from channel alterations; impacts to water rights or water quality; violations of Section 404 of the Clean Water Act or Section 10 of the Rivers and Harbors Act.	Same as Proposed Action	Same as Alternative 4	Same as Alternative 4	Same as Alternative 4	Same as Alternative 4	Same as Alternative 4	Same as Alternative 4	Same as Alternative 4	Same as Alternative 4

[1]Site density calculations include sites that have been previously determined or recommended as ineligible for the NRHP. In cases where the projected counts of NRHP-eligible or site of unknown NRHP eligibility are 0 and the site density is greater than 0, the site density calculation includes NRHP ineligible sites.

Table 2.2-37 Alternative 4 Subalternative 4J through 4P Impacts

CHARACTERISTIC OR RESOURCE IMPACT		4J	4K	4L	4M	4N	4P
Land ownership (miles)	BLM	-	-	-	-	-	-
	Reclamation	-	-	-	-	-	-
	California State	-	-	-	-	-	-
	Private	-	-	-	-	-	-
	Total Length	2.8	2.5	4.0	6.7	1.3	10.2
Ground disturbance	Short-term Acres	11.2	21.8	19.3	68.1	8.6	47.6
	Long-term Acres	21.9	2.8	2.4	0.2	0.7	8.0
BLM RMP conformance	VRM	Same as Alternative 4	Same as Alternative 4	Same as Alternative 4	Same as Alternative 4	Same as Alternative 4	Same as Alternative 4
	Corridors	Same as Alternative 4	Same as Alternative 4	Same as Alternative 4	Same as Alternative 4	Same as Alternative 4	Same as Alternative 4
	RMP Conformance	Amendments required (YFO)	Amendments required (YFO)	Amendments required (YFO)	Amendments required (YFO)	Amendments required (YFO)	Amendments required (YFO)
	CDCA Plan	Amendment required	Amendment required	Amendment required	Amendment required	Amendment required	Amendment required
Other Plan conformance (Federal, county, municipal)	Plan Conformance	Not consistent with La Paz County Zoning Plan	Not consistent with La Paz County Zoning Plan	Not consistent with La Paz County Zoning Plan	Not consistent with La Paz County Zoning Plan	Not consistent with La Paz County Zoning Plan	Not consistent with La Paz County Zoning Plan
Air Quality and Climate Change	Criteria Air Pollutants – Construction	Same as Proposed Action					
	CO	Proportional to Total Length					
	NO_x	Proportional to Total Length					
	PM_{10}	Proportional to Total Length					
	$PM_{2.5}$	Proportional to Total Length					
	SO_2	Proportional to Total Length					
	VOC	Proportional to Total Length					
	CO_{2e}	Proportional to Total Length					
	GHGs – Construction CO_{2e}	Same as Proposed Action					
	Criteria Air Pollutants – O&M	Would not exceed NAAQS or CAAQS					
	GHGs – SF_6 – O&M	Same as Proposed Action					
Geology, Minerals, and Soil Resources	Geological Hazards Minerals/Mining (access to known resources or claims) Soils	Uses segments Ca-07, Ca-09, and X-19 which would have negligible to minor impact on sand transport and dunes during construction and operation	Same as Alternative 4	Same as Alternative 4	Same as Alternative 4	Same as Alternative 4	Same as Proposed Action
Paleontological Resources	Potential damage to known paleontological resources or formations with potential to contain paleontological resources	Same as Alternative 4	Same as Alternative 4	Same as Alternative 4	Same as Alternative 4	Same as Alternative 4	Slightly higher potential than Alternative 4

CHARACTERISTIC OR RESOURCE IMPACT		4J	4K	4L	4M	4N	4P
Biological Resources (Vegetation Resources, Wildlife, including Special Status Species and Migratory Birds)	Loss of native habitat/communities; Noxious weeds; Special Status Species & animals); Increased risk of predation or electrocution re infrastructure; Displacement via construction; Displacement via human activity including recreation; Impacts to native habitat and designated management areas; and Migratory birds.	These subalternatives largely follow I-10, or cross agricultural areas, and would have fewer impacts than Alternative 4. Subalternatives 4K and 4L cross the Colorado River in areas not adjacent to the existing DPV1 line and may have result in a greater collision hazard to birds.					Potential impacts to biological resources are substantially less for Subalternative 4P than Alternative 4 by avoiding major dune habitat.
Cultural Resources	Damage or loss of a cultural site or potential site under Federal or state registers; degradation of the setting for a cultural site where setting is significant to its listing eligibility; increased access leading to potential vandalism; disturbance of human remains	Known NRHP-eligible sites or sites requiring NRHP evaluation: 0 (cultural resources survey coverage: 36.2%). Known site density: 4.0 sites per 100 acres. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 3. The potential effect to cultural resources by Subalternative 4J must be further evaluated in conjunction with the pairing of Subalternative 4J with Subalternative 4H.	Known NRHP-eligible sites or sites requiring NRHP evaluation: 0 (cultural resources survey coverage: 30.3%). Known site density: 0.0 sites per 100 acres. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 0. The potential effect to cultural resources by Subalternative 4K must be further evaluated in conjunction with the pairing of Subalternative 4K with Subalternative 4H and 4N.	Known NRHP-eligible sites or sites requiring NRHP evaluation: 1 (cultural resources survey coverage: 7.5%). Known site density: 13.5 sites per 100 acres. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 13. The potential effect to cultural resources by Subalternative 4L must be further evaluated in conjunction with the pairing of Subalternative 4L with Subalternative 4M.	Known NRHP-eligible sites or sites requiring NRHP evaluation: 0 (cultural resources survey coverage: 2.0%). Known site density: 272.7 sites per 100 acres. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 442. Subalternative 4M would result in a comparable visual impact and a comparable potential to disturb cultural resources compared to Alternative 4.	Known NRHP-eligible sites or sites requiring NRHP evaluation: 0 (cultural resources survey coverage: 60.8%). Known site density:0.0 sites per 100 acres. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 0. The potential effect to cultural resources by Subalternative 4N must be further evaluated in conjunction with the pairing of Subalternative 4N with Subalternatives 4H, 4K, and 4M.	Known NRHP-eligible sites or sites requiring NRHP evaluation: 3 (cultural resources survey coverage: 60.4%). Known site density: 31.1 sites per 100 acres. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 36. Subalternative 4P would result in a higher visual impact, but a lower potential to affect cultural resources by ground disturbance compared to Alternative 4.
Issues of Concern to Indian Tribes	Existing and new access, native infrastructure and the interconnection of the cultural and natural environment, places of elevated spiritual important to tribes, the Colorado River, the treatment of human remains, and the disturbance of previously pristine landscapes.	No known concerns to Indian tribes.	Places of elevated spiritual important to tribes, the Colorado River.	Native infrastructure and the interconnection of the cultural and natural environment; the Colorado River.	No known concerns to Indian tribes.	No known concerns to Indian tribes.	Native infrastructure and the interconnection of the cultural and natural environment; places of elevated spiritual importance.
Land Use	Land use authorizations and ROWs; Residential; Agricultural; Other (i.e., nuisance impacts)	Same as Alternative 4	Same as Alternative 4	Same as Alternative 4	Would cross more NRCS-classified farmland than Alternative 4. Otherwise the same as for Alternative 4.	Same as Alternative 4	Same as Alternative 4
Grazing and Rangeland	Access to range or improvements; Loss of range relative to AUMs; Fragmentation of allotments; Degradation of range quality	Same as Alternative 4	Same as Alternative 4	Same as Alternative 4	Same as Alternative 4	Same as Alternative 4	Same as Alternative 4

CHARACTERISTIC OR RESOURCE IMPACT		4J	4K	4L	4M	4N	4P
Recreation	Physical, access, use, or functional changes to established, designated, or planned recreation areas, resources, experiences, or activities; conflicts with Federal, state, or local policies; affect OHV designations, access, or routes; impacts to hunting access.	Same as Alternative 4	Same as Alternative 4	Same as Alternative 4	Same as Alternative 4	Same as Alternative 4	Same as Alternative 4
Special Designations	Conflict with goals, objectives & resources an area is designated to protect	Same as Alternative 4	Same as Alternative 4	Same as Alternative 4	Same as Alternative 4	Same as Alternative 4	Same as Alternative 4
Noise	Exceedance of regulations or guideline; exposure of receptors to excessive noise levels; generate noise levels that pose a health risk.	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action
Hazards and Hazardous Materials	Generation, use, handling, or disturbance of hazardous waste that: violates Federal, state, or local laws or regulations; poses a health or safety risk to public or environment; releases hazardous emissions; creates a safety hazard to public or private airstrips; or exposes workers, schools, or the public to hazardous materials.	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action
Public Health and Safety	Risks to public health, safety, utilities; fire or electrocution hazard; EMF emissions.	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action
Socioeconomics & Environmental Justice	Employment; Tax collection & revenue; Population or population displacement; Non-market values and ecosystem services; Revenue from recreation sector; Local economy; Reductions in property values; EJ Populations; disproportionate adverse impacts to EJ populations	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action
Traffic and Transportation	Increased roadway traffic; damage to roadways, access, or road systems; risk to aviation	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action

CHARACTERISTIC OR RESOURCE IMPACT		4J	4K	4L	4M	4N	4P
Visual Resources	Conflicts with visual standards, ordinances, or policies established; major and unmitigated visual changes that degrade or disrupt views of scenic landscapes from highly sensitive viewing locations; VRM class objectives that would not be met requiring an RMP Amendment.	Subalternative 4J would have the same visual impacts to along I-10 as described for Subalternative 3J.	Subalternative 4K would have no effect on visual resource impacts as viewed within the I-10 corridor.	Subalternative 4L would have no effect on visual resource impacts as viewed within the I-10 corridor.	Subalternative 4M would have no effect on visual resource impacts as viewed within the I-10 corridor.	Subalternative 4N would have no effect on visual resource impacts as viewed within the I-10 corridor.	Subalternative 4P would have no effect on visual resource impacts as viewed within the I-10 corridor.
Water Resources	Impacts to surface water or groundwater quantity or availability; impediments to floodplain function from channel alterations; impacts to water rights or water quality; violations of Section 404 of the Clean Water Act or Section 10 of the Rivers and Harbors Act.	Same as Alternative 4	Same as Alternative 4	Same as Alternative 4	Same as Alternative 4	Same as Alternative 4	Same as Alternative 4

2.4 MONITORING AND MITIGATION

2.4.1 Biological Resources

MM-BIO-01: A Compensation Plan would be developed to meet BLM requirements from the DRECP and other mitigation agreements. The Compensation Plan would include calculations of compensation ratios and mitigation acreages for loss of habitat for special status and protected native plant species, special status plant communities, Mojave desert tortoise, Sonoran desert tortoise, and any other biological resource requiring additional mitigation. As consistent with BLM policy and resource management plans, compensatory mitigation could include payment of an in-lieu fee; acquiring mitigation land or conservation easements; restoration or habitat enhancement activities on public lands; or a combination of the three (LUPA-BIO-COMP-1, LUPA-BIO-COMP-2, DFA-VPL-BIO-COMP-1, and LUPA-COMP-1; Appendix 2C).

2.4.2 Cultural Resources and Concerns of Indian Tribes

Mitigation measures for cultural resources are outlined in the draft PA for the Project (Appendix 2D). The final PA will be developed and executed prior to the issuance of the ROD, and measures contained in the PA would be implemented prior to and during construction and post-construction during operations and maintenance activities. Decommissioning would be a separate undertaking and would require separate Section 106 compliance, as stipulated in the PA.

2.4.3 Grazing

MM-GR-01: If construction would preclude or hinder livestock access to these stock ponds or other livestock water sources, DCRT would provide a suitable alternate livestock water source during construction.

2.4.4 Recreation

MM-REC-01: To mitigate effects related to the temporary construction closure of the proposed Arizona Peace Trail and other OHV routes through Johnson Canyon, MM REC-01 would require that construction of the Project occur outside of peak OHV season. Construction in Johnson Canyon would occur between the months of July and September.

MM-REC-02: In areas of high OHV use, such as in Copper Bottom Zone and the Ehrenberg Sandbowl OHV Area, proposed Project structures with guy wires would be replaced with self-supporting (no guy wires) four-legged tangent structures or monopoles. Additionally, in all other areas where guyed V structures are used, the anchor positions would be placed no less than 50 feet from any trail or road, and the guy wire would be at least 15 feet above (at its lowest point) any road or trail crossed by a guy wire. This would reduce the safety risk to OHV users.

MM-REC-03: New access roads will be gated where appropriate, and signage including road status will be posted at all new access road junctions.

MM-REC-04: Utilizing self-supported four-legged tangent structures, where required for mitigation, would increase the permanent disturbance to soils, wildlife habitat, and other land-

dependent resources to 0.06-acre per structure, and from <0.01 to 0.01 acre per structure for other structure types. The effects of structures on these resources are analyzed in the individual resource sections.

2.4.5 Hazardous Materials and Hazardous and Solid Waste

MM-HAZ-01: Resource studies establishing baseline conditions for the Project included a screening-level assessment of hazardous materials sites within a 1-mile wide study area encompassing the Proposed Action and all Action Alternative Segments. The screening consisted of searching over 50 government and private databases, including lists specified in California's Government Code Section 65962.5. These databases included the EPA Hazardous Materials Incident Report System, the California "Cortese" Hazardous Waste and Substances Sites List, and the federal database listings of Unexploded Ordnance (UXO) Sites, Formerly Used Defense Sites (FUDS), and Department of Defense sites. No mapped "Superfund" sites or sites on the National Priorities List were documented; however, multiple industrial, commercial, mining, and other potentially contaminated sites are located within the hazardous materials study area, including the FUD Laguna Maneuver Area.

Results of this screening would be used to guide the continued development of Project design, including structure placement locations within a corridor along the Agency Preferred Alternative route, and where other Project-related ground disturbing activities occur outside of the corridor which could include lay-down areas, pulling stations, and access sites. Upon identification of the Agency Preferred Alternative in the final EIS for the Project, DCRT would implement the following mitigation sequence to avoid or minimize the potential for hazardous materials-related impacts to construction workers, the public, and the environment:

1. A 600-foot corridor (300 feet on either side of the centerline of the potential alignment) along the Agency Preferred Alternative route would be evaluated to identify locations where hazardous materials sites (for example, contaminated soils or buried waste) are potentially present. Areas outside of the corridor, including access roads, where Project construction-related ground disturbance could occur would also be evaluated, including a 100-foot buffer. The evaluation would be conducted by individuals trained (in accordance with ASTM E1527-13) in Phase I and II Environmental Site Assessments as presented in ASTM E1527-13. This evaluation would consist of an in-depth review of the information obtained during the initial screening described above, and may include contacting agency staff, review of aerial photographs, and windshield surveys as appropriate.
2. Sites that are identified within the 600-foot Agency Preferred Alternative route study corridor and ancillary sites where Project construction-related ground disturbance could occur through the activities described above in # 1, where a release has occurred, would be subject to a Phase I Environmental Site Assessment in accordance with ASTM E1527-13 *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process*.
3. Final Project design and construction plans would take into consideration the results of the Phase I Environmental Site Assessment, with the intent to avoid identified hazardous materials sites through the micrositing process. If a confirmed

contamination site can be avoided, it would be and no further action would be indicated.

4. If a hazardous materials site identified during the Phase I Environmental Site Assessment cannot be avoided through micrositing of structures, and the site presents the potential for impacts to the public, Project workers, or the environment, a Phase II Environmental Site Assessment (in accordance with ASTM E1903) would be conducted as appropriate.
5. Depending on the results of the Phase II Environmental Site Assessment, measures may need to be implemented in order to proceed with Project construction. Given the types of hazardous materials sites most likely to be present based on the initial screening, mitigation measures could include, but may not necessarily be limited to, the following:
    - Perform all excavation at the subject site under the direction of a qualified environmental professional (who possesses professional certification for hazardous material inspections) who would field-screen soils for contamination and debris. Soils or other media showing indications of contamination based on field screening instruments, analytical sample results, or visual or olfactory observations would be disposed of and treated in a manner to be approved by the BLM and/or the appropriate state agency.
    - Collect samples for chemical analysis as appropriate to characterize the material for disposal.
    - Transport and dispose of any excavated contaminated soils or debris at an approved facility or treat on site.
    - Conduct all site work under a Health and Safety Plan (to be included in the final POD) that meets OSHA requirements, including requirements for working training and personal protective equipment.

2.4.6 Traffic and Transportation

There would not be any mitigation measures necessary related to construction activities. Mitigation related to operations would include:

MM-TT-01: Structures within Segment ca-05 would constitute a moderate to major, long-term effect associated with a collision hazard at the Cyr Aviation Airport. The voluntary marking of structures and lines within 0.5 mile of such facilities with spherical markers and lighting would reduce this effect to minor to moderate.

MM-TT-02: Structures associated with Segments p-04 and i-02 greater than 100 feet high within 100-foot clearance classified MTRs would be a moderate to major effect on the MTR program. MM-TT-02 would utilize structures less than 100 feet in height on segments within MTRs classified as 100-foot clearance; this would reduce the effect on MTRs to negligible.

MM-TT-03: Structures within Segments ca-06, ca-07, and ca-09, would constitute a major, long-term effect on airspace and aviation at the Blythe Airport. Structures kept to less than 100 feet in height would not create a substantial adverse effect on airspace and aviation and the Project would not constitute a hazard to the Blythe Airport (FAA 2017a through FAA 2017e). Therefore, MM-

TT-03 would utilize structures less than 100 feet in height within the Blythe Airport influence area to mitigate impacts to airspace and aviation.

2.4.7 Visual Resources

The following measures would be applied in locations identified in the visual resources impact analysis in Chapter 4 or Appendix 4.

MM-VIS-01: Minimize disturbance at structure bases.

MM-VIS-02: No access routes would be constructed to structure sites, and thus structure sites be accessed by foot or helicopter.

MM-VIS-03: Apply surface treatments (such as Permeon, or an approved equal) to newly exposed rock and gravel to blend with surrounding rock face and minimize visual impact of attention-attracting disturbance.

MM-VIS-04: Limit height of structures to that absolutely necessary for safety and operation in order to minimize skylining and reduce the need for beacons to protect dark sky resources and maintain astronomical viewing opportunities.

MM-VIS-05: Shorten span lengths and design the route to follow canyon routes to minimize elements (conductors in particular) that would be overhead of viewers and skylined.

MM-VIS-06: Use structure type to match existing structures and reduce form contrast.

2.5 IDENTIFICATION OF THE BLM'S PREFERRED ALTERNATIVE

Under the Agency Preferred Alternative, the BLM would approve a total of 64.2 miles of 200-foot wide ROW within existing designated utility corridors along the following segments:

- p-01
- i-01 through i-04
- x-05
- p-07 through p-16
- x-15 and x-16
- ca-07 and ca-09; and
- x-19.

Along the Agency Preferred Alternative route, self-supporting structures would be required for the following segments in areas of high OHV use where structures with guy lines would be replaced with self-supporting (no guy lines) four-legged tangent structures or monopoles:

- i-04;

- x-05; and
- p-07 through p-13.

Portions of Segments p-01 would be located on private and or State lands. While the BLM cannot require structure changes in these locations, it recommends that the structures match the existing DPV1 structures to reduce visual contrast in those locations, subject to the approval of the underlying landowner/manager.

The Agency Preferred Alternative is comprised of segments to:

- Emphasize the use of BLM utility corridors;
- Place the transmission line approximately 1 mile east of the LTVA by utilizing Subalternative 4D, thus minimizing impacts to recreational users of the LTVA;
- Consolidate development and disturbance with existing disturbance, such as along portions of the already impacted DPV1 transmission line route and I-10 corridor;
- Avoid the Town of Quartzsite;
- Avoid the Kofa NWR;
- Avoid Johnson Canyon;
- Avoid the CRIT Reservation;
- Avoid the Ehrenberg Sandbowl area;
- Avoid residential and other development east and south of Blythe;
- Consolidate development along the existing DPV1 transmission line route across private lands in California;
- Avoid the culturally sensitive area in the vicinity of the Mule Mountains southwest of Blythe;
- Minimize impacts to VRM Class II areas, as the majority of the route would cross VRM Class III & IV-designated BLM-administered public land.

Appendix 2A Applicant Proposed Measures and BLM-Required Best Management Practices

Table of Contents

AIR QUALITY AND CLIMATE CHANGE

APM OR BLM REQUIRED BMP	APM/BMP	DESCRIPTION	PRE-CONST.	CONST.	O&M	DECOM	DRECP CMA ADDRESSED*	CA ONLY
APM (Also addresses BLM Regional Mitigation Strategy for AZ SEZs MMs)	AQ-01: Fugitive Dust	The following control measures would be implemented, as applicable, to reduce PM10 and PM2.5 emissions during construction, in conjunction with an Erosion, Dust Control, and Air Quality Plan and Fugitive Dust Control Plan for the Project. *Basic control measures* The following measures would be implemented as applicable at all construction sites: • Water active construction areas sufficiently to minimize fugitive dust. • Dust control would include the use of one or more water trucks that would water access roads daily as needed to control dust throughout the construction period • Cover trucks hauling soil, sand, and other loose materials and require all trucks to maintain at least 6 inches of freeboard. • Pave, apply water, or apply nontoxic soil stabilizers as applicable on for all unpaved access roads, parking areas, and staging areas at construction sites to minimize fugitive dust. *Enhanced control measures* In addition to the "basic" control measures listed above, the following control measures	X	X		X	LUPA-AIR-01, 02, 03, and 05; LUPA-BIO-13	

APM OR BLM REQUIRED BMP	APM/BMP	DESCRIPTION	PRE-CONST.	CONST.	O&M	DECOM	DRECP CMA ADDRESSED*	CA ONLY
		may be implemented at all construction sites greater than 4 acres: • Water, hydroseed, or apply nontoxic soil stabilizers to inactive construction areas to minimize fugitive dust. • Enclose, cover, water, or apply nontoxic soil binders to exposed stockpiles. • Limit traffic speeds on unpaved roads. • Install sandbags or other erosion-control measures to prevent silt runoff to public roadways. • Replant vegetation in disturbed areas as quickly as possible, consistent with seasonal survival considerations. *Optional control measures* Depending on the extent of dust generation, implementation of the following optional control measures may occur at larger construction sites, near sensitive receptors (residences or other occupied buildings, parks, or trails within 1,000 feet of earthmoving operations that are substantial; for example, more than excavation for tower foundations), or in situations which for any other reason may warrant additional emissions reductions: • Install wheel washers for all existing trucks, or wash off the tires or tracks of all trucks and equipment leaving the site.						

APM OR BLM REQUIRED BMP	APM/BMP	DESCRIPTION	PRE-CONST.	CONST.	O&M	DECOM	DRECP CMA ADDRESSED*	CA ONLY
		• Suspend excavation and grading activity when winds (instantaneous gusts) exceed 25 miles per hour (mph). Limit the area subject to excavation, grading, and other construction activity at any one time.						
BMP	AQ-01	Dust palliatives would be applied, in lieu of water, to inactive construction areas (disturbed lands or soil stockpiles that are unused for 14 consecutive days). Dust palliatives would be chosen by the Dust Control Site Coordinator and or construction contractor. Dust palliatives would be environmentally safe; comply with federal, state, and local regulations; and would not produce a noxious odor or contaminate surface water or groundwater and, therefore, would not pose runoff concerns during rain events. Application rates for dust palliatives would follow the manufacturer's recommendations. Material Safety Data Sheets (MSDS/SDS) for any palliatives would be available on site and provided to the BLM and SDAPCD14 days prior to use.	X	X		X	LUPA-BIO-6, LUPA-BIO-13	
APM	AQ-02: Exhaust Emissions	The following measures would be implemented during construction to further minimize greenhouse gas emissions (carbon dioxide, methane, and nitrous oxide) per California AB32 and criteria air pollutants from vehicle and machinery and in		X			LUPA-AIR-3	

APM OR BLM REQUIRED BMP	APM/BMP	DESCRIPTION	PRE-CONST.	CONST.	O&M	DECOM	DRECP CMA ADDRESSED*	CA ONLY
		conjunction with the Construction Emissions Mitigation Plan for the Project: • Minimize unnecessary construction vehicle idling time. The ability to limit construction vehicle idling time depends on the sequence of construction activities and when and where vehicles are needed or staged. Certain vehicles, such as large diesel-powered vehicles, have extended warm-up times that limit their availability for use following startup. Where such diesel-powered vehicles are required for repetitive construction tasks, these vehicles may require more idling time. The Project would apply a "common sense" approach to vehicle use, such that idling is reduced as far as possible below the maximum of 5 consecutive minutes required under Title 13 of California Code of Regulations (CCR) Section 2485 (13 CCR 2485). If a vehicle is not required for use immediately or continuously for construction activities or other safety-related reasons, its engine would be shut off. • Encourage use of natural gas- or electric-powered vehicles for light-duty trucks where feasible and available.						
APM	AQ-03: Minimize Potential	The following measures would be implemented prior to and during construction to minimize the potential for naturally	X	X				

APM OR BLM REQUIRED BMP	APM/BMP	DESCRIPTION	PRE-CONST.	CONST.	O&M	DECOM	DRECP CMA ADDRESSED*	CA ONLY
	Naturally Occurring Asbestos Emissions	occurring asbestos emissions, in conjunction with an Asbestos Dust Mitigation Plan if asbestos, serpentinite, or ultramafic rock is determined to be present: • Prior to construction, representative samples in the general construction area would be analyzed for the presence of asbestos, serpentinite, or ultramafic rock. Analyses could be conducted as part of the geotechnical investigation. • If asbestos, serpentinite, or ultramafic rock is determined to be present, all applicable provisions of the Airborne Toxic Control Measure (ATCM) for Construction, Grading, Quarrying, and Surface Mining Operations (17 CCR 93105) would be implemented, including the following: For disturbed areas of 1 acre or less: o Construction vehicle speed at the work site would be limited to 15 mph or less. o Prior to any ground disturbance, sufficient water would be applied to the area to be disturbed to prevent visible emissions from crossing the property line if asbestos, serpentinite, or ultramafic rock is determined to be present.						

APM OR BLM REQUIRED BMP	APM/BMP	DESCRIPTION	PRE-CONST.	CONST.	O&M	DECOM	DRECP CMA ADDRESSED*	CA ONLY
		o Areas to be graded or excavated would be kept adequately wet to prevent visible emissions from crossing the property line. o Storage piles would be kept adequately wetted, treated with a chemical dust suppressant, or covered when material is not being added to or removed from the pile. o Equipment would be washed down before moving from the property onto a paved public road. o Visible track-out on the paved public road would be cleaned using wet sweeping or a high-efficiency particulate air-filter-equipped vacuum device within 24 hours. For disturbed areas of greater than 1 acre: o Prepare an Asbestos Dust Mitigation Plan and obtain approval prior to construction. Implement and maintain the provisions of the approved Asbestos Dust Mitigation Plan from the beginning of construction through the duration of the construction activity.						
APM	AQ-04: Minimize Potential Emissions of	In addition to the AQ-1 measures to control general fugitive dust emissions, the following measures would be implemented prior to and during construction to create awareness of the	X	X				

APM OR BLM REQUIRED BMP	APM/BMP	DESCRIPTION	PRE-CONST.	CONST.	O&M	DECOM	DRECP CMA ADDRESSED*	CA ONLY
	Naturally Occurring *Coccidioides immitis* Fungal Spores	risks and inhalation prevention procedures with respect to *Coccidioides immitis* fungal spores, which are naturally present in soils in the desert southwest, and inhalation of which can cause Valley Fever: • Prior to construction, and for each phase of construction, implement an Environmental Awareness Program for workers to ensure they are informed of the risks of contracting Valley Fever and the protective measures needed to minimize personal exposure to fugitive dust, as well as to minimize possible dust exposure of nearby residents and the general public. • Inform workers of the possible symptoms of Valley Fever and encourage them to seek medical treatment if these symptoms manifest.						
BMP	AQ-05: Air Quality Regulation and Standard Conformance	All activities would meet the requirements of the Clean Air Act (Sections 110, 118, 160, and 176[c]) and the applicable local Air Quality Management jurisdiction(s). Fugitive dust cannot exceed local standards and requirements.	X	X	X	X	LUPA-AIR-01, LUPA-AIR-02	X

*See Appendix 2C

GEOLOGY, MINERALS, AND SOIL RESOURCES

APM OR BLM REQUIRED BMP	APM/BMP	DESCRIPTION	PRE-CONST.	CONST.	O&M	DECOM	DRECP CMA ADDRESSED*	CA ONLY
APM	GEO-01: Erosion and Sedimentation	DCRT would implement a SWPPP for the Project. A monitoring program would be established to ensure that the prescribed BMPs are followed throughout transmission line construction. Examples of these BMPs include the following: • Preparation, training, and maintenance for clear work-site practices, tracking controls, and materials management to minimize the direct work impacts on soil and erosion. • Installation of temporary silt fences and other containment features (including gravel bags and fiber rolls) surrounding work areas to prevent the loss of soil during rain events and other disturbances. • Utilization of storm drain inlet protection, including sediment filters and ponding barriers, to retain sediments on site and prevent excess discharge into storm drains. • Implementation of soil erosion controls, including preservation of existing vegetation, temporary soil stabilization through hydroseeding, mulching, and other techniques.		X	X		LUPA-SW-8	

APM OR BLM REQUIRED BMP	APM/BMP	DESCRIPTION	PRE-CONST.	CONST.	O&M	DECOM	DRECP CMA ADDRESSED*	CA ONLY
		• Stockpiling soils at least 100 feet from drainages.						
BMP	SOIL-01	During reclamation and revegetation efforts, a BLM soil scientist and/or botanist review plans and approve, as appropriate, to determine type and location of any scarification.		X				X
BMP	SOIL-02	During reclamation and revegetation efforts, the BLM would review plans and approve, as appropriate, to determine where soil compaction would be appropriate, to avoid potential adverse conditions created by compaction.		X				X
BMP	SOIL-03	Covers for topsoil stockpiles would be of materials resistant to damage and/or degradation from exposure to ultraviolet light and other elements and would be replaced (as needed) if they deteriorate, become worn, or damaged.		X	X	X		

APM OR BLM REQUIRED BMP	APM/BMP	DESCRIPTION	PRE-CONST.	CONST.	O&M	DECOM	DRECP CMA ADDRESSED*	CA ONLY
BMP	SOIL-04	The disruption of desert pavement and desert varnish shall be minimized to the extent feasible. Grading for new access roads or work areas in areas covered by desert pavement and/or desert varnish shall be avoided if possible. If avoidance of these areas is not possible, the desert pavement and/or desert varnish surface shall be protected from damage or disturbance from construction vehicles by use of temporary mats on the surface, or by other suitable means.		X		X	LUPA-SW-9	
BMP	SOIL-05	Desert pavement and desert varnish in activity areas in California shall be assessed by qualified geological or biological monitors prior to construction. If disturbance from an activity is likely to exceed 10% of the desert pavement and/or desert varnish identified within the activity boundary, the BLM would determine whether the erosional and ecologic impacts of exceeding the 10% cap by the proposed amount would be insignificant and/or whether the activity should be redesigned to minimize desert pavement and/or desert varnish disturbance.	X	X		X	LUPA-SW-9	X
BMP	SOIL-06	Side-casting of soil during road construction shall be avoided.		X			LUPA-SW-11	X
BMP	SOIL-07	To the extent possible, avoid disturbance of desert biologically intact soil crusts, and soils highly susceptible to wind and water erosion.	X	X	X	X	LUPA-SW-10	X

*See Appendix 2C

PALEONTOLOGICAL RESOURCES

APM OR BLM REQUIRED BMP	APM/BMP	DESCRIPTION	PRE-CONST.	CONST.	O&M	DECOM	DRECP CMA ADDRESSED*	CA ONLY
APM	PALEO-01: Paleontological Resources Treatment Plan	DCRT would prepare a Paleontological Resources Treatment Plan that would describe procedures to be followed in the event of the discovery of paleontological resources during implementation of the Project. Upon approval of the draft plan, DCRT would follow the procedures set forth in that Plan during implementation of the Project.	X	X			LUPA-PALEO-3	
BMP	PALEO-02: Paleontological Resources Monitor	A qualified paleontologist or geologist qualified in paleontological evaluations would provide monitoring for paleontological resources during construction in areas of high or unknown fossil potential.	X	X			LUPA-PALEO-4	

*See Appendix 2C

BIOLOGICAL RESOURCES (VEGETATION, INCLUDING SPECIAL STATUS SPECIES, AND WILDLIFE, INCLUDING SPECIAL STATUS SPECIES AND MIGRATORY BIRDS

APM OR BLM REQUIRED BMP	APM/BMP	DESCRIPTION	PRE-CONST.	CONST.	O&M	DECOM	DRECP CMA ADDRESSED*	CA ONLY
APM	BIO-01: Worker Environmental Awareness Program	Before starting any work, including mowing, staging, installing stormwater control structures, implementing other BMPs, removing trees, construction, and restoration, all employees and contractors performing activities and new construction would receive training on environmental requirements that apply to their job duties and work. If additional crewmembers arrive later in the job, they would be required to complete the training before beginning work. Training would include a discussion of the avoidance and minimization measures being implemented and would include information on the Federal and state Endangered Species Acts and the consequences of not complying with these Acts. An educational brochure would be provided to construction crews working on the Project. This brochure would include color photographs of special-status species as well as a discussion of avoidance and minimization measures.	X	X	X	X	LUPA-BIO-5	

APM OR BLM REQUIRED BMP	APM/BMP	DESCRIPTION	PRE-CONST.	CONST.	O&M	DECOM	DRECP CMA ADDRESSED*	CA ONLY
BMP	BIO-01: Worker Environmental Awareness Program	The worker education program would provide interpretation for non-English speaking workers.	X	X	X	X	LUPA BIO-5	
APM	BIO-02: Biological Monitoring and Preconstruction Survey	A qualified biological monitor would be present on the Project site during all work activities within habitat of special-status animal species. The qualified biologist would conduct a preconstruction survey of those areas immediately before work activities begin and would locate and fence off any present individuals of special status plant species.	X	X		X	LUPA-BIO-2, LUPA-BIO-DUNE-5, LUPA-BIO-IFS-6, LUPA-BIO-IFS-7, LUPA-BIO-IFS-12, DFA-BIO-IFS-1, DFA-BIO-IFS-2, LUPA-BIO-RIPWET-3	
BMP	BIO-02: Biological Monitoring and Preconstruction Survey	Multiple biological monitors would be provided so any work site within habitat of special status species is monitored concurrently if needed.	X	X		X	LUPA-BIO-2, LUPA-BIO-DUNE-5	

APM OR BLM REQUIRED BMP	APM/BMP	DESCRIPTION	PRE-CONST.	CONST.	O&M	DECOM	DRECP CMA ADDRESSED*	CA ONLY
APM	BIO-03: Approved Work Areas	To the extent practicable, stockpiling of material would be allowed only within the established work area. Vehicles and equipment would be parked on pavement, existing roads, and previously disturbed areas within identified work areas or access roads.	X	X		X	LUPA-BIO-13	
BMP	BIO-03: Approved Work Areas	The BLM would approve areas to be used for stockpiling, vehicle parking, or other construction support activity that would occur outside established work areas.	X	X			LUPA-BIO-13	
APM	BIO-04: Environmental-ly Sensitive Areas and Fencing	Environmentally sensitive areas, such as the riparian areas, xeroriparian washes, and other habitat of special status species, would be identified in the field. Barrier fences or stakes would be installed at the edge of the easement or around the sensitive area to minimize the possibility of inadvertently encroaching into sensitive habitat.	X	X			LUPA-BIO-3, LUPA-BIO-13	
APM	BIO-05: Additional Prohibitions	Trash dumping, firearms, open fires, and pets would be prohibited at all work locations and access roads. Smoking would be prohibited along the Project alignment.	X	X	X	X	LUPA-BIO-6, LUPA-BIO-14	
APM	BIO-06: Trash Handling	All food scraps, wrappers, food containers, cans, bottles, and other trash from the work area would be disposed of in closed trash containers.	X	X	X	X	LUPA-BIO-6, LUPA-BIO-14	

APM OR BLM REQUIRED BMP	APM/BMP	DESCRIPTION	PRE-CONST.	CONST.	O&M	DECOM	DRECP CMA ADDRESSED*	CA ONLY
APM	BIO-07: Monofilament Plastic	No monofilament plastic would be used for erosion control (for example, matting, fiber roll, wattles, silt fencing backing). Appropriate materials include burlap, coconut fiber, or other materials as identified in the general and site-specific SWPPP.		X			LUPA-BIO-9	
APM	BIO-08: Refueling	Vehicular and equipment refueling should not occur within 100 feet of a wetland or drainage unless secondary containment is constructed, for example, a berm and lined refueling area. Proper spill prevention and cleanup equipment would be maintained in all refueling areas in accordance with the Spill Prevention, Control, and Countermeasures Plan (SPCC) for the Project.	X	X			LUPA-BIO-9	

APM OR BLM REQUIRED BMP	APM/BMP	DESCRIPTION	PRE-CONST.	CONST.	O&M	DECOM	DRECP CMA ADDRESSED*	CA ONLY
APM	BIO-09: Escape Ramps	All excavated steep-walled holes or trenches more than 1-foot-deep would be covered at the end of each working day with plywood or similar material or would be provided with one or more escape ramps constructed of earth fill or wooden planks. Each trench or hole would be inspected for wildlife at the beginning of each work day and before such holes or trenches are filled. Wildlife found trapped in trenches or holes would be relocated to suitable habitat outside the work area. If possible, pipes and culverts greater than 3 inches in diameter would be stored on dunnage to prevent wildlife from taking refuge in them, to the extent feasible.	X	X			LUPA-BIO-14	
APM	BIO-10: Erosion and Dust Control	The BMPs included in the SWPPP would be implemented during construction to minimize impacts associated with erosion. Watering for dust control during construction would also be used as described previously (AQ-01). Watering shall not result in prolonged ponding of surface water that could attract wildlife to the work area. Minimal or no vegetation clearing and/or soil disturbance would be conducted for site access and construction in areas with suitable topography (i.e., overland driving/overland access).		X			LUPA-BIO-9	

APM OR BLM REQUIRED BMP	APM/BMP	DESCRIPTION	PRE-CONST.	CONST.	O&M	DECOM	DRECP CMA ADDRESSED*	CA ONLY
APM	BIO-11: Vegetation Management Plan	The Vegetation Management Plan (Appendix 2B) would be approved by the BLM and implemented. That Plan describes the surveys, permitting, fee payments, and plant protection to be conducted in areas where Project design would not eliminate the need for vegetation control for the project to be in compliance with NERC requirements. Vegetation would be trimmed or otherwise controlled for safe operation of the transmission line and would be designed to minimize impacts on special status species to the extent practicable. The Plan also would describe how vegetation would be salvaged, as needed, in order to comply with the applicable Arizona Native Plant Law and California regulations.		X	X		LUPA-BIO-3, LUPA-BIO-7, LUPA-BIO-8, LUPA-BIO-13, LUPA-BIO-RIPWET-1, LUPA-BIO-SVF-1, DFA-VPL-BIO-FIRE-1	

APM OR BLM REQUIRED BMP	APM/BMP	DESCRIPTION	PRE-CONST.	CONST.	O&M	DECOM	DRECP CMA ADDRESSED*	CA ONLY
BMP	BIO-11: Vegetation Management Plan	In addition to the description of the Vegetation Management Plan in the corresponding APM BIO-11, the plan would also: • Meet BLM guidelines for mapping and surveying of cacti, yuccas, and succulents. • Include a wire zone/border zone/effective border zone approach to vegetation maintenance as described in Ballard, et al. 2007. • Identify tall vegetation species by geographic reach and growth rates, from relevant scientific literature (such as Dresner 2003), to be used to determine maximum allowable vegetation heights in the context of wire zone/border zone/effective border zone concepts, to accommodate identified growth periods (e.g., ten years) based on the specific vegetation community. Species examples include, but are not limited to, saguaro cactus, ironwood, palo verde, cottonwood, Gooding willow.	X	X	X		LUPA-BIO-1 LUPA-BIO-7, LUPA-BIO-8, LUPA-BIO-13 LUPA-BIO-RIPWET-1, LUPA-BIO-SVF-1, DFA-VPL-BIO-FIRE-1	

APM OR BLM REQUIRED BMP	APM/BMP	DESCRIPTION	PRE-CONST.	CONST.	O&M	DECOM	DRECP CMA ADDRESSED*	CA ONLY
APM	BIO-12: Noxious and Invasive Species Control	A Noxious Weed Control Plan (Appendix 2B) that addresses specific requirements in CMA LUPA-BIO-11 would be developed, approved by the BLM, and implemented prior to initiation of ground disturbing activities. That Plan would identify noxious and invasive species to be addressed in the Project Area, describe measures to conduct preconstruction weed surveys, reduce the potential introduction or spread of noxious weeds and invasive species during construction, and monitor and control weeds during operation of the transmission line. It would be designed to minimize impacts on special status species to the extent practicable. Coordination with resource agencies regarding invasive plant species would be conducted before construction. BMPs would include use of weed-free straw, fill, and other materials; requirements for washing vehicles and equipment arriving on site; proper maintenance of vehicle inspection and wash stations; requirements for managing infested soils and materials; requirements and practices for the application of herbicides; and other requirements in applicable BLM Weed Management Plans.	X	X	X	X	LUPA-BIO-6, LUPA-BIO-10, LUPA-BIO-11	

APM OR BLM REQUIRED BMP	APM/BMP	DESCRIPTION	PRE-CONST.	CONST.	O&M	DECOM	DRECP CMA ADDRESSED*	CA ONLY
APM	BIO-13: Riparian Habitat Avoidance	Riparian areas and xeroriparian drainages that occur within the easement would be denoted as environmentally sensitive areas and would be avoided during construction to the extent practicable. Existing topography would be restored to pre-Project conditions to the extent possible.	X	X			LUPA-BIO-1, LUPA-BIO-13	
APM	BIO-14: Minimizing Vegetation Clearing	In areas with suitable topography, minimal or no vegetation clearing and soil disturbance would be conducted for site access and construction (i.e. overland driving/overland access). Overland driving/overland access would be used in areas that support the necessary construction equipment. Upgrading of existing access roads and construction of new access roads would be implemented as necessary for the safe construction activities.		X			LUPA-BIO-14	

APM OR BLM REQUIRED BMP	APM/BMP	DESCRIPTION	PRE-CONST.	CONST.	O&M	DECOM	DRECP CMA ADDRESSED*	CA ONLY
APM	BIO-15: Reclamation and Restoration	A Habitat Restoration and Monitoring Plan would be developed, approved by BLM, and implemented for construction and operation of the project. Revegetate all sites disturbed during construction that would not be required for operation of the transmission line, and restore disturbed areas to the extent practicable, given the arid desert environment. The Plan would describe in detail methods for surveying and characterizing vegetation in disturbed areas before construction; topsoil salvage and management, erosion control, post-construction recontouring and site preparation, seeding and planting, and post-construction watering, monitoring, and remediation. It would be designed to reduce impacts on special status species to the extent practicable.	X	X	X	X	LUPA-BIO-7, LUPA-BIO-8, LUPA-BIO-10	
BMP	BIO-15: Reclamation and Restoration	As a part of the Habitat Restoration and Monitoring Plan, the soil horizons would be stored separately for the areas where the success of restoration could be crucial for rare plant species.	X	X	X	X	LUPA-BIO-7, LUPA-BIO-8	X

APM OR BLM REQUIRED BMP	APM/BMP	DESCRIPTION	PRE-CONST.	CONST.	O&M	DECOM	DRECP CMA ADDRESSED*	CA ONLY
APM	BIO 16: Treatment of Saguaro Cactus	Measures would be implemented to minimize the number of saguaro cacti that must be relocated for the safe construction and operation of the transmission line. In accordance with the Vegetation Management Plan (Appendix 2B), a survey of saguaros within the ROW would be conducted before construction and where possible, the transmission line would be designed to minimize the number of saguaros affected by adjusting tower locations and conductor height. The Plan would address plant salvaging, storing, and replanting requirements and methods, only those saguaro that are within 50-feet of the outermost conductors and could be tall enough to pose a hazard would be removed if they cannot be avoided through Project design. When possible, saguaro that must be removed would be relocated as directed by the BLM and state agency protocols. Monitoring and management of saguaros during operations would occur as described in the Vegetation Management Plan.		X	X		LUPA-BIO-SVF-1	

APM OR BLM REQUIRED BMP	APM/BMP	DESCRIPTION	PRE-CONST.	CONST.	O&M	DECOM	DRECP CMA ADDRESSED*	CA ONLY
APM	BIO-17: Limit Off-road Vehicle Travel	Vehicular travel would be limited to established roads to the maximum extent practicable.	X	X	X	X	LUPA-BIO-13	
APM	BIO-18: Copper Bottom Pass (Arizona Only)	Control of construction activities and use of construction-related vehicles in the Copper Bottom Pass area would be maintained to ensure that only planned construction traffic is allowed in the area and that minimal trips are planned to minimize disturbance to bighorn sheep. This APM does not apply to non-construction related public use of the Copper Bottom Pass area.	X	X	X	X		

APM OR BLM REQUIRED BMP	APM/BMP	DESCRIPTION	PRE-CONST.	CONST.	O&M	DECOM	DRECP CMA ADDRESSED*	CA ONLY
BMP	BIO-19: Colorado River	In the vicinity of the Colorado River, existing structure spacing and conductor heights would be matched to the greatest extent practical to reduce the potential for bird collisions with the power line. The transmission line would span the Colorado River and the minimum number of structures possible would be located within the undeveloped floodplain. The term, "vicinity of the Colorado River" is defined to mean the river crossing, floodplain, and associated agricultural lands. In these areas, conductor bundles would be in a horizontal, parallel configuration, and match existing structure spacing and conductor heights to the greatest extent practical to reduce the potential for bird collisions with the power line. No guyed structures would be used at these locations.		X			LUPA-SW-16, LUPA-BIO-17, LUPA-BIO-RIPWET-1, LUPA-SW-13, LUPA-SW-16, LUPA-TRANS-BIO-1	

APM OR BLM REQUIRED BMP	APM/BMP	DESCRIPTION	PRE-CONST.	CONST.	O&M	DECOM	DRECP CMA ADDRESSED*	CA ONLY
APM	BIO-20: Migratory Bird Protection During Construction	If construction is scheduled during the nesting bird season (generally February 1 through August 31), the work area would be surveyed for birds protected under the Migratory Bird Treaty Act and California Fish and Game Code. Active nests identified during preconstruction surveys would require protective buffers or visual barriers to ensure compliance with those regulations. If the qualified biologist determines that construction activities would cause distress to nearby nesting birds, larger buffers or construction delays might be necessary to allow the birds to successfully fledge from the nest.	X	X		X	LUPA-BIO-4, LUPA-BIO-17, LUPA-BIO-RIPWET-1, LUPA-BIO-RIPWET-3, LUPA-BIO-IFS-11, DFA-BIO-IFS-1	
APM	BIO-21: Reduction of Avian Collision	Current guidelines and methodologies (APLIC 2006, 2012) would be used in the design of the proposed transmission facilities to minimize the potential for raptors and other birds to collide with the transmission line and be electrocuted. For example, aerial marker balls or other visibility markers would be placed at and near the crossing of the Colorado River to increase the visibility of the transmission line to birds using that movement corridor. These measures would be implemented in conjunction with an Avian Protection Plan for the Project.		X	X		LUPA-BIO-16, LUPA-BIO-17, LUPA-BIO-COMP-2, LUPA-TRANS-BIO-2, LUPA TRANS-BIO-3	

APM OR BLM REQUIRED BMP	APM/BMP	DESCRIPTION	PRE-CONST.	CONST.	O&M	DECOM	DRECP CMA ADDRESSED*	CA ONLY
BMP	BIO-21: Reduction of Avian Collision	Aerial marker balls or other visibility markers would be placed on overhead ground wires (not conductors) at crossing of the Colorado River and floodplain to increase visibility to birds using that movement corridor and marking any other static wires to improve visibility and reduce collisions. Deterrents would be added to reduce nesting and perching by ravens and other predatory birds. The Avian Protection Plan would include requirements for monitoring the effectiveness of anti-electrocution design.		X	X		LUPA-BIO-16, LUPA-BIO-17, LUPA-BIO-COMP-2, LUPA-TRANS-1, LUPA TRANS-BIO-3	
APM	BIO-22: Sonoran Desert Tortoise Protection (Arizona)	A qualified biologist would be present during all ground-disturbing and other construction activities in non-cultivated areas in Arizona, in order to survey areas before they are disturbed, monitor construction sites for the presence of desert tortoises, and move tortoises from harm's way, in accordance with the 'Candidate Conservation Agreements for Sonoran Desert Tortoise in Arizona', dated May 27, 2016. Burrows near construction sites would be clearly delineated. Road, footing, and work area alignments would be modified to the extent possible to avoid adversely affecting any tortoise burrows. Where burrows would be unavoidably destroyed, they would be excavated carefully using hand tools under the supervision of a field biologist with demonstrated prior experience with this species.		X				

APM OR BLM REQUIRED BMP	APM/BMP	DESCRIPTION	PRE-CONST.	CONST.	O&M	DECOM	DRECP CMA ADDRESSED*	CA ONLY
APM	BIO-23: Mojave Desert Tortoise Protection (California)	A qualified-biologist would be present during all ground-disturbing and other construction activities in non-cultivated areas in California, in order to survey areas before they are disturbed, monitor construction sites for the presence of desert tortoises, and move tortoises from harm's way in accordance with USFWS protocols. Burrows near construction sites would be clearly delineated. Road, footing, and work area alignments would be modified to the extent possible to avoid adversely affecting any tortoise burrows. Where burrows would be unavoidably destroyed, they would be excavated carefully using hand tools under the supervision of a field biologist with demonstrated prior experience with this species. Other measures, as required by the USFWS in any applicable Biological Opinion, would also be implemented.	X	X			LUPA-BIO-1, LUPA-BIO-13, LUPA-BIO-IFS-5, LUPA-BIO-IFS-6 LUPA-BIO-IFS-7, LUPA-BIO-IFS-8, DFA-BIO-IFS-1	X

APM OR BLM REQUIRED BMP	APM/BMP	DESCRIPTION	PRE-CONST.	CONST.	O&M	DECOM	DRECP CMA ADDRESSED*	CA ONLY
BMP	BIO-23: Mojave Desert Tortoise Protection (California)	A designated biologist would inspect construction pipes, culverts, or similar structures: (a) with a diameter greater than 3 inches, (b) stored for one or more nights, (c) less than 8 inches aboveground and (d) within desert tortoise habitat (such as, outside the long-term fenced area), before the materials are moved, buried, or capped. As an alternative, such materials shall be capped before storing outside the fenced area or placing on pipe racks. Pipes stored within the long-term fenced area after completing desert tortoise clearance surveys would not require inspection.	X	X			LUPA-BIO-1, LUPA-BIO-IFS-5, DFA-BIO-IFS-1	X
BMP	BIO-24: Sensitive Plant Surveys	A survey would be conducted during the appropriate time of year of the selected route to identify special-status plant species and imperiled or sensitive vegetation alliances. Where possible, and as required by the BLM, special-status species and vegetation alliances would be avoided during construction. This survey would be restricted to non-cultivated land.	X	X			LUPA-BIO-1, LUPA-BIO-PLANT-1, LUPA-BIO-SVF-1	

APM OR BLM REQUIRED BMP	APM/BMP	DESCRIPTION	PRE-CONST.	CONST.	O&M	DECOM	DRECP CMA ADDRESSED*	CA ONLY
BMP	BIO-25: Sensitive Animal Surveys	A survey would be conducted of the selected route prior to construction of all work areas to identify special-status animal species, including Mojave desert tortoises, burrowing owls, and Mojave fringe-toed lizards. Where possible, and as required by the BLM, special-status species and vegetation alliances would be avoided during construction.	X	X			LUPA-BIO-1, LUPA-BIO-RIPWET-3, LUPA-BIO-DUNE-4, LUPA-BIO-DUNE-5, LUPA-BIO-IFS-6, LUPA-BIO-IFS-12	
APM	BIO-26: Arizona Protected Plant Inventory	An inventory of plants protected under the Arizona Native Plant Law would be conducted on State Trust lands as required by the Arizona State Land Department. Similar surveys would be conducted on lands managed by BLM, as directed by that agency.	X	X				
APM	BIO-27: Bighorn Sheep Lambing Areas	Construction activities would be limited from January 1 to March 31 in active bighorn sheep lambing areas identified by BLM and AGFD.	X	X	X	X		

APM OR BLM REQUIRED BMP	APM/BMP	DESCRIPTION	PRE-CONST.	CONST.	O&M	DECOM	DRECP CMA ADDRESSED*	CA ONLY
BMP	BIO-28: Raven Management Plan	The Raven Management Plan would be implemented for all activities to address food and water subsidies and roosting and nesting sites specific to the Common Raven. These include identification of monitoring reporting procedures and requirements; strategies for refuse management; as well as design strategies and passive repellant methods to avoid providing perches, nesting sites, and roosting sites for Common Ravens. As consistent with BLM policy and resource management plans, compensatory mitigation would be provided that contributes to LUPA-wide raven management.		X	X		LUPA-BIO-6, LUPA-TRANS-BIO-1	
BMP	BIO-29: Bird and Bat Conservation Strategy	The Bird and Bat Conservation Strategy would provide guidance on conservation measures applicable to bird and bat species present in the Project Area, including a nesting bird management plan and a nest management plan.	X	X	X	X	LUPA-BIO-4, LUPA-BIO-16, LUPA-BIO-17, LUPA- BIO-RIPWET-1, LUPA-BIO-DUNE-5, LUPA-BIO-IFS-11, DFA-BIO-IFS-2	

APM OR BLM REQUIRED BMP	APM/BMP	DESCRIPTION	PRE-CONST.	CONST.	O&M	DECOM	DRECP CMA ADDRESSED*	CA ONLY
BMP	BIO-30: Burrowing Owl Nesting Management Plan	Plan would include management direction consistent with LUPA-BIO-IFS-12, LUPA-BIO-IFS-13, and LUPA-BIO-IFS-14.	X	X		X	LUPA-BIO-1, LUPA-BIO-16, LUPA-BIO-IFS-12, LUPA-BIO-IFS-13, LUPA-BIO-IFS-14, DFA-BIO-IFS-1, DFA-BIO-IFS-2	
BMP	BIO-31: Treatment of Harwood's eriastrum	1. Pre-construction surveys would be required for non-agricultural areas in California. 2. Avoid Harwood's eriastrum individuals through micro-siting facilities to the maximum extent practical. 3. Within suitable habitat for Harwood's eriastrum, use overland travel (drive and crush) in lieu of road construction to pad sites to the maximum extent practical. 4. On non-agricultural Public Lands in California, an authorized botanist would be on site for all construction activities involving surface disturbance or overland travel. 5. Within suitable habitat for Harwood's eriastrum, keep equipment to the minimum necessary to accomplish the necessary work. 6. On public lands in California, avoid establishing features that would interfere with the movement of sand to the maximum extent practical.	X	X	X	X	LUPA-BIO-1, LUPA-BIO-3, LUPA-BIO-4, LUPA-BIO-6, LUPA-BIO-13, LUPA-BIO-DUNE-2, LUPA-BIO-PLANT-2, LUPA-BIO-PLANT-3	X

APM OR BLM REQUIRED BMP	APM/BMP	DESCRIPTION	PRE-CONST.	CONST.	O&M	DECOM	DRECP CMA ADDRESSED*	CA ONLY
		7. Laydown and temporary use sites would not be located within suitable habitat for Harwood's eriastrum. 8. On public lands in California, use existing roads or routes to the maximum extent practical. 9. Develop and implement an Invasive Species Management Plan (specific to the rare plant habitat) that California State Director would approve prior to a notice to proceed for work on public lands in California. 10. No surface disturbance or overland travel would occur within occupied habitat for Harwood's eriastrum from 15 February through the 31 July. This stipulation does not apply to verified, unoccupied habitat. 11. No take of Harwood's eriastrum individuals would be allowed without California State Director approval. 12. Prepare a Harwood's eriastrum Linear ROW Protection Plan. 13. Project impacts to suitable habitat combined with current impacts shall be limited (capped) to a maximum of 1 percent of Harwood's eriastrum habitat across all BLM lands included within the DRECP.						

APM OR BLM REQUIRED BMP	APM/BMP	DESCRIPTION	PRE-CONST.	CONST.	O&M	DECOM	DRECP CMA ADDRESSED*	CA ONLY
BMP	BIO-32: Seasonal Restriction Dates	Species-specific seasonal restriction dates would be observed.		X		X	LUPA-BIO-4	
BMP	BIO-33: Construction Lighting	All long-term nighttime lighting would be directed away from riparian and wetland vegetation, occupied habitat, and suitable habitat areas for sensitive species. Long-term nighttime lighting, if required, would be directed and shielded downward to avoid interference with the navigation of night-migrating birds and to minimize the attraction of insects as well as insectivorous birds and bats to project infrastructure. Long-term nighttime lighting would avoid the use of constant-burn lighting.		X	X	X	LUPA-BIO-13, LUPA-BIO-16, LUPA-BIO-DUNE-5	
BMP	BIO-34: Prevention of Puddles During Dust Abatement	The application of water and/or other palliatives for dust abatement in construction areas and during Project operations and maintenance would be done with the minimum amount of water necessary to meet safety and air quality standards and in a manner that prevents the formation of puddles, which could attract wildlife and wildlife predators.		X		X	LUPA-BIO-6	
BMP	BIO-35: Presence of Wildlife in Construction Materials or Equipment	All construction materials would be visually checked for the presence of wildlife prior to their movement or use. Any wildlife encountered during the course of these inspections would be allowed to leave the construction area unharmed.		X	X	X	LUPA-BIO-14	

APM OR BLM REQUIRED BMP	APM/BMP	DESCRIPTION	PRE-CONST.	CONST.	O&M	DECOM	DRECP CMA ADDRESSED*	CA ONLY
BMP	BIO-36: Feeding or Harassment of Wildlife	The intentional feeding or harassment of wildlife on site is prohibited.		X	X	X	LUPA-BIO-14	
BMP	BIO-37: Native Plant Collection	The collection of native plants on site is prohibited without required permits and tags.		X	X	X	LUPA-BIO-14	
BMP	BIO-38: Use of State of the Art Technology	Use state-of-the-art, as approved by BLM, construction and installation techniques, appropriate for the specific activity/project and site, that minimize new site disturbance, soil erosion and deposition, soil compaction, disturbance to topography, and removal of vegetation.	X	X			LUPA-BIO-9, LUPA-BIO-15	
BMP	BIO-39: Bird- and Bat-Friendly Fencing	When fencing is necessary, use bird and bat compatible design standards.		X	X		LUPA-BIO-16, LUPA-BIO-DUNE-5	
BMP	BIO-40: Project Activity Siting Near Bat Maternity Roosts	Activities would not be sited within 500 feet of any occupied maternity roost or presumed occupied maternity roost		X	X	X	LUPA-BIO-16, LUPA-BIO-DUNE-5, LUPA-BIO-BAT-1	

APM OR BLM REQUIRED BMP	APM/BMP	DESCRIPTION	PRE-CONST.	CONST.	O&M	DECOM	DRECP CMA ADDRESSED*	CA ONLY
BMP	BIO-41: Succulent Management	Management of cactus, yucca, and other succulents would adhere to current up-to-date BLM policy. All activities would follow applicable BLM state and national regulations and policies for salvage and transplant of cactus, yucca, and other succulents. Preconstruction surveys of disturbance zones would include preparation of maps delineating special vegetation features. BLM may consider disposal of succulents through public sale, as per current up-to-date state and national policy.	X	X	X	X	LUPA-BIO-7, LUPA-BIO-SVF-1, LUPA-BIO-VEG-1, LUPA-BIO-VEG-5, LUPA-BIO-VEG-6	
BMP	BIO-42: Dead and Downed Wood	Promote appropriate levels of dead and downed wood on the ground, outside of campground areas, to provide wildlife habitat, seed beds for vegetation establishment, and reduce soil erosion, as determined appropriate on an activity-specific basis.	X	X	X	X	LUPA-BIO-VEG-2	
BMP	BIO-43: Collection of Plant Material	Allow for the collection of plant material consistent with the maintenance of natural ecosystem processes.	X	X	X	X	LUPA-BIO-VEG-3	
BMP	BIO-44: Mojave Desert Tortoise Protection	• All culverts for access roads or other barriers would be designed to allow unrestricted access by desert tortoises and would be large enough that desert tortoises are unlikely to use them as shelter sites (e.g., 36 inches in diameter or larger). Desert tortoise exclusion fencing may be utilized to direct tortoise use of culverts and other passages.	X	X	X	X	LUPA-BIO-IFS-3, LUPA-BIO-IFS-5, LUPA-BIO-IFS-6, LUPA-BIO-IFS-7, LUPA-BIO-IFS-8,	X

APM OR BLM REQUIRED BMP	APM/BMP	DESCRIPTION	PRE-CONST.	CONST.	O&M	DECOM	DRECP CMA ADDRESSED*	CA ONLY
		• Biological monitoring would occur with any geotechnical boring or geotechnical boring vehicle movement to ensure no desert tortoises are killed or burrows are crushed. • A designated biologist would accompany any geotechnical testing equipment to ensure no tortoises are killed and no burrows are crushed. • The ground would be inspected under vehicles for the presence of desert tortoise any time a vehicle or construction equipment is parked in desert tortoise habitat. If a desert tortoise is seen, it may move on its own. If it does not move within 15 minutes, a designated biologist may remove and relocate the animal to a safe location. Vehicular traffic would not exceed 15 miles per hour within the areas not cleared by protocol level surveys where desert tortoise may be impacted.					LUPA-BIO-IFS-9	

APM OR BLM REQUIRED BMP	APM/BMP	DESCRIPTION	PRE-CONST.	CONST.	O&M	DECOM	DRECP CMA ADDRESSED*	CA ONLY
BMP	BIO-45: Protection from Loss and Harassment of Golden Eagles	Provide protection from loss and harassment of active golden eagle nests through activities identified LUPA-BIO-IFS-24 through -31.	X	X	X	X	LUPA-BIO-16, LUPA-BIO-IFS-24, LUPA-BIO-IFS-25, LUPA-BIO-IFS-26, LUPA-BIO-IFS-27	
BMP	BIO-46: Compensation for Loss of Desert Riparian Woodland	The loss of desert riparian woodland would be compensated at a ratio of 5:1 Compensation acreage requirements may be fulfilled through non-acquisition (i.e., restoration and enhancement), land acquisition (i.e., preserve), or a combination of these options, depending on the activity specifics and BLM approval/authorization.		X	X		LUPA-BIO-17, LUPA-BIO-COMP-1	X
BMP	BIO-47: Riparian Functioning Condition	BLM would manage all riparian areas to be maintained at, or brought to, proper functioning condition.		X	X	X	LUPA-BIO-17, LUPA-BIO-RIPWET-1, LUPA-SW-13	
BMP	BIO-48: Flight Diverters	Flight diverters would be installed on all transmission activities spanning or within 1,000 feet of stream and wash channels, canals, ponds, and any other natural or artificial body of water. The type of flight diverter selected would be subject to approval by BLM, in coordination with USFWS and CDFW as appropriate.		X	X		LUPA-TRANS-BIO-2	

APM OR BLM REQUIRED BMP	APM/BMP	DESCRIPTION	PRE-CONST.	CONST.	O&M	DECOM	DRECP CMA ADDRESSED*	CA ONLY
BMP	BIO-49: Fringe-toed Lizard Linear ROW Protection Plan	A Fringe-toed Lizard Linear ROW Protection Plan would be prepared that identifies specific conservation measures to minimize Project-related impacts to sand dunes and sand transport areas, to map suitable habitat within construction zones, and methods to achieve clearance surveys within suitable habitat so animals are not killed by construction activities.	X	X	X	X	LUPA-BIO-1, LUPA-BIO-DUNE-2, LUPA-BIO-DUNE-4, LUPA-BIO-DUNE-5	X
BMP	BIO-50	Appropriate engineering controls would be used to minimize impacts on dry wash, dry wash woodland, and chenopod scrub, including downstream occurrences, resulting from surface water runoff, erosion, sedimentation, altered hydrology, accidental spills, or fugitive dust deposition to these habitats. Appropriate buffers and engineering controls would be determined through agency consultation.		X			LUPA-BIO-3, LUPA-BIO-13, LUPA-BIO-17, LUPA-BIO-RIPWET-1, LUPA-BIO-SVF-6	
BMP	BIO-51: Conductor Clearance	To minimize vegetation trimming, micro-siting and design considerations (including tower height) would be applied so the catenary formed by the conductors (the bottom of the sag) avoids saguaros and is not directly over wash vegetation, to the extent practicable.	X	X			LUPA-BIO-17, LUPA-BIO-RIPWET-1, LUPA-BIO-SVF-6	

APM OR BLM REQUIRED BMP	APM/BMP	DESCRIPTION	PRE-CONST.	CONST.	O&M	DECOM	DRECP CMA ADDRESSED*	CA ONLY
BMP	BIO-52: California Riparian Habitat and Rare Plant Alliance Avoidance	In California, as part of micrositing towers, a 200-foot setback from the outer perimeter of Coloradan semi-desert wash woodland/scrub vegetation community would be applied. Preconstruction surveys of disturbance zones would include preparation of maps delineating special vegetation features. Minor incursions would be allowed to balance minimizing vegetation trimming (see BIO-51) while maintaining an appropriate setback, as determined based on site-specific conditions. No structure would be placed within, and no new access roads would pass through, these washes to the extent practicable.	X	X	X	X	LUPA-BIO-3, LUPA-BIO-13, LUPA-BIO-17, LUPA-BIO-RIPWET-1, LUPA-BIO-SVF-1, LUPA-BIO-SVF-6	X
BMP	BIO-53: Protection of Dune Vegetation	Project facilities would be sited to avoid dune vegetation. Unavoidable impacts to dune vegetation would be limited and access roads that would be sited to minimize unavoidable impacts. Access road would be unpaved, and access roads would be designed and constructed to be at grade with the ground surface to avoid inhibiting sand transport.	X	X	X		LUPA-BIO-1, LUPA-BIO-13, LUPA-BIO-DUNE-2, LUPA-BIO-DUNE-4, LUPA-TRANS-BIO-4, DFA-VPL-BIO-DUNE-1	X

APM OR BLM REQUIRED BMP	APM/BMP	DESCRIPTION	PRE-CONST.	CONST.	O&M	DECOM	DRECP CMA ADDRESSED*	CA ONLY
BMP	BIO-54: Protection of Sand Transport	Within Aeolian corridors that transport sand to dune formations and vegetation types downwind all activities would be designed and operated to facilitate the flow of sand across activity sites, and avoid the trapping or diverting of sand from the Aeolian corridor. Structures would take into account the direction of sand flow and, to the extent feasible, build and align structures to allow sand to flow through the site unimpeded. Fences would be designed to allow sand to flow through and not be trapped.	X	X	X	X	LUPA-BIO-1, LUPA-BIO-DUNE-1, LUPA-BIO-DUNE-2, LUPA-BIO-DUNE-4, LUPA-TRANS-BIO-4, DFA-VPL-BIO-DUNE-2	X
BMP	BIO-55: Access within Focus and BLM special Status Species Suitable Habitat	Construction of new roads and/or routes would be avoided within Focus and BLM Special Status Species suitable habitat within identified linkages for those Focus and BLM Special Status Species, unless the new road and/or route is beneficial to minimize net impacts to natural or ecological resources of concern. These areas would have a goal of "no net gain" of project roads and/or routes	X	X	X	X	LUPA-BIO-13, LUPA-BIO-DUNE-4	
BMP	BIO-56: Sonoran Pronghorn	Measures, as required by the USFWS in any applicable Biological Opinion, would be implemented.	X	X	X	X		

*See Appendix 2C

VEGETATION

APM OR BLM REQUIRED BMP	APM/BMP	DESCRIPTION	PRE-CONST.	CONST.	O&M	DECOM	DRECP CMA ADDRESSED*	CA ONLY
BMP	VEG-01: Removal of Vegetation	Any removal of vegetation resources would be conducted in accordance with BLM IB 2012-097	X	X	X	X	LUPA-BIO-15, LUPA-BIO-SVF-1	
BMP	VEG-02: Avoid Vegetation Removal	Minimize natural vegetation removal through implementation of crush and drive or cut or mow vegetation rather than removing entirely. Locations for drive and crush travel or cut/mow would be determined in conjunction with the Access Road Plan (Appendix 2B).		X	X	X	LUPA-BIO-14	

*See Appendix 2C

CULTURAL RESOURCES

APM OR BLM REQUIRED BMP OR EPM	APM/BMP	DESCRIPTION	PRE-CONST.	CONST.	O&M	DECOM	DRECP CMA ADDRESSED*	CA ONLY
APM	CULT-01: Inventory and HPTP	A cultural inventory would be conducted that would document cultural resources within the area of potential effects for the Project. Based on results of this inventory, a Historic Properties Treatment Plan would be developed to specifically address direct and indirect impacts that may result from Project construction.	X	X			LUPA-CUL-4; LUPA-TRANS-CUL-1	
APM	CULT-02: Monitoring and Discovery Plan	DCRT's contractor would prepare a Monitoring and Discovery Plan that would describe procedures to be followed in the event of the discovery of cultural resources or human remains during implementation of the Project. The Draft Monitoring and Discovery Plan would be reviewed by BLM and consulting state and federal agencies, the California and Arizona SHPOs, and local tribes. Upon approval of the Monitoring and Discovery Plan, DCRT would follow the procedures set forth in that plan during implementation of the Project.	X	X			LUPA-CUL-4; LUPA-TRANS-CUL-1	
BMP	CULT-03: Cultural Resources Avoidance and Stipulations	DCRT would follow the avoidance procedures and other stipulations outlined in the Programmatic Agreement (PA) and in the appropriate State Historic Properties Treatment Plan for each historic property identified in the HPTP.	X	X	X	X	LUPA-CUL-4	

APM OR BLM REQUIRED BMP OR EPM	APM/BMP	DESCRIPTION	PRE-CONST.	CONST.	O&M	DECOM	DRECP CMA ADDRESSED*	CA ONLY
BMP	CULT-04: Worker Cultural Resources Awareness Program	Before starting any work, including mowing, staging, sediment and erosion control installation, tree removal, construction, and restoration, all employees and contractors performing activities and construction would receive training on the National Historic Preservation Act, the Archaeological Resources Protection Act, and the Native American Graves Protection and Repatriation Act and the consequences of noncompliance with these acts. Training would also include cultural sensitivity to Native American concerns, since tribal monitors would be present during construction.	X	X				
BMP	CULT-05: Cultural Resources Compensatory Fee	A compensatory mitigation fee for cumulative and indirect effects to historic properties as a result of construction is identified in the project Programmatic Agreement (PA). The fee structure of the compensatory mitigation fee would be calculated in a manner that is commensurate to the size and regional impacts of the project and would include a management fee determined and finalized in the project PA.	X	X			LUPA-TRANS-CUL-2; LUPA-TRANS-CUL-3; DFA-VPL-CUL-1; DFA-VPL-CUL-2; DFA-VPL-CUL-3	X
BMP	CULT-06: Sensitivity Model	BLM would develop a sensitivity model for cultural resources using the DRECP geodatabase for the purpose of selecting Project footprints to minimize impacts to recorded historic properties and areas that are culturally sensitive to Tribes.	X				LUPA-TRANS-CUL-4; DFA-VPL-CUL-4	X

APM OR BLM REQUIRED BMP OR EPM	APM/BMP	DESCRIPTION	PRE-CONST.	CONST.	O&M	DECOM	DRECP CMA ADDRESSED*	CA ONLY
BMP	CULT-07: Sample Survey	The BLM shall ensure that a statistically significant cultural resources sample survey is conducted for consideration in Project planning in locations within the CDCA boundary.	X				LUPA-TRANS-CUL-5; DFA-VPL-CUL-5	X
BMP	CULT-08: Project Planning	DCRT would consider the results of the BLM's cultural resources sensitivity model in Project planning and provide justification if it is not considered to be feasible.	X				LUPA-TRANS-CUL-6; DFA-VPL-CUL-6	X

*See Appendix 2C

RECREATION

APM OR BLM REQUIRED BMP	APM/BMP	DESCRIPTION	PRE-CONST.	CONST.	O&M	DECOM	DRECP CMA ADDRESSED*	CA ONLY
BMP	REC-01: Alternative Access and Parking Signs	Signs directing vehicles to alternative park access and parking would be posted in the event construction temporarily obstructs parking areas near trailheads.		X			DFA-REC-1, DFA-REC-2, DFA, REC-4, DFA-REC-5, DFA-REC-7	
BMP	REC-02: Recreation Users Signs	Signs advising recreation users of construction activities and directing them to alternative trails or bikeways would be posted on both sides of all trail intersections or as determined through DCRT coordination, with the respective jurisdictional agencies. A schedule of construction activities would be posted near entrances to recreational areas as well as on the Project website. Signs would be installed near access roads notifying the public of construction activities in the area and the presence of permanent transmission facilities.		X				
BMP	REC-03: Guy Wire Marking	Plastic mesh or paint would be used to mark guy wires in areas used for recreation. Permanent high visibility guy markers would be installed during construction.		X	X			
BMP	REC-04: Alternate Route Signage	Provide alternate route(s) of equal or greater standard and access to specially designated areas if roads, primitive roads, or trails used for recreation are temporarily closed or otherwise significantly affected. The alternate route(s) would be clearly identified on signage.		X				

*See Appendix 2C

NOISE

APM OR BLM REQUIRED BMP	APM/BMP	DESCRIPTION	PRE-CONST.	CONST.	O&M	DECOM	DRECP CMA ADDRESSED*	CA ONLY
APM	NO-01: Noise Minimization with Portable Barriers	Compressors and other small stationary equipment used during construction would be shielded with portable barriers if located within 200 feet of a residence.		X			LUPA-BIO-12	
APM	NO-02: Noise Minimization with Quiet Equipment	In area in close proximity to sensitive receptors, quiet equipment (for example, equipment that incorporates noise control elements into the design; quiet model air-compressors or generators can be specified) would be used during construction whenever possible.		X				
APM	NO-03: Noise Minimization through Direction of Exhaust	Stationary equipment exhaust stacks and vents (i.e., on equipment like generators and lights) would be directed away from buildings where feasible.		X				
APM	NO-04: Blasting Mitigation	If blasting is required in close proximity to sensitive receptors, the timeframe that blasting activity would occur would be limited, in addition to limiting the number of blasts that occur per hour or per day.		X				

APM OR BLM REQUIRED BMP	APM/BMP	DESCRIPTION	PRE-CONST.	CONST.	O&M	DECOM	DRECP CMA ADDRESSED*	CA ONLY
BMP – Regional Mitigation Strategy for the AZ SEZs	NO-05: County, State, and Federal Noise Regulations	Project would be located far enough from residences or include engineering and/or operational methods such that county, state, and/or federal regulations for noise are not exceeded.		X	X			
BMP – Regional Mitigation Strategy for the AZ SEZs	NO-06: Hours of Daily Activity	The hours of daily activities would be limited, and noise barriers would be constructed if needed and practicable. Coordination with nearby residents is recommended.		X	X			
BMP	NO-07: Sensitive Wildlife Protection	To the extent feasible, locate stationary noise sources that exceed background ambient noise levels away from known or likely locations of and BLM sensitive wildlife species and their suitable habitat.		X	X	X	LUPA-BIO-12	

*See Appendix 2C

HAZARDS AND HAZARDOUS MATERIALS

APM OR BLM REQUIRED BMP	APM/BMP	DESCRIPTION	PRE-CONST.	CONST.	O&M	DECOM	DRECP CMA ADDRESSED*	CA ONLY
APM	HAZ-01: Hazardous Substance Control and Emergency Response	DCRT would implement its hazardous substance control and emergency response procedures as needed in conjunction with a Hazardous Substance Control and Containment Plan and Emergency Response Plan for the Project. The procedures identify methods and techniques to minimize the exposure of the public and site workers to potentially hazardous materials during all phases of Project construction through operation. They address worker training appropriate to the site worker's role in hazardous substance control and emergency response. The procedures also require implementing appropriate control methods and approved containment and spill-control practices for construction and materials stored on site. If it were necessary to store chemicals on site, they would be managed in accordance with all applicable regulations. Material safety data sheets would be maintained and kept available on site, as applicable. Project construction would involve soil surface blading/leveling and excavation. In the event that soils suspected of being contaminated (on the basis of visual, olfactory, or other evidence) are removed during site grading activities or excavation activities, the excavated soil would be tested and, if contaminated above hazardous waste levels, would be contained and disposed of at a licensed waste facility. The presence of known or suspected contaminated soil would		X	X		LUPA-BIO-9, LUPA-SW-6, LUPA-SW-7	

APM OR BLM REQUIRED BMP	APM/BMP	DESCRIPTION	PRE-CONST.	CONST.	O&M	DECOM	DRECP CMA ADDRESSED*	CA ONLY
		require testing and investigation procedures to be supervised by a qualified person, as appropriate, to meet state and federal regulations. All hazardous materials and hazardous wastes would be handled, stored, and disposed of in accordance with all applicable regulations by personnel qualified to handle hazardous materials. The hazardous substance control and emergency response procedures include, but are not limited to, the following: • Proper disposal of potentially contaminated soils. • Establishing site-specific buffers for construction vehicles and equipment near sensitive resources. • Emergency response and reporting procedures to address hazardous material spills. • Stopping work at that location and contacting the County Fire Department Hazardous Materials Unit immediately if visual contamination or chemical odors are detected; work would be resumed at this location after any necessary consultation and approval by the Hazardous Materials Unit. DCRT would complete its Emergency Action Plan Form as part of Project tailgate meetings. The purpose of the form is to gather emergency contact numbers, first aid location, work site location, and tailgate information.						

APM OR BLM REQUIRED BMP	APM/BMP	DESCRIPTION	PRE-CONST.	CONST.	O&M	DECOM	DRECP CMA ADDRESSED*	CA ONLY
APM	HAZ-02: Fire Avoidance and Suppression	Per the Fire Prevention Plan for the Project: DCRT would select a welding site that is void of native combustible material and/or would clear such material for 10 feet around the area where the work is to be performed. DCRT would follow its standard practice for clearing in wildland areas. Project personnel would be directed to drive on areas that have been cleared of vegetation, park away from dry vegetation, and carry water, shovels, and fire extinguishers in times of high fire hazard. DCRT would also prohibit trash burning. Additionally, fire-suppression materials and equipment would be kept adjacent to all areas of work and in staging areas and would be clearly marked.	X	X	X	X	DFA-VPL-BIO-FIRE-1	
BMP	HAZ-02: Fire Avoidance and Suppression	APM HAZ-02 would not interfere with APM BIO-14, which encourages overland driving/access. Vehicle and equipment operators would drive on cleared areas and park away from vegetation where possible, would be responsible to monitor for fire ignition by vehicles and equipment; and would be equipped and trained to provide first response to an inadvertent wildland fire ignition associated with the Project.	X	X	X	X	DFA-VPL-BIO-FIRE-1	

APM OR BLM REQUIRED BMP	APM/BMP	DESCRIPTION	PRE-CONST.	CONST.	O&M	DECOM	DRECP CMA ADDRESSED*	CA ONLY
BMP	HAZ-03: Equipment & Material Inventory	DCRT would provide the BLM with an inventory of equipment and materials to cover each hazardous material used at any time during the life of the Project, updating as additions to equipment and materials are made. Appropriate equipment and materials would follow specific recommendations for individual Haz Mat types in BLM Handbooks, EPA guidelines, and from the California Department of Toxic Substance Control (DTSC).	X	X	X	X	LUPA-BIO-9	X
BMP	HAZ-04	DCRT would provide the BLM with a Pesticide/Herbicide Use Proposal, outlining the pesticides and herbicides that would be proposed for use on the project, demonstrating conformance with BLM requirements, and seeking preapproval before use. Only BLM-approved products from the approved California herbicide list would be used in California.	X	X	X			

*See Appendix 2C

PUBLIC HEALTH AND SAFETY

APM OR BLM REQUIRED BMP OR EPM	APM/BMP	DESCRIPTION	PRE-CONST.	CONST.	O&M	DECOM	DRECP CMA ADDRESSED*	CA ONLY
BMP	PHS-01	Portable toilets would be provided at work sites to assure that adequate facilities are available for the duration of the Project and potential exposure to human waste is avoided.	X	X	X	X		
BMP	PHS-02	A Fire Prevention Plan would be developed for the Project.	X	X	X	X	DFA-VPL-BIO-FIRE-1	

*See Appendix 2C

TRAFFIC, TRANSPORTATION, AND PUBLIC ACCESS

APM OR BLM REQUIRED BMP	APM/BMP	DESCRIPTION	PRE-CONST.	CONST.	O&M	DECOM	DRECP CMA ADDRESSED*	CA ONLY
APM	TT-01: Traffic Coordination	Emergency service providers would be notified of the timing, location, and duration of construction activities. Traffic control devices and signs would be used as needed. These measures would be implemented in conjunction with a Traffic and Transportation Management Plan for the Project. This plan would also include measures/protocols for aviation		X				
BMP – Military & Civilian Aviation in Regional Mitigation Strategy for AZ SEZs	TT-02: Structure Lighting in Military Training Routes (MTR)	Project structures that are located within MTRs would be fitted with night-vision compatible red lighting emitting an infrared energy between 675 and 900 nanometers.			X			
BMP	TT-03: Public Access, Marking, and Public Information for Closed Access	The BLM would determine if new access routes would be retained for public access through approval of the Access Plan for the Project. If any routes of travel are not accessible and/or closed, Carsonite posts and signing would note the closures. Where routes are closed, kiosks with information panels would be posted providing public information.	X	X	X			

APM OR BLM REQUIRED BMP	APM/BMP	DESCRIPTION	PRE-CONST.	CONST.	O&M	DECOM	DRECP CMA ADDRESSED*	CA ONLY
BMP	TT-04: Access Plan	An Access Plan would be required to identify all routes where new disturbance and/or cross-country travel is proposed. Existing access would be used to the maximum extent practicable; new access would only be created when there is no other reasonable or practicable means of access.	X	X	X	X	LUPA-BIO-13	
BMP	TT-05: Using Open and Designated Routes	The Access Plan for the Project would maximize use of open and designated access routes to the extent practicable.	X	X	X	X	LUPA-BIO-13	
BMP	TT-06: Access Roads in Dune Habitat	Access Roads would be unpaved and constructed at grade in dune habitat. No berms or application of rock would be allowed on the California public lands portion of the Project. Should adaptive access measures be required, those measures would be formulated in concert with the BLM and contained in the Access Management Plan (Appendix 2B)	X	X	X	X	DFA-VPL-BIO-DUNE-1	X
BMP	TT-07: Routes of Travel	Routes of travel for the Project on BLM-managed lands outside established roadways would be limited to those routes on the approved Access Plan.	X	X	X	X	LUPA-BIO-13	

APM OR BLM REQUIRED BMP	APM/BMP	DESCRIPTION	PRE-CONST.	CONST.	O&M	DECOM	DRECP CMA ADDRESSED*	CA ONLY
BMP	TT-08: Prohibit Cross-Country Vehicle Use Outside Designated Work Areas	Within Project boundaries, prohibit cross-country vehicle and equipment use outside of approved designated work areas to prevent unnecessary ground and vegetation disturbance.		X	X	X	LUPA-BIO-13	X
BMP	TT-09: Repairs to Local Roads	Local roads would be restored if road damage occurred as a result of Project construction.	X	X	X	X		

*See Appendix 2C

VISUAL RESOURCES

APM OR BLM REQUIRED BMP	APM/BMP	DESCRIPTION	PRE-CONST.	CONST.	O&M	DECOM	DRECP CMA ADDRESSED*	CA ONLY
APM	AES-01: Vegetation Removal and Grading	During Project construction activities, the amount of existing vegetation cleared from the route would be kept to the minimum as much as practicably possible. Grading would occur as minimally as practicable and would follow the existing land contours as much as possible.		X		X		
APM	AES-02: Work Area Reclamation	Upon completion of the Project, all construction material and debris from the permanent easement and temporary staging areas would be removed and the areas restored. All work areas would be graded and restored to as close to preconstruction conditions as possible.	X	X	X	X		
BMP	AES-02: Work Area Reclamation	Work area reclamation would include pulling and tensioning sites; all disturbed work areas associated with the project.	X	X	X	X		
APM	AES-03: Visual Distance Zone	For Segment cb-01, to increase the visual distance zone from the Arizona Peace Trail and the Project. To minimize the view blockage or impairment caused by the transmission structures to the off-road vehicle riders using the Arizona Peace Trail, the transmission line would be located as far from the trail as can be practicably constructed, while still being located below the horizon.		X	X	X		

APM OR BLM REQUIRED BMP	APM/BMP	DESCRIPTION	PRE-CONST.	CONST.	O&M	DECOM	DRECP CMA ADDRESSED*	CA ONLY
APM Captures BLM BMP for Reducing Visual Impacts of REFs 6.4.10 – Color Treat Transmission Towers to Reduce Contrasts with Existing Landscape	AES-04: Visual Contrast	Visual Contrast. For Segment cb-01, to minimize visual contrast between the elements of the transmission line structures and the surrounding landscape. Structures would be color treated appropriate colors to most effectively blend the structures with the visible background landscape.		X	X		DFA-VPL-VRM-3	
BMP	AES-04: Visual Contrast	Color treatment of transmission structures would be applied in all areas deemed necessary by the BLM. The BLM would select/approve the color treatment to be applied under AES-04. Color treatment would be applied to Project components, such as the SCS and fencing. All conductor would be non-specular, and all structures, whether color treated or not, would have a dull, non-reflective surface.		X	X		DFA-VPL-VRM-3	

APM OR BLM REQUIRED BMP	APM/BMP	DESCRIPTION	PRE-CONST.	CONST.	O&M	DECOM	DRECP CMA ADDRESSED*	CA ONLY
APM Captures BLM BMP for Reducing Visual Impacts of REFs 6.2.10 – Collocate Linear Features in Existing ROWs or Corridors	AES-05: Location	AES-5: Collocate the transmission line as close as possible to existing transmission lines of similar size and design (while maintaining the required 250-foot setback) to minimize the overall visual impact of the project on the surrounding areas. Keeping the proposed transmission line within the same general corridor as existing transmission lines would reduce the spread of visual impacts from areas previously not affected. Collocating with existing transmission lines would also reduce the need to construct new access roads and their associated visual impacts.		X	X	X	LUPA TRANS-BIO-4	
APM	AES-06: Siting and Laydown Areas	The Project would avoid siting Staging and Laydown Areas in visually sensitive areas to the extent practicable. Staging areas would be located close to transportation access points and would be sited to take advantage of previously disturbed areas to the extent practicable.	X				LUPA-TRANS-BIO-1	
BMP	AES-06: Siting and Laydown Areas	APM AES-6 would apply to all Project work areas. Also, work areas would be located to minimize impacts, including but not limited to biological and visual.	X	X	X	X	LUPA-TRANS-BIO-1	

APM OR BLM REQUIRED BMP	APM/BMP	DESCRIPTION	PRE-CONST.	CONST.	O&M	DECOM	DRECP CMA ADDRESSED*	CA ONLY
BMP (BMPs for Reducing Visual Impacts of REFs 6.2.11)	AES-07: Avoid Siting Linear Features in the Centers of Valley Bottoms and on Ridgetops	The eye follows strong natural lines in the landscape, and these lines and associated landforms can "focus" views on particular landscape features. For this reason, linear facilities associated with renewable energy projects, such as transmission line ROWs, should be sited to avoid running across the centers of valley bottoms, and to avoid ridgetop bisection (i.e., routing the ROWs perpendicular to and over ridgelines).	X	X			LUPA TRANS-BIO-3	
BMP (BMPs for Reducing Visual Impacts of REFs 6.2.12)	AES-08: Avoid Skylining	"Skylining" of transmission/communication towers and other structures should be avoided. Transmission/communication towers and other structures should not be placed on ridgelines, summits, or other locations where they would be silhouetted against the sky. Skylining draws visual attention to the project elements and can greatly increase visual contrast. Siting should take advantage of opportunities to use topography as a backdrop for views of facilities and structures to avoid skylining. Roads may be less visible if located along ridgetops, but if they are located on the ridge face they can be highly visible because of increased cut, fill, and side cast material.	X	X			LUPA TRANS-BIO-3	

APM OR BLM REQUIRED BMP	APM/BMP	DESCRIPTION	PRE-CONST.	CONST.	O&M	DECOM	DRECP CMA ADDRESSED*	CA ONLY
BMP (BMPs for Reducing Visual Impacts of REFs 6.2.13)	AES-09: Site Linear Facilities along Natural Lines within the Landscape	Siting of facilities, especially linear facilities (e.g., transmission lines, pipelines, roads), should take advantage of natural lines within the landscape (e.g., natural breaks in the landscape topography, the edges of clearings, or transitions in vegetation). Siting of facilities on steep slopes should be avoided. Siting linear facilities along naturally occurring lines in the landscape can reduce apparent contrast through repetition of the line element or through combination of multiple line elements into a single line element. Facilities sited on steep slopes are often more visible (particularly if either the project or viewer is elevated); they may also be more susceptible to soil erosion, which could also contribute to negative visual impacts.	X	X				

APM OR BLM REQUIRED BMP	APM/BMP	DESCRIPTION	PRE-CONST.	CONST.	O&M	DECOM	DRECP CMA ADDRESSED*	CA ONLY
BMP (BMPs for Reducing Visual Impacts of REFs 6.3.8)	AES-10: Use Monopole, Guyed, and Lattice Electric Transmis-sion Towers Appropriate-ly	Consideration should be given to the appropriate choice of monopoles versus guyed or lattice towers for a given landscape setting. Lattice or guyed towers are less visually obtrusive on the rural landscape than monopoles, especially when placed half a mile or more from KOPs and against a landscape backdrop. When transmission towers are placed within a half mile or less from KOPs, then monopoles would occupy a smaller field of view than lattice towers. Monopoles are often more appropriate within built or partially built environments, while lattice or guyed towers tend to be more appropriate for less-developed rural landscapes, where the latticework would be more transparent against natural background textures and colors. Where transmission facilities are to be collocated in ROWs or corridors, and the existing ROW or corridor has either lattice towers only, guyed towers only, or monopoles only, the same tower type should be selected for new transmission facilities within the ROW/corridor.	X	X				
BMP (BMPs for Reducing Visual Impacts of REFs 6.6.8)	AES-11: Use Air Transport to Erect Transmis-sion Towers	In areas of the highest visual sensitivity, air transport capability should be used to mobilize equipment and materials for clearing, grading, and erecting transmission towers. The use of air transport capability preserves the natural landscape conditions between tower locations, and may reduce the need for construction roads.		X				

APM OR BLM REQUIRED BMP	APM/BMP	DESCRIPTION	PRE-CONST.	CONST.	O&M	DECOM	DRECP CMA ADDRESSED*	CA ONLY
BMP	AES-12: Reclamation to Reduce Visual Impacts	The Reclamation Plan for the Project would include measures designed to reduce long-term impacts to visual resources.	X	X	X	X		
BMP	AES-13: Shifts in Alignment to Reduce Visual Impacts	The specific location of the Project within the study area would be determined based on micro-siting of Project components and new disturbance associated with access and work areas to reduce, minimize, or eliminate visual impacts.	X	X	X	X		
BMP	AES-14: SCS Fencing Specifica-tions	The height, type, and color of fencing used to enclose the SCS would be selected by the BLM to meet the objectives of the Project while also minimizing or optimizing visual impacts.		X	X			
APM	AES-15: Lighting	Limited lighting would be used during night construction to ensure safe working conditions while limiting the overall lighted area. To the extent practicable, lighting would be directed in a downward position to minimize impacts to night sky.		X				

*See Appendix 2C

WATER RESOURCES

APM OR BLM REQUIRED BMP	APM/BMP	DESCRIPTION	PRE-CONST.	CONST.	O&M	DECOM	DRECP CMA ADDRESSED*	CA ONLY
APM	WQ-01: SWPPP Development and Implementa-tion	Following Project approval, DCRT would prepare and implement a SWPPP or an amendment to an existing SWPPP to minimize construction impacts on surface water and groundwater quality. Implementation of the SWPPP would help stabilize graded areas and reduce erosion and sedimentation. The Plan would designate BMPs that would be adhered to during construction activities. Erosion and sediment control measures, such as straw wattles, covers, and silt fences, would be installed prior to ground disturbance, based on the anticipated volume and intensity of precipitation, the nature of stormwater runoff in the Project Area, and the soil types within the Project Area. Suitable stabilization measures would be used to protect exposed areas during construction activities, as necessary and final stabilization would be completed when construction materials, waste, and temporary erosion and sediment control measure have been removed. During construction activities, measures would be implemented to prevent contaminant discharge from vehicles and equipment, including complying with the Spill Prevention, Control, and Countermeasures requirements in 40 CFR 112. The Project SWPPP would include erosion control and sediment transport BMPs to be used during construction. BMPs, where applicable, would be designed by using	X	X			LUPA-BIO-9	

APM OR BLM REQUIRED BMP	APM/BMP	DESCRIPTION	PRE-CONST.	CONST.	O&M	DECOM	DRECP CMA ADDRESSED*	CA ONLY
		specific criteria from recognized BMP design guidance manuals. Erosion-minimizing efforts may include measures such as the following: • defining ingress and egress within the Project site • implementing a dust control program during construction • properly containing stockpiled soils Erosion control measures identified would be installed in an area before construction begins and would be properly maintained until construction is complete and final stabilization begins. Temporary measures such as silt fences or wattles, intended to minimize sediment transport from temporarily disturbed areas, would remain in place until disturbed areas have stabilized. The Plan would be updated during construction as required by the SWRCB and ADEQ. The Plan would include the following components, in accordance with ADEQ requirements for coverage under the General Permit: • stormwater team qualifications and contact information • identification of operators • nature of construction activities • sequence and estimated dates of construction activities • site description						

APM OR BLM REQUIRED BMP	APM/BMP	DESCRIPTION	PRE-CONST.	CONST.	O&M	DECOM	DRECP CMA ADDRESSED*	CA ONLY
		• site map(s) • receiving waters • control measures to be used during construction activity • summary of potential pollutant sources • use of treatment chemicals • pollution prevention procedures, including spill prevention and response and waste management procedures						
APM	WQ-02: Worker Environment-al Awareness Program Development and Implementa-tion	The Project's worker environmental awareness program would communicate environmental issues and appropriate work practices specific to this Project. This awareness would include spill prevention and response measures and proper BMP implementation. The training would emphasize site-specific physical conditions to improve hazard prevention (such as identification of flow paths to nearest water bodies) and would include a review of all site-specific water quality requirements, including applicable portions of erosion control and sediment transport BMPs, Health and Safety Plan, and Hazardous Substance Control and Emergency Response Plan.	X	X				
APM	WQ-03: Vehicles and Equipment Fueling and Maintenance	Vehicle and equipment fueling and maintenance operations would be conducted in designated areas only; these areas would be equipped with appropriate spill control materials and containment.	X	X	X	X		

APM OR BLM REQUIRED BMP	APM/BMP	DESCRIPTION	PRE-CONST.	CONST.	O&M	DECOM	DRECP CMA ADDRESSED*	CA ONLY
BMP	WQ-04: Non-petroleum Dust Palliatives	Palliatives used for dust control would be non-petroleum products in addition to non-toxic, as specified in AQ-01.	X	X		X	LUPA-BIO-13, LUPA BIO 14	X
BMP	WQ-05: Water Use	Water extracted or consumptively used for the construction, operation, maintenance, or remediation of the project shall be solely for the beneficial use of the project or its associated mitigation and remediation measures, as specified in approved plans and permits.		X			LUPA-SW-18	
BMP	WQ-06: Avoidance of Hydrologic Alterations	Consideration shall be given to design alternatives that maintain the existing hydrology of the site or redirect excess flows created by hardscapes and reduced permeability from surface waters to areas where they would dissipate by percolation into the landscape. All hydrologic alterations shall be avoided that could reduce water quality or quantity for all applicable beneficial uses associated with the hydrologic unit in the project area, or specific mitigation measures shall be implemented that would minimize unavoidable water quality or quantity impacts, as determined by BLM in coordination with USFWS, CDFW, and other agencies, as appropriate.		X		X	LUPA-SW-21, LUPA-SW-22, LUPA-BIO-DUNE-2, LUPA-BIO-DUNE-3	
BMP	WQ-07: Structures in Floodplains	No permanent structures would be placed in floodplains that are narrower at the ROW crossing than the typical span width of 1,200 feet (i.e., it is assumed that such floodplains could be spanned and avoided).		X			LUPA-BIO-DUNE-2, LUPA-BIO-DUNE-3	

MISCELLANEOUS

APM OR BLM REQUIRED BMP	APM/BMP	DESCRIPTION	PRE-CONST.	CONST.	O&M	DECOM	DRECP CMA ADDRESSED*	CA ONLY
APM	MISC-01	An Environmental Compliance Management Plan would be prepared.	X	X	X	X	LUPA-AIR-3	
BMP	MISC-02	All cleared and graded material to be removed from the Project area would be relocated in compliance with local ordinances.	X	X	X	X		
BMP	MISC-03	The final POD would identify areas where the final structure site temporary disturbance rea could be reduced and estimates of reduced areas, in advance of field staking for the Project.		X				
BMP	MISC-04	Locations for many areas of temporary disturbance would not been definitively identified until preparation of the final POD. All temporary disturbance would be located in previously disturbed areas and/or outside ecologically and aesthetically sensitive areas to the maximum extent practicable.	X	X	X	X	DFA-VPL-BIO-IFS-1	
APM	MISC-05	Limited lighting would be used during night construction to ensure safe working conditions while limiting the overall lighted area. To the extent practicable, lighting would be directed in a downward position to minimize impacts to night sky.		X				
APM	MISC-06	Project structure locations would be matched to adjacent existing transmission line structures to the extent practicable.	X	X				

*See Appendix 2C

Appendix 2B Ten West Link Project Plans

Table of Contents

2B.1 TWL PROPOSED PLANS

Plans will be provided either as a part of the final EIS, the ROD, or as a part of the final POD prior to BLM issuance of the Notice to Proceed.

The following is a list of applicant committed plans:

- Environmental Compliance Management Plan
    - Raven Management Plan
    - Linear ROW Rare Plant Protection Plan for Harwood's eriastrum
    - Site plan for Soils and Hydrology
    - Mojave Fringe-toed Lizard Avoidance and Clearance Plan
- Plant and Wildlife Species Conservation Measures Plan
- Habitat Reclamation and Monitoring Plan
- Avian Protection Plan
    - Bird and Bat Conservation Strategy (BBCS)
    - Burrowing Owl Nesting Management Plan & Nest Management Plan within the BBCS
    - Nesting Bird Management Plan (Part of BBCS)
- Vegetation Management Plan
- Succulent Management
- Reclamation, Vegetation, and Monitoring Plan
- Nuisance Animal Plan
- Noxious Weed Management Plan
- Invasive Species Management Plan
- Historic Properties Treatment Plan
- Paleontological Resources Treatment Plan
- Paleontological Monitoring and Discovery Plan
- Stormwater Pollution and Prevention Plan (SWPPP)
- Spill Prevention, Control and Countermeasure (SPCC) Plan
- Stream, Wetland, Well, and Spring Protection Plan
- Soil Management Plan
- Health and Safety Plan
- Asbestos Dust Mitigation Plan
- Erosion, Dust Control, and Air Quality Plan
    - Construction Emissions Mitigation Plan
    - Fugitive Dust Control Plan
- Blasting Plan
- Environmental Health and Safety Plan (environmental training and safety practices)
- Hazardous Materials Management Plan
    - Hazmat Containment Plan
    - Inventory of Equipment and Materials to cover each hazardous material used at any time during the life of the Project
- Emergency Preparedness and Response Plan
- Access Road Plan

- Traffic and Transportation Management Plan
- Helicopter Flight Plan/Flight and Safety Plan
- Fire Protection Plan
    - Emergency Response Plan (to include any fire services agreements)
    - Fire Prevention Plan
- Reclamation Plan (visual resources)
- Waste Management Plan
- Decommissioning Plan (previously the Termination and Reclamation Plan)

2B.2 CMA REQUIRED PLANS

The following is a list of CMA plans required in order to comply with the CDCA Plan of 1980, as amended.

CMA	PLAN NAME	BLM NOTES
LUPA-BIO-6	Raven Management Plan	
LUPA-BIO-7, etc.	Habitat Restoration Plan	Offered by the proponent in conjunction with the POD.
LUPA-BIO-9	HazMat Containment Plan – to include accidental spill controls	Prepare in collaboration with the BLM HazMat specialist. A list of anticipated HazMat will be prepared and updated in the event that new hazardous materials come into use.
	An inventory of equipment and materials to cover each hazardous material used at any time during the life of the project.	"Appropriate" equipment and materials will follow specific recommendations for individual HazMat types in BLM Handbooks, US EPA guidelines, and from the California Department of Toxic Substance Control (DTSC).
LUPA-BIO-10	Weed Control Plan	Offered by the proponent in conjunction with the POD.
LUPA-BIO-16	Bird and Bat Conservation Strategy (BBCS)	Will provide guidance on pre-construction conservation measures and other bird and bat CMAs.
LUPA-BIO-IFS-12	Burrowing Owl Nesting Management Plan & Nest Management Plan within the BBCS	If burrows cannot be avoided, LUPA-BIO-IFS-13 applies. Need to address in BBCS, burrowing owl nesting management plan (separate document) and a nest management plan within the BBCS.
LUPA-BIO-RIPWET-1	Nesting Bird Management Plan	Part of BBCS
LUPA-BIO-PLANT-2	Linear ROW Rare Plant Protection Plan for Harwood's eriastrum	

CMA	PLAN NAME	BLM NOTES
LUPA-BIO-PLANT-2	Invasive Species Management Plan	Must be specific to rare plant habitat.
LUPA-AIR-3	Environmental Compliance Management Plan	In California, the agency policy about the project also meeting the applicable California Air Quality Standards established by the California Air Resources Board needs clarification.
	Construction Emissions Mitigation Plan	
LUPA-AIR-5	Fugitive Dust Control Plan	
LUPA-SW-7	Emergency Response Plan – to include any fire services agreements	
LUPA-SW-8	Site plan for Soils and Hydrology	
DFA-VPL-BIO-FIRE-1 and BIO-DUNE-1	Fire Prevention Plan	The plan would be site specific for the transmission lines or any other construction activity that might cause a fire. The plan would set standards for the project site dealing with these issues. There are California Fire Codes and National Fire Protection Association (NFPA) codes that they would be required to meet for the project also. Mitigation is a key to preventing/ lowering the risk of a fire starting.
LUPA-BIO-DUNE-5	Mojave Fringe-toed Lizard Avoidance and Clearance Plan	

2B.3 OTHER AGENCY-REQUIRED PLANS

Other agency-required plans include:

- Paleontological Resources Monitoring and Mitigation Plan (BLM)
- Mitigation Action Plan (Western Area Power Administration)

Appendix 2C Applicable CMAs and Compliance Summary

Table of Contents

Appendix 2C Applicable CMAS and Compliance Summary

2C.1 LUPA WIDE CMAS

2C.1.1 Biological Resources

CATEGORY	CMA #	CMA TEXT	RELEVANT EIS SECTIONS	COMPLIANCE SUMMARY
Biological Resources	LUPA-BIO-1	Conduct a habitat assessment (see Glossary of Terms) of Focus and BLM Special Status Species' suitable habitat for all activities and identify and/or delineate the DRECP vegetation types, rare alliances, and special features (e.g., Aeolian sand transport resources, Joshua tree, microphyll woodlands, carbon sequestration characteristics, seeps, climate refugia) present using the most current information, data sources, and tools (e.g., DRECP land cover mapping, aerial photos, DRECP species models, and reconnaissance site visits) to identify suitable habitat (see Glossary of Terms) for Focus and BLM Special Status Species. If required by the relevant species-specific CMAs, conduct any subsequent protocol or adequate presence/ absence surveys to identify species occupancy status and a more detailed mapping of suitable habitat to inform siting and design considerations. If required by relevant species-specific CMAs, conduct analysis of percentage of impacts to suitable habitat and modeled suitable habitat.	Section 3.4 Section 4.4	Compliance with this CMA is achieved through data contained in the Biological Resources Technical Reports (including rare plant studies), which is incorporated into Chapter 3 and Appendix 3 of this EIS, and analysis presented in Chapter 4 and Appendix 4. Additional preconstruction studies along the Selected Alternative route in California would be undertaken for rare plants (APM-BIO-24 and BMP-BIO-31), protected plants (BMP-BIO-11), rare vegetation alliances (APM-BIO-24), riparian and xeroriparian habitat (APM-BIO-13), Mojave fringe-toed lizard (APM-BIO-25 and BMP-BIO-49), desert tortoise (APM/BMP-BIO-23), burrowing owl (APM-BIO-25 and APM-BIO-30), nesting migratory birds (APM-BIO-30), dune vegetation (BMP-BIO-53) and sand transport corridors (BMP-BIO-54).
		• BLM will not require protocol surveys in sites determined by the designated biologist to be unviable for occupancy of the species, or if baseline studies inferred absence during the current or previous active season.		

CATEGORY	CMA #	CMA TEXT	RELEVANT EIS SECTIONS	COMPLIANCE SUMMARY
	Con't	Utilize the most recent and applicable assessment protocols and guidance documents for vegetation types and jurisdictional waters and wetlands that have been approved by BLM, and the appropriate responsible regulatory agencies, as applicable.		
	LUPA-BIO-2	Designated biologist(s) (see Glossary of Terms), will conduct, and oversee where appropriate, activity-specific required biological monitoring during pre-construction, construction, and decommissioning to ensure that avoidance and minimization measures are appropriately implemented and are effective. The appropriate required monitoring will be determined during the environmental analysis and BLM approval process. The designated biologist(s) will submit monitoring reports directly to BLM.	Section 4.4.4 Appendix 2A	Compliance with this CMA is achieved through application of APM-BIO-02 and BMP-BIO-02.
Resource Setback Standards	LUPA-BIO-3	Resource setbacks (see Glossary of Terms) have been identified to avoid and minimize the adverse effects to specific biological resources. Setbacks are not considered additive and are measured as specified in the applicable CMA. Allowable minor incursions (see Glossary of Terms), as per specific CMAs do not affect the following setback measurement descriptions. Generally, setbacks (which range in distances for different biological resources) for the appropriate resources are measured from:	Section 4.4.7 Appendix 2A	The CDCA Plan would be further amended to eliminate this setback for sensitive plant for the Project. Compliance with this CMA is achieved, in part, through application of APM-BIO-04, APM-BIO-11, BMP-BIO-31, BMP-BIO-50, and BMP-BIO-52.
		• The edge of each of the DRECP desert vegetation types, including but not limited to those in the riparian or wetland vegetation groups (as defined by alliances within the vegetation type descriptions and mapped based on the vegetation type habitat assessments described in LUPA-BIO-1).		
		• The edge of the vegetation extent for specified Focus and BLM sensitive plant species.		

CATEGORY	CMA #	CMA TEXT	RELEVANT EIS SECTIONS	COMPLIANCE SUMMARY
	Con't	• The edge of suitable habitat or active nest substrates for the appropriate Focus and BLM Special Status Species.		
Seasonal Restrictions	LUPA-BIO-4	For activities that may impact Focus and BLM Special Status Species, implement all required species-specific seasonal restrictions on pre- construction, construction, operations, and decommissioning activities.	Appendix 2A	Compliance with this CMA is achieved through application of APM-BIO-20, BMP-BIO-31, and BMP-BIO-32.
		Species-specific seasonal restriction dates are described in the applicable CMAs.	Appendix 2A	Compliance with this CMA is achieved through application of BMP-BIO-32.
		Alternatively, to avoid a seasonal restriction associated with visual disturbance, installation of a visual barrier may be evaluated on a case-by-case basis that will result in the breeding, nesting, lambing, fawning, or roosting species not being affected by visual disturbance from construction activities subject to seasonal restriction. The proposed installation and use of a visual barrier to avoid a species seasonal restriction will be analyzed in the activity/project specific environmental analysis.	Appendix 2A Appendix 4	The use of visual barriers is allowed for nesting migratory birds when included in the nest management plan (Appendix 2B) in accordance with AMP BIO-20 and BMP-BIO-29.

CATEGORY	CMA #	CMA TEXT	RELEVANT EIS SECTIONS	COMPLIANCE SUMMARY
Worker Education	LUPA-BIO-5	All activities, as determined appropriate on an activity-by-activity basis, will implement a worker education program that meets the approval of the BLM. The program will be carried out during all phases of the project (site mobilization, ground disturbance, grading, construction, operation, closure/decommissioning or project abandonment, and restoration/reclamation activities). The worker education program will provide interpretation for non-English speaking workers, and provide the same instruction for new workers prior to their working on site. As appropriate based on the activity, the program will contain information about:	Appendix 2, 2A Section 2.2.4	Compliance with this CMA is achieved through application of APM/BMP-BIO-01. Required worker training would be Included as a part of the Environmental Health and Safety Plan (Appendix 2B).
		• Site-specific biological and nonbiological resources.	Appendix 2A	Compliance with this CMA is achieved through application of APM-BIO-01.
		• Information on the legal protection for protected resources and penalties for violation of federal and state laws and administrative sanctions for failure to comply with LUPA CMA requirements intended to protect site-specific biological and nonbiological resources.	Appendix 2A	Compliance with this CMA is achieved through application of APM-BIO-01.
		• The required LUPA and project-specific measures for avoiding and minimizing effects during all project phases, including but not limited to resource setbacks, trash, speed limits, etc.	Appendix 2A	Compliance with this CMA is achieved through application of APM-BIO-01.
		• Reporting requirements and measures to follow if protected resources are encountered, including potential work stoppage and requirements for notification of the designated biologist.	Appendix 2A	Compliance with this CMA is achieved through application of APM-BIO-01.
		• Measures that personnel can take to promote the conservation of biological and nonbiological resources.	Appendix 2A	Compliance with this CMA is achieved through application of APM-BIO-01.

CATEGORY	CMA #	CMA TEXT	RELEVANT EIS SECTIONS	COMPLIANCE SUMMARY
Subsidized Predators Standards	LUPA-BIO-6	Subsidized predator standards, approved by BLM, in coordination with the USFWS and CDFW, will be implemented during all appropriate phases of activities, including but not limited to renewable energy activities, to manage predator food subsidies, water subsidies, and breeding sites including the following:	Appendix 2A Appendix 4	
		• Common Raven management actions will be implemented for all activities to address food and water subsidies and roosting and nesting sites specific to the Common Raven. These include identification of monitoring reporting procedures and requirements; strategies for refuse management; as well as design strategies and passive repellant methods to avoid providing perches, nesting sites, and roosting sites for Common Ravens.	Section 4.4.4 Appendix 2A Appendix 4	Compliance with this CMA is achieved through application of AMP BIO-05, AMP BIO-06, and BMP-BIO-28.
		• The application of water and/or other palliatives for dust abatement in construction areas and during project operations and maintenance will be done with the minimum amount of water necessary to meet safety and air quality standards and in a manner that prevents the formation of puddles, which could attract wildlife and wildlife predators.	Appendix 2A Appendix 4	Compliance with this CMA is achieved through application of BMPs AQ-01 and BIO-34.
		• Following the most recent national policy and guidance, BLM will take actions to not introduce, dispose of, or release any non- native species into areas of native habitat, suitable habitat, and natural or artificial waterways/water bodies containing native species.	Section 4.4.4 Appendix 2A	Compliance with this CMA is achieved through application of APM-BIO-12 and BMP-BIO-31.

CATEGORY	CMA #	CMA TEXT	RELEVANT EIS SECTIONS	COMPLIANCE SUMMARY
	Con't	All activity work areas will be kept free of trash and debris. Particular attention will be paid to "micro-trash" (including such small items as screws, nuts, washers, nails, coins, rags, small electrical components, small pieces of plastic, glass or wire, and any debris or trash that is colorful or shiny) and organic waste that may subsidize predators. All trash will be covered, kept in closed containers, or otherwise removed from the project site at the end of each day or at regular intervals prior to periods when workers are not present at the site.	Section 4.4.4 Appendix 2A	Compliance with this CMA is achieved through application of APM-BIO-06.
		• In addition to implementing the measures above on activity sites, each activity will provide compensatory mitigation that contributes to LUPA-wide raven management.	Appendix 2A	Compliance with this CMA is achieved through application of BMP-BIO-28.
Restoration of Areas Disturbed by Construction Activities but Not Converted by Long-Term Disturbance	LUPA-BIO-7	Where DRECP vegetation types or Focus or BLM Special Status Species habitats may be affected by ground- disturbance and/or vegetation removal during pre-construction, construction, operations, and decommissioning related activities but are not converted by long-term (i.e., more than two years of disturbance, see Glossary of Terms) ground disturbance, restore these areas following the standards, approved by BLM authorized officer, following the most recent BLM policies and procedures for the vegetation community or species habitat disturbance/impacts as appropriate, summarized below:	Section 4.4.5 Appendix 2A Appendix 4	Compliance with this CMA is achieved through application of APM-BIO-15.
		• Implement site-specific habitat restoration actions for the areas affected including specifying and using:	Section 4.4.4 Appendix 2A	Compliance with this CMA is achieved through application of APM-BIO-15.
		o The appropriate seed (e.g., certified weed- free, native, and locally and genetically appropriate seed)	Section 4.4.4 Appendix 2A	Compliance with this CMA is achieved through application of APM-BIO-15.

CATEGORY	CMA #	CMA TEXT	RELEVANT EIS SECTIONS	COMPLIANCE SUMMARY
	Con't	o Appropriate soils (e.g., topsoil of the same original type on site or that was previously stored by soil type after being salvaged during excavation and construction activities)	Section 4.3.4 Section 4.4.4 Appendix 2A	Compliance with this CMA is achieved through application of APM/BMP-BIO-15 and BMP-SOIL-3.
		o Equipment	Appendix 2A	Compliance with this CMA is achieved through application of APM-BIO-15.
		o Timing (e.g., appropriate season, sufficient rainfall)	Section 4.4.4 Appendix 2A	Compliance with this CMA is achieved through application of APM-BIO-15.
		o Location	Section 4.4.4 Appendix 2A	Compliance with this CMA is achieved through application of APM-BIO-15.
		o Success criteria	Section 4.4.4 Appendix 2A	Compliance with this CMA is achieved through application of APM-BIO-15.
		o Monitoring measures	Section 4.4.4 Appendix 2A	Compliance with this CMA is achieved through application of APM-BIO-15.
		o Contingency measures, relevant for restoration, which includes seeding that follows BLM policy when on BLM administered lands.	Section 4.4.4 Appendix 2A	Compliance with this CMA is achieved through application of APM-BIO-15.
		• Salvage and relocate cactus, nolina, and yucca from the site prior to disturbance using BLM protocols. To the maximum extent practicable for short-term disturbed areas (see Glossary of Terms), the cactus and yucca will be re-planted back to the original site.	Section 4.4.7 Appendix 2A	Compliance with this CMA is achieved through application of APM/BMP-BIO-11, APM/BMP-BIO-15 and BMP-BIO-41.

CATEGORY	CMA #	CMA TEXT	RELEVANT EIS SECTIONS	COMPLIANCE SUMMARY
	Con't	• Restore and reclaim short-term (i.e. 2 years or less, see Glossary of Terms) disturbed areas, including pipelines, transmission projects, staging areas, and short-term construction-related roads immediately or during the most biologically appropriate season as determined in the activity/project specific environmental analysis and decision, following completion of construction activities to reduce the amount of habitat converted at any one time and promote recovery to natural habitats and vegetation as well as climate refugia and ecosystem services such carbon storage.	Section 4.4.4 Appendix 2A	Compliance with this CMA is achieved through application of APM-BIO-15.
General Closure and Decommissioning Standards	LUPA-BIO-8	All activities that are required to close and decommission the site (e.g., renewable energy activities) will specify and implement project-specific closure and decommissioning actions that meet the approval of BLM, and that at a minimum address the following:	Section 4.4.4 Appendix 2A	Compliance with this CMA is achieved through application of APM-BIO-15.
		• Specifying and implementing the methods, timing (e.g., criteria for triggering closure and decommissioning actions), and criteria for success (including quantifiable and measureable criteria).	Appendix 2A	Compliance with this CMA is achieved through application of APM-BIO-15.
		• Recontouring of areas that were substantially altered from their original contour or gradient and installing erosion control measures in disturbed areas where potential for erosion exists.	Appendix 2A	Compliance with this CMA is achieved through application of APM-BIO-15.
		• Restoring vegetation as well as soil profiles and functions that will support and maintain native plant communities, associated carbon sequestration and nutrient cycling processes, and native wildlife species.	Appendix 2A	Compliance with this CMA is achieved through application of APM/BMP-BIO-11, APM/BMP-BIO-15.

CATEGORY	CMA #	CMA TEXT	RELEVANT EIS SECTIONS	COMPLIANCE SUMMARY
	Con't	• Vegetation restoration actions will identify and use native vegetation composition, native seed composition, and the diversity to values commensurate with the natural ecological setting and climate projections.	Appendix 2A	Compliance with this CMA is achieved through application of APM-BIO-15.
Water and Wetland Dependent Species Resources	LUPA-BIO-9	Implement the following general LUPA CMA for water and wetland dependent resources: • Implement construction site standard practices to prevent toxic chemicals, hazardous materials, and other fluids from entering vegetation type streams, washes, and tributary networks through water runoff, erosion, and sediment transport by, at a minimum, implementing the following:	Appendix 2A	Compliance with this CMA is achieved through application of APM-BIO-08, APM-BIO-07, APM-BIO-10, and APM-HAZ-01.
		o On project sites, vehicles and other equipment will be maintained in proper working condition and only stored in designated containment areas where runoff is collected or controlled and that are located outside of streams, washes, and distributary networks to minimize accidental fluids and hazardous materials spills.	Appendix 2A	Compliance with this CMA is achieved through application of APM-HAZ-01.
		o Hazardous material leaks, spills, or releases will be immediately cleaned and equipment will be repaired upon identification. Removal and disposal of spill and related clean-up materials will occur at an approved off-site landfill.	Appendix 2A	Compliance with this CMA is achieved through application of APM-BIO-08 and APM-HAZ-01.
		o Maintenance and operations vehicles will carry the appropriate equipment and materials to isolate, clean up, and repair any hazardous material leaks, spills, or releases.	Appendix 2A	Compliance with this CMA is achieved through application of APM-BIO-08 and BMP-HAZ-03.

CATEGORY	CMA #	CMA TEXT	RELEVANT EIS SECTIONS	COMPLIANCE SUMMARY
	Con't	• Activity-specific drainage, erosion, and sedimentation control actions, which meet the approval of BLM and the applicable regulatory agencies, will be carried out during all appropriate phases of the approved project. These actions, as needed, will address measures to ensure the proper protection of water quality, site-specific stormwater and sediment retention, and design of the project to minimize site disturbance, including the following:	Appendix 2A	Compliance with this CMA is achieved through application of APM-BIO-10, BMP-BIO-38, and APM-WQ-01.
		o Identify site-specific surface water runoff patterns and implement measures to prevent excessive and unnatural soil deposition and erosion.	Appendix 2A	Compliance with this CMA is achieved through application of APM-WQ-01.
		o Implement measures to maintain natural drainages and to maintain hydrologic function in the event drainages are disturbed.	Appendix 2A	Compliance with this CMA is achieved through application of APM-WQ-01.
		o Reduce the amount of area covered by impervious surfaces through use of permeable pavement or other pervious surfaces. Direct runoff from impervious surfaces into retention basins.	Appendix 2A	Compliance with this CMA is achieved through application of APM-WQ-01.
		o Stabilize disturbed areas following grading in the manner appropriate to the soil type so that wind or water erosion is minimized.	Appendix 2A	Compliance with this CMA is achieved through application of APM-WQ-01. The CA portion of the Project Area is scheduled for soil survey in the near future. Updated soils data would be incorporated in the EIS when available and analysis and BMPs updated as needed.
		o Minimize irrigation runoff by using low or no irrigation native vegetation landscaping for landscaped retention basins.	Appendix 2A	Compliance with this CMA is achieved through application of APM-WQ-01.

CATEGORY	CMA #	CMA TEXT	RELEVANT EIS SECTIONS	COMPLIANCE SUMMARY
	Con't	o Conduct regular inspections and maintenance of long-term erosion control measures to ensure long-term effectiveness.	Appendix 2A	Compliance with this CMA is achieved through application of APM-WQ-01.
Standard Practices for Weed Management	LUPA-BIO-10	Consistent with BLM state and national policies and guidance, integrated weed management actions, will be carried out during all phases of activities, as appropriate, and at a minimum will include the following:	Section 2.2.4 Section 4.4.4 Appendix 2, 2A	Compliance with this CMA is achieved through application of APM-BIO-12 and the Noxious Weed Management Plan (Appendix 2B).
		• Thoroughly clean the tires and undercarriage of vehicles entering or reentering the project site to remove potential weeds.	Appendix 2A	Compliance with this CMA is achieved through application of APM-BIO-12.
		• Store project vehicles on site in designated areas to minimize the need for multiple washings whenever vehicles re-enter the project site.	Appendix 2A	Compliance with this CMA is achieved through application of APM-BIO-12.
		• Properly maintain vehicle wash and inspection stations to minimize the introduction of invasive weeds or subsidy of invasive weeds.	Appendix 2A	Compliance with this CMA is achieved through application of APM-BIO-12.
		• Closely monitor the types of materials brought onto the site to avoid the introduction of invasive weeds and non-native species.	Appendix 2A	Compliance with this CMA is achieved through application of APM-BIO-12.
		• Reestablish native vegetation quickly on disturbed sites.	Appendix 2A	Compliance with this CMA is achieved through application of APM-BIO-12 and APM-BIO-15.
		• Monitor and quickly implement control measures to ensure early detection and eradication of weed invasions to avoid the spread of invasive weeds and non-native species on site and to adjacent off-site areas.	Appendix 2A	Compliance with this CMA is achieved through application of APM-BIO-12.
		• Use certified weed-free mulch, straw, hay bales, or equivalent fabricated materials for installing sediment barriers.	Appendix 2A	Compliance with this CMA is achieved through application of APM-BIO-12.

CATEGORY	CMA #	CMA TEXT	RELEVANT EIS SECTIONS	COMPLIANCE SUMMARY
Nuisance Animals and Invasive Species	LUPA-BIO-11	Implement the following CMAs for controlling nuisance animals and invasive species:	Section 2.2.4 Section 4.4.4 Appendix 2A	Compliance with this CMA is achieved through application of APM-BIO-12 and the Noxious Weed Management Plan (Appendix 2B).
		• No fumigant, treated bait, or other means of poisoning nuisance animals including rodenticides will be used in areas where Focus and BLM Special Status Species are known or suspected to occur.	Appendix 2A	Compliance with this CMA is achieved through application of APM-BIO-12.
		• Manage the use of widely spread herbicides and do not apply herbicides effective against dicotyledonous plants within 1,000 feet from the edge of a 100-year floodplain, stream and wash channels, and riparian vegetation or to soils less than 25 feet from the edge of drains. Exceptions will be made when targeting the base and roots of invasive riparian species such as tamarisk and *Arundo donax* (giant reed). Manage herbicides consistent with the most current national and California BLM policies.	Appendix 2A	Compliance with this CMA is achieved through application of APM-BIO-12. The Noxious Weed Control Plan would include requirements and practices for the application of herbicides, including identification of floodplains and washes to limit application areas.
		• Minimize herbicide, pesticide, and insecticide treatment in areas that have a high risk for groundwater contamination.	Appendix 2A	Compliance with this CMA is achieved through application of APM-BIO-12.
		• Clean and dispose of pesticide containers and equipment following professional standards. Avoid use of pesticides and cleaning containers and equipment in or near surface or subsurface water.	Appendix 2A	Compliance with this CMA is achieved through application of APM-BIO-12.
		• When near surface or subsurface water, restrict pesticide use to those products labeled safe for use in/near water and safe for aquatic species of animals and plants.	Appendix 2A	Compliance with this CMA is achieved through application of APM-BIO-12.

CATEGORY	CMA #	CMA TEXT	RELEVANT EIS SECTIONS	COMPLIANCE SUMMARY
Noise	LUPA-BIO-12	For activities that may impact Focus or BLM Special Status Species, implement the following LUPA CMA for noise:		
		• To the extent feasible, and determined necessary by BLM to protect Focus and BLM sensitive wildlife species, locate stationary noise sources that exceed background ambient noise levels away from known or likely locations of and BLM sensitive wildlife species and their suitable habitat.	Appendix 2A	Compliance with this CMA is achieved through application of BMP-NO-07.
		• Implement engineering controls on stationary equipment, buildings, and work areas including sound-insulation and noise enclosures to reduce the average noise level, if the activity will contribute to noise levels above existing background ambient levels.	Appendix 2A	Compliance with this CMA is achieved through application of APM-NO-01.
		• Use noise controls on standard construction equipment including mufflers to reduce noise	Appendix 2A	Compliance with this CMA is achieved through application of APM-NO-01.
General Siting and Design	LUPA-BIO-13	Implement the following CMA for project siting and design:	Appendix 2A Appendix 4	Compliance with this CMA is partially achieved through application of T&T-05.
		• To the maximum extent practicable site and design projects to avoid impacts to vegetation types, unique plant assemblages, climate refugia as well as occupied habitat and suitable habitat for Focus and BLM Special Status Species (see “avoid to the maximum extent practicable” in Glossary of Terms).	Section 4.4.4 Appendix 2A	Compliance with this CMA is achieved through application of APM/BMP-BIO-11, APM-BIO-13, BMP-BIO-31, and BMP-BIO-52.

CATEGORY	CMA #	CMA TEXT	RELEVANT EIS SECTIONS	COMPLIANCE SUMMARY
	Con't	• The siting of projects along the edges (i.e. general linkage border) of the biological linkages identified in Appendix D (Figures D-1 and D-2) will be configured (1) to maximize the retention of microphyll woodlands and their constituent vegetation type and inclusion of other physical and biological features conducive to Focus and BLM Special Status Species' dispersal, and (2) informed by existing available information on modeled focus and BLM Special Status Species habitat and element occurrence data, mapped delineations of vegetation types, and based on available empirical data, including radio telemetry, wildlife tracking sign, and road-kill information. Additionally, projects will be sited and designed to maintain the function of F Special Status Species connectivity and their associated habitats in the following linkage and connectivity areas:	N/A	Though identified linkages are not within the Project area, implementation of BMP-BIO-52 minimizes impacts to microphyll woodlands wherever it occurs on BLM land in California.
		o Within a 5-mile-wide linkage across Interstate 10 centered on Wiley's Well Road to connect the Mule and McCoy mountains (the majority of this linkage is within the Chuckwalla ACEC and Mule-McCoy Linkage ACEC).	N/A	Though the identified linkage, centered on Wiley's Well Road, is 4.5 miles from the Project and outside the linkage corridor (2.5 miles to each side of Wiley's Well Road), implementation of BMP-BIO-52 minimizes impacts to microphyll woodlands wherever it occurs on BLM land in California.
		• Delineate the boundaries of areas to be disturbed using temporary construction fencing and flagging prior to construction and confine disturbances, project vehicles, and equipment to the delineated project areas to protect vegetation types and focus and BLM Special Status Species.	Section 4.4.4 Appendix 2A	Compliance with this CMA is achieved through application of APM-BIO-04, APM-BIO-22, and APM-BIO-23.

CATEGORY	CMA #	CMA TEXT	RELEVANT EIS SECTIONS	COMPLIANCE SUMMARY
	Con't	• Long-term nighttime lighting on project features will be limited to the minimum necessary for project security, safety, and compliance with Federal Aviation Administration requirements and will avoid the use of constant-burn lighting.	Section 4.4.4 Appendix 2A	Compliance with this CMA is achieved through application of BMP-BIO-33.
		• All long-term nighttime lighting will be directed away from riparian and wetland vegetation, occupied habitat, and suitable habitat areas for Focus and BLM Special Status Species. Long- term nighttime lighting will be directed and shielded downward to avoid interference with the navigation of night-migrating birds and to minimize the attraction of insects as well as insectivorous birds and bats to project infrastructure.	Section 4.4.4 Appendix 2A	Compliance with this CMA is achieved through application of BMP-BIO-33.
		• To the maximum extent practicable (see Glossary of Terms), restrict construction activity to existing roads, routes, and utility corridors to minimize the number and length/size of new roads, routes, disturbance, laydown, and borrow areas.	Section 4.4.4 Appendix 2A	Compliance with this CMA is achieved through application of APM-& BMP-BIO-03, APM-BIO-17, BMP-BIO-31, BMP-BIO-52, BMP-BIO-53, BMP-BIO-55, and BMP-T&T-04.
		• To the maximum extent practicable (see Glossary of Terms), confine vehicular traffic to designated open routes of travel to and from the project site, and prohibit, within project boundaries, cross- country vehicle and equipment use outside of approved designated work areas to prevent unnecessary ground and vegetation disturbance.	Section 4.4.4 Appendix 2A	Compliance with this CMA is achieved through application of APM-BIO-17, BMP-BIO-31, BMP-BIO-52, BMP-BIO-53, BMP-BIO-55, BMP-T&T-07, and BMP-T&T-08.

CATEGORY	CMA #	CMA TEXT	RELEVANT EIS SECTIONS	COMPLIANCE SUMMARY
	Con't	• To the maximum extent practicable (see Glossary of Terms),construction of new roads and/or routes will be avoided within Focus and BLM Special Status Species suitable habitat within identified linkages for those Focus and BLM Special Status Species, unless the new road and/or route is beneficial to minimize net impacts to natural or ecological resources of concern. These areas will have a goal of "no net gain" of project roads and/or routes	Section 4.4.4 Appendix 2A	Compliance with this CMA is achieved through application of APM-& BMP-BIO-03, APM-BMP-BIO-31, BMP-BIO-50, BMP-BIO-52, BMP-BIO-53, and BMP-BIO-55.
		• Use nontoxic road sealants and soil stabilizing agents.	Appendix 2A	Compliance with this CMA is achieved through application of BMP-WQ-04 and APM/BMP-AQ-01.
Biology: General Standard Practices	LUPA-BIO-14	Implement the following general standard practices to protect Focus and BLM Special Status Species:	Section 4.4.4 Appendix 2A Appendix 4	
		• Feeding of wildlife, leaving of food or trash as an attractive nuisance to wildlife, collection of native plants, or harassing of wildlife on a site is prohibited.	Appendix 2A	Compliance with this CMA is achieved through application of APM-BIO-06, BMP-BIO-36, BMP-BIO-37, and BMP-WQ-04.
		• Any wildlife encountered during the course of an activity, including construction, operation, and decommissioning will be allowed to leave the area unharmed.	Appendix 2A	Compliance with this CMA is achieved through application of BMP-BIO-35 and BMP-BIO-36.
		• Domestic pets are prohibited on sites. This prohibition does not apply to the use of domestic animals (e.g., dogs) that may be used to aid in official and approved monitoring procedures/protocols, or service animals (dogs) under Title II and Title III of the American with Disabilities Act.	Appendix 2A	Compliance with this CMA is achieved through application of BMP-BIO-05.

CATEGORY	CMA #	CMA TEXT	RELEVANT EIS SECTIONS	COMPLIANCE SUMMARY
	Con't	• All construction materials will be visually checked for the presence of wildlife prior to their movement or use. Any wildlife encountered during the course of these inspections will be allowed to leave the construction area unharmed.	Appendix 2A	Compliance with this CMA is achieved through application of BMP-BIO-35.
		• All steep-walled trenches or excavations used during the project will be covered, except when being actively used, to prevent entrapment of wildlife. If trenches cannot be covered, they will be constructed with escape ramps, following up-to-date design standards to facilitate and allow wildlife to exit, or wildlife exclusion fencing will be installed around the trench(s) or excavation(s). Open trenches or other excavations will be inspected by a designated biologist immediately before backfilling, excavation, or other earthwork.	Appendix 2A	Compliance with this CMA is achieved through application of APM-BIO-09.
		• Minimize natural vegetation removal through implementation of crush and drive or cut or mow vegetation rather than removing entirely.	Appendix 2A	Compliance with this CMA is achieved through application of APM-BIO-14 and BMP-VEG-02.
	LUPA-BIO-15	Use state-of-the-art, as approved by BLM, construction and installation techniques, appropriate for the specific activity/project and site, that minimize new site disturbance, soil erosion and deposition, soil compaction, disturbance to topography, and removal of vegetation.	Appendix 2A	Compliance with this CMA is achieved through application of BMP-BIO-38 and BMP-VEG-01.

CATEGORY	CMA #	CMA TEXT	RELEVANT EIS SECTIONS	COMPLIANCE SUMMARY
Activity-Specific Bird and Bat CMAs	LUPA-BIO-16	For activities that may impact Focus and BLM sensitive birds, protected by the ESA and/or Migratory Bird Treaty Act of 1918, and bat species, implement appropriate measures as per the most up-to-date BLM state and national policy and guidance, and data on birds and bats, including but not limited to activity specific plans and actions. The goal of the activity -specific bird and bat actions is to avoid and minimize direct mortality of birds and bats from the construction, operation, maintenance, and decommissioning of the specific activities.	Section 4.4.4 Appendix 2A Appendix 4	Compliance with this CMA is achieved through application of APM/BMP-BIO-19, APM/BMP-BIO-21, BMP-BIO-29, BMP-BIO-30, and BMP-BIO-45.
		Activity-specific measures to avoid and minimize impacts may include, but are not limited to:		
		• Siting and designing activities will avoid high bird and bat movement areas that separate birds and bats from their common nesting and roosting sites, feeding areas, or lakes and rivers.	Appendix 2A	Compliance with this CMA is achieved through application of APM/BMP-BIO-19, APM/BMP-BIO-21, BMP-BIO-29, and BMP-BIO-40.
		• For activities that impact bird and bat Focus and BLM Special Status Species, during project siting and design, conducting monitoring of bird and bat presence as well as bird and bat use of the project site using the most current survey methods and best procedures available at the time.	Appendix 2A	Compliance with this CMA is achieved through application of BMP-BIO-29.
		• Reusing or co-locating new transmission facilities and other ancillary facilities with existing facilities and disturbed areas to reduce habitat destruction and avoid additional collision risks.	Chapter 2 Appendix 2	The Proposed Action follows the existing DPV1 transmission line. Action alternative segments follow other linear utilities with associated access (with exception of a short connector road at the Colorado River Substation), and/or are located within BLM utility corridors.

CATEGORY	CMA #	CMA TEXT	RELEVANT EIS SECTIONS	COMPLIANCE SUMMARY
	Con't	• Reducing bird and bat collision hazards by utilizing techniques such as unguyed monopole towers or tubular towers. Where the use of guywires is unavoidable, demarcate guywires using the best available methods to minimize avian species strikes.	Chapter 2 Appendix 2	Guyed structures are not proposed for the California portion of the Project.
		• When fencing is necessary, use bird and bat compatible design standards.	Appendix 2A	Compliance with this CMA is achieved through application of BMP-BIO-39.
		• Using lighting that does not attract birds and bats or their prey to project sites including using non-steady burning lights (red, dual red and white strobe, strobe- like flashing lights) to meet Federal Aviation Administration requirements, using motion or heat sensors and switches to reduce the time when lights are illuminated, using appropriate shielding to reduce horizontal or skyward illumination, and avoiding the use of high-intensity lights (e.g., sodium vapor, quartz, and halogen).	Section 4.4.4 Appendix 2A	Compliance with the CMA is achieved through application of BMP-BIO-29 and BMP-BIO-33.
		• Implementing a robust monitoring program to regularly check for wildlife carcasses, document the cause of mortality, and promptly remove the carcasses.	Section 4.4.4 Appendix 2A	Compliance with this CMA is achieved through application of BMP-BIO-21 and BMP-BIO-29.
		• Incorporating a bird and bat use and mortality monitoring program during operations using current protocols and best procedures available at time of monitoring	Appendix 2A	Compliance with this CMA is achieved through application of BMP-BIO-21 and BMP-BIO-29.

CATEGORY	CMA #	CMA TEXT	RELEVANT EIS SECTIONS	COMPLIANCE SUMMARY
Activity-Specific Bird and Bat CMAs	LUPA-BIO-17	For activities that may result in mortality to Focus and BLM Special–Status bird and bat species, a Bird and Bat Conservation Strategy (BBCS) will be prepared with the goal of assessing operational impacts to bird and bat species and incorporating methods to reduce documented mortality. The BBCS actions for impacts to birds and bats during these activities will be determined by the activity-specific bird and bat operational actions. The strategy shall be approved by BLM in coordination with USFWS, and CDFW as appropriate, and may include, but is not limited to:	Section 4.4.4 Appendix 2A	Compliance with this CMA is achieved through application of AMP/BMP-BIO-19, BMP-BIO-21, and BMP-BIO-29.
		• Incorporating a bird and bat use and mortality monitoring program during operations using current protocols and best procedures available at time of monitoring.	Appendix 2A	Compliance with this CMA is achieved through application of BMP-BIO-21 and BMP-BIO-29.
		• Activity-specific operational avoidance and minimization actions that reduce the level of mortality on the populations of bird and bat species, such as:	Appendix 2A	Compliance with this CMA is achieved through application of BMP-BIO-21 and BMP-BIO-29.
		o Evaluation and installation of the best available bird and bat detection and deterrent technologies available at the time of construction.	N/A	N/A
		The following provides the DRECP vegetation type, and Focus and BLM Special Status Species biological CMAs to be implemented throughout the LUPA Decision Area.		
		Riparian and Wetland Vegetation Types and Associated Species (RIPWET)		
		Riparian Vegetation Types		

CATEGORY	CMA #	CMA TEXT	RELEVANT EIS SECTIONS	COMPLIANCE SUMMARY
	Con't	• Sonoran-Coloradan Semi-Desert Wash Woodland/Scrub	Section 4.4.4 Appendix 2A	Compliance with this CMA is achieved through application of BMP-BIO-46, BMP-BIO-47, BMP-BIO-50, BMP-BIO-51, and BMP-BIO-52.
		Riparian and Wetland Bird Focus Species		
		• Southwestern Willow Flycatcher	Section 3.4.3 Appendix 2A	Though no suitable nesting habitat is present in the Project area, ground disturbance during the nesting season requires surveys for, and protection of all active bird nests, including the southwestern willow flycatcher. If nests are found protective buffers are applied. APM-BIO-20 and BMP-BIO-29 apply.
		• Western Yellow-billed Cuckoo	Section 3.4.3 Appendix 2A	Though no suitable nesting habitat is present in the Project area, ground disturbance during the nesting season requires surveys for, and protection of all active bird nests, including the western yellow-billed cuckoo. If nests are found protective buffers are applied. APM-BIO-20 and BMP-BIO-29 apply.
		• Yuma Clapper Rail	Section 3.4.3 Appendix 2A	Though no suitable nesting habitat is present in the Project area, ground disturbance during the nesting season requires surveys for, and protection of all active bird nests, including the Yuma clapper rail. If nests are found protective buffers are applied. APM-BIO-20 and BMP-BIO-29 apply.

CATEGORY	CMA #	CMA TEXT	RELEVANT EIS SECTIONS	COMPLIANCE SUMMARY
Other Riparian & Wetland Focus Species: Tehachapi Slender Salamander	LUPA-BIO-RIPWET-1	The riparian and wetland DRECP vegetation types and other features listed in Table 17 will be avoided to the maximum extent practicable, except for allowable minor incursions (see Glossary of Terms for "avoidance to the maximum extent practicable" and "minor incursion") with the specified setbacks.	Section 4.4.4 Appendix 2A	Compliance with this CMA is achieved through application of AMP/BMP-BIO-11, AMP/BMP-BIO-19, BMP-BIO-50, BMP-BIO-51, and BMP-BIO-52
		For minor incursion (see "minor incursion" in the Glossary of Terms) to the DRECP riparian vegetation types, wetland vegetation types, or encroachments on the setbacks listed in Table 17, the hydrologic function of the avoided riparian or wetland communities will be maintained.	Appendix 2A	Compliance with this CMA is achieved through application of AMP/BMP-BIO-19 and BMP-BIO-47.
		• Minor incursions in the riparian and wetland vegetation types or other features including the setbacks listed in Table 17 will occur outside of the avian nesting season, February 1 through August 31 or otherwise determined by BLM, USFWS and CDFW if the minor incursion(s) is likely to result in impacts to nesting birds.	Appendix 2A	Compliance with this CMA is achieved through application of APM-BIO-20 and BMP-BIO-29.
BLM Special Status Riparian Bird Species	LUPA-BIO-RIPWET-3	For activities that occur within 0.25 mile of a riparian or wetland DRECP vegetation type and may impact BLM Special Status riparian and wetland bird species, conduct a pre-construction/activity nesting bird survey for BLM Special Status riparian and wetland birds according to agency-approved protocols.	Section 4.4.4 Appendix 2A Appendix 4	Compliance with this CMA is achieved through application of APM-BIO-02, APM-BIO-20, and APM-BIO-25.
		• Based on the results of the nesting bird survey above, setback activities that are likely to impact BLM Special Status riparian and wetland bird species, including but not limited to pre-construction, construction and decommissioning, 0.25 mile from active nests Special Status during the breeding season (February 1 through August 31 or otherwise determined by BLM, USFWS and CDFW). For activities in areas covered by this provision that occur during the breeding season and that	Section 4.4.4 Section 4.4.7 Appendix 2A	Compliance with this CMA is achieved through application of APM-BIO-02, APM-BIO-20, and APM-BIO-25.

CATEGORY	CMA #	CMA TEXT	RELEVANT EIS SECTIONS	COMPLIANCE SUMMARY
		last longer than one week, nesting bird surveys may need to be repeated, as determined by BLM, in coordination with USFWS and CDFW, as appropriate. No pre-activity nesting bird surveys are necessary for activities occurring outside of the breeding season.		
Dune DRECP Vegetation Types, Aeolian Processes and Associated Species (DUNE): Aeolian Processes	LUPA-BIO-DUNE-1	Because DRECP sand dune vegetation types and Aeolian sand transport corridors are, by definition, shifting resources, activities that potentially occur within or bordering the sand dune DRECP vegetation types and/or Aeolian sand transport corridors must conduct studies to verify the location [refer to Appendix D, Figure D-7] and extent of the sand resource(s) for the activity-specific environmental analysis to determine:	Section 3.3.3 Section 3.4.3 Section 4.3.4 Section 4.4.4 Appendix 2A	Compliance with this CMA is partially achieved through data contained in the Biological Resources Technical Reports, which is incorporated into Chapter 3 and Appendix 3 of this EIS, and analysis presented in Chapter 4 and Appendix 4. BMP-BIO-53 and BMP-BIO-54 apply.
		• Whether the proposed activity(s) occur within a sand dune or an Aeolian sand transport corridor	Section 3.3.3 Section 3.4.3 Section 4.3.4 Section 4.4.4 Appendix 2A	Portions of Segments ca-07, ca-09, and x-19 would cross areas of active windblown sand. BMP-BIO-53 and BMP-BIO-54 apply.
		• If the activity(s) is subject to dune/Aeolian sand transport corridor CMAs	Section 3.3.3 Section 3.4.3 Section 4.3.4 Section 4.4.4 Appendix 2A	Because portions of Segments ca-07, ca-09, and x-19 would cross areas of active windblown sand, those segments would be subject to dune/Aeolian sand transport corridor CMAs. BMP-BIO-54 applies.
		• If the activity(s) needs to be reconfigured to satisfy applicable avoidance requirements	Section 3.3.3 Section 3.4.3 Section 4.3.4	Compliance with this CMA is achieved through application of BMP-BIO-54.

CATEGORY	CMA #	CMA TEXT	RELEVANT EIS SECTIONS	COMPLIANCE SUMMARY
			Section 4.4.4 Appendix 2A	
	LUPA-BIO-DUNE-2	Activities that potentially affect the amount of sand entering or transported within Aeolian sand transport corridors will be designed and operated to:		
		• Maintain the quality and function of Aeolian transport corridors and sand deposition zones, unless related to maintenance of existing [at the time of the DRECP LUPA ROD] facilities/operations/activities	Section 4.3.4 Appendix 2A	Portions of Segments ca-07, ca-09, and x-19 would cross areas of active windblown sand. Compliance with this CMA is achieved through application of BMP-BIO-54.
		• Avoid a reduction in sand-bearing sediments within the Aeolian system	Section 4.3.4 Appendix 2A	Compliance with this CMA is achieved through application of BMP-BIO-54.
		• Minimize mortality to DUNE associated Focus and BLM Special Status Species	Section 4.4.4 Appendix 2A	Compliance with this CMA is achieved through application of BMP-BIO-31, BMP-BIO-49, and BMP-BIO-53.
	LUPA-BIO-DUNE-3	Any facilities or activities that alter site hydrology (e.g., sediment barrier) will be designed to maintain continued sediment transport and deposition in the Aeolian corridor in a way that maintains the Aeolian sorting and transport to downwind deposition zones. Site designs for maintaining this transport function must be approved by BLM in coordination with USFWS and CDFW as appropriate.	Appendix 2A	Compliance with this CMA is achieved through application of BMPs WQ-06 and WQ-07.
Mohave Fringe-Toed Lizard	LUPA-BIO-DUNE-4	Dune formations and other sand accumulations (i.e., sand ramps, sand sheets) with suitable habitat characteristics for the Mojave fringe-toed lizard (i.e., unconsolidated blow-sand) will be mapped according to mapping standards established by the BLM National Operations Center.	Section 4.4.4 Appendix 2A	Compliance with this CMA is achieved through application of APM-BIO-25 and BMP-BIO-49.

CATEGORY	CMA #	CMA TEXT	RELEVANT EIS SECTIONS	COMPLIANCE SUMMARY
		For minor incursions (see "minor incursion" in the Glossary of Terms) into sand dunes and sand transport areas the activity will be sited in the mapped zone with the least impacts to sand dunes and sand transport and Mojave fringe-toed lizards.	Section 4.4.4 Appendix 2A	All access and structures in sand dunes and transport areas would be microsited in consultation with the BLM. Compliance with this CMA is achieved through application of APM-BIO-25, BMP-BIO-49, BMP-BIO-53, BMP-BIO-54, and BMP-BIO-55.
	LUPA-BIO-DUNE-5	If suitable habitat characteristics are identified during the habitat assessment, clearance surveys (see Glossary of Terms) for Mojave fringe-toed lizard will be performed in suitable habitat areas.	Section 4.4.4 Appendix 2A	Compliance with this CMA is achieved through application of BMP-BIO-02, APM-BIO-25, and BMP-BIO-49.
		The following CMAs will be implemented for bat Focus and BLM Special Status Species, including but not limited to those listed below:	Section 4.4.4 Appendix 2A	Compliance with this CMA is achieved through application of BMP-BIO-29, BMP-BIO-33, BMP-BIO-39, and BMP-BIO-40.
		• California Leaf-nosed Bat		
		• Pallid Bat		
		• Townsend's Big-eared Bat		
Bat Species (BAT)	LUPA-BIO-BAT-1	Activities, except wind projects, will not be sited within 500 feet of any occupied maternity roost or presumed occupied maternity roost as described below. Refer to CMA DFA-VPL-BIO-BAT-1 for distances within DFAs and VPLs.	Appendix 2A	Compliance with this CMA is achieved through application of BMP-BIO-40; However, no bat roosts are expected in the portion of the Project area within the CDCA.
Plant Species (PLANT): Plant Focus and BLM Special Status Species CMAs	LUPA-BIO-PLANT-1	Conduct properly timed protocol surveys in accordance with the BLM's most current (at time of activity) survey protocols for plant Focus and BLM Special Status Species.	Section 3.4.3 Section 4.4.4 Appendix 2A	The rare plant surveys previously conducted, in conjunction with planned pre-construction surveys will meet the BLM's survey requirements. APM-BIO-24 applies.

CATEGORY	CMA #	CMA TEXT	RELEVANT EIS SECTIONS	COMPLIANCE SUMMARY
	LUPA-BIO-PLANT-2	Implement an avoidance setback of 0.25 mile for all Focus and BLM Special Status Species occurrences. Setbacks will be placed strategically adjacent to occurrences to protect ecological processes necessary to support the plant Species (see Appendix Q, Baseline Biology Report, in the Proposed LUPA and Final EIS [2015], or the most recent data and modeling).	Section 2.5.2 Section 2.8 Section 4.4.4 Section 4.4.7 Appendix 2, 2A	The CDCA Plan would be further amended to eliminate this setback for the Project. Compliance with this CMA is achieved through application of BMP-BIO-31.
	LUPA-BIO-PLANT-3	Impacts to suitable habitat for Focus and BLM Special Status plant species should be avoided to the extent feasible, and are limited [capped] to a maximum of 1% of their suitable habitat throughout the entire LUPA Decision Area. The baseline condition for measuring suitable habitat is the DRECP modeled suitable habitat for these species utilized in the EIS analysis (2014 and 2015), or the most recent suitable habitat modeling.	Section 4.4.4 Appendix 2A	Compliance with this CMA is achieved through data contained in the Biological Resources Technical Reports, which is incorporated into Chapter 3 and Appendix 3 of this EIS, and analysis presented in Chapter 4 and Appendix 4. BMP-BIO-31 applies.
Special Vegetation Features (SVF)	LUPA-BIO-SVF-1	For activity-specific NEPA analysis, a map delineating potential sites and habitat assessment of the following special vegetation features is required: Yucca clones, creosote rings, Saguaro cacti, Joshua tree woodland, microphyll woodland, Crucifixion thorn stands. BLM guidelines for mapping/surveying cacti, yuccas, and succulents shall be followed.	Section 4.4.4 Appendix 2A	Compliance with this CMA is achieved through application of APM/BMP-BIO-11, BMP-BIO-16, APM-BIO-24, BMP-BIO-41, BMP-BIO-52, and BMP-VEG-01.
	LUPA-BIO-SVF-6	Microphyll woodland: impacts to microphyll woodland (see Glossary of Terms) will be avoided, except for minor incursions (see Glossary of Terms).	Section 4.4.4 Appendix 2A	Compliance with this CMA is achieved through application of BMP-BIO-50, BMP-BIO-51, and BMP-BIO-52.
General Vegetation Management (VEG)	LUPA-BIO-VEG-1	Management of cactus, yucca, and other succulents will adhere to current up-to-date BLM policy.	Appendix 2A	Compliance with this CMA is achieved through application of BMP-BIO-41.

CATEGORY	CMA #	CMA TEXT	RELEVANT EIS SECTIONS	COMPLIANCE SUMMARY
	LUPA-BIO-VEG-2	Promote appropriate levels of dead and downed wood on the ground, outside of campground areas, to provide wildlife habitat, seed beds for vegetation establishment, and reduce soil erosion, as determined appropriate on an activity-specific basis.	Appendix 2A	Compliance with this CMA is achieved through application of BMP-BIO-42.
	LUPA-BIO-VEG-3	Allow for the collection of plant material consistent with the maintenance of natural ecosystem processes.	Appendix 2A	Compliance with this CMA is achieved through application of BMP-BIO-43.
	LUPA-BIO-VEG-5	All activities will follow applicable BLM state and national regulations and policies for salvage and transplant of cactus, yucca, other succulents, and BLM Sensitive plants.	Appendix 2A	Compliance with this CMA is achieved through application of BMP-BIO-41.
	LUPA-BIO-VEG-6	BLM may consider disposal of succulents through public sale, as per current up-to-date state and national policy.	Appendix 2A	Compliance with this CMA is achieved through application of BMP-BIO-41.
Individual Focus Species (IFS): Desert Tortoise	LUPA-BIO-IFS-3	All culverts for access roads or other barriers will be designed to allow unrestricted access by desert tortoises and will be large enough that desert tortoises are unlikely to use them as shelter sites (e.g., 36 inches in diameter or larger). Desert tortoise exclusion fencing may be utilized to direct tortoise use of culverts and other passages.	Section 4.4.4 Appendix 2A	Compliance with this CMA is achieved through application of BMP-BIO-44.
	LUPA-BIO-IFS-5	Following the clearance surveys (see Glossary of Terms) within sites that are fenced with long-term desert tortoise exclusion fencing a designated biologist (see Glossary of Terms) will monitor initial clearing and grading activities to ensure that desert tortoises missed during the initial clearance survey are moved from harm's way.	Section 4.4.4 Appendix 2A Appendix 4	Compliance with this CMA is achieved through application of APM/BMP-BIO-23 and BMP-BIO-44.

CATEGORY	CMA #	CMA TEXT	RELEVANT EIS SECTIONS	COMPLIANCE SUMMARY
		• A designated biologist will inspect construction pipes, culverts, or similar structures: (a) with a diameter greater than 3 inches, (b) stored for one or more nights, (c) less than 8 inches aboveground and (d) within desert tortoise habitat (such as, outside the long-term fenced area), before the materials are moved, buried, or capped.	Section 4.4.4 Appendix 2A	Compliance with this CMA is achieved through application of BMP-BIO-23 and BMP-BIO-44.
		• As an alternative, such materials shall be capped before storing outside the fenced area or placing on pipe racks. Pipes stored within the long-term fenced area after completing desert tortoise clearance surveys will not require inspection.	Appendix 2A	Compliance with this CMA is achieved through application of BMP-BIO-23 and BMP-BIO-44.
	LUPA-BIO-IFS-6	When working in areas where protocol or clearance surveys are required (see Appendix D), biological monitoring will occur with any geotechnical boring or geotechnical boring vehicle movement to ensure no desert tortoises are killed or burrows are crushed.	Appendix 2A	Compliance with this CMA is achieved through application of APM-BIO-02, APM-BIO-23, APM-BIO-25, and BMP-BIO-44.
	LUPA-BIO-IFS-7	A designated biologist (see Glossary of Terms) will accompany any geotechnical testing equipment to ensure no tortoises are killed and no burrows are crushed.	Appendix 2A	Compliance with this CMA is achieved through application of APM-BIO-02, APM-BIO-23, and BMP-BIO-44.
	LUPA-BIO-IFS-8	Inspect the ground under the vehicle for the presence of desert tortoise any time a vehicle or construction equipment is parked in desert tortoise habitat outside of areas fenced with desert tortoise exclusion fencing. If a desert tortoise is seen, it may move on its own. If it does not move within 15 minutes, a designated biologist may remove and relocate the animal to a safe location.	Appendix 2A	Compliance with this CMA is achieved through application of APM-BIO-23 and BMP-BIO-44.
	LUPA-BIO-IFS-9	Vehicular traffic will not exceed 15 miles per hour within the areas not cleared by protocol level surveys where desert tortoise may be impacted.	Appendix 2A	Compliance with this CMA is achieved through application of BMP-BIO-44.

CATEGORY	CMA #	CMA TEXT	RELEVANT EIS SECTIONS	COMPLIANCE SUMMARY
Bendire's Thrasher	LUPA-BIO-IFS-11	If Bendire's thrasher is present, conduct appropriate activity-specific biological monitoring (see Glossary of Terms) to ensure that Bendire's thrasher individuals are not directly affected by operations (i.e., mortality or injury, direct impacts on nest, eggs, or fledglings).	Appendix 4.4.4	Though Bendire's thrasher is not expected to be present in the Project area, ground disturbance during the nesting season requires surveys for, and protection of all active bird nests, including Bendire's thrasher. If nests are found protective buffers are applied. APM-BIO-20 and BMP-BIO-29 apply.
Burrowing Owl	LUPA-BIO-IFS-12	If burrowing owls are present, a designated biologist (see Glossary of Terms) will conduct appropriate activity-specific biological monitoring (see Glossary of Terms) to ensure avoidance of occupied burrows and establishment of the 656 feet (200 meter) setback to sufficiently minimize disturbance during the nesting period on all activity sites, when practical.	Section 4.4.4 Appendix 2A	Compliance with this CMA is achieved through application of APMs BIO-02, AMPBIO-25, BMP-BIO-29, and BMP-BIO-30.
	LUPA-BIO-IFS-13	If burrows cannot be avoided on-site, passive burrow exclusion by a designated biologist (see Glossary of Terms) through the use of one-way doors will occur according to the specifications in Appendix D or the most up-to-date agency BLM or CDFW specifications. Before exclusion, there must be verification that burrows are empty as specified in Appendix D or the most up-to-date BLM or CDFW protocols. Confirmation that the burrow is not currently supporting nesting or fledgling activities is required prior to any burrow exclusions or excavations.	Appendix 2A	Compliance with this CMA is achieved through application of BMP-BIO-30.
	LUPA-BIO-IFS-14	Activity-specific active translocation of burrowing owls may be considered, in coordination with CDFW.	Appendix 2A	Compliance with this CMA is achieved through application of BMP-BIO-30.
Golden Eagle	LUPA-BIO-IFS-24	Provide protection from loss and harassment of active golden eagle nests through the following actions:		

CATEGORY	CMA #	CMA TEXT	RELEVANT EIS SECTIONS	COMPLIANCE SUMMARY
		• Activities that may impact nesting golden eagles, will not be sited or constructed within 1-mile of any active or alternative golden eagle nest within an active golden eagle territory, as determined by BLM in coordination with USFWS as appropriate.	Section 4.4.4 Appendix 2A	Compliance with this CMA is achieved through application of BMP-BIO-45.
	LUPA-BIO-IFS-25	Cumulative loss of golden eagle foraging habitat within a 1- to 4-mile radius around active or alternative golden eagle nests (as identified or defined in the most recent USFWS guidance and/or policy) will be limited to less than 20%. See CONS-BIO-IFS-5 for the requirement in Conservation Lands.	Section 3.4.3 Appendix 2A	Compliance with this CMA is achieved through application of BMP-BIO-45.
	LUPA-BIO-IFS-26	For activities that impact golden eagles, applicants will conduct a risk assessment per the applicable USFWS guidance (e.g. the Eagle Conservation Plan Guidance) using best available information as well as the data collected in the pre-project golden eagle surveys.	Appendix 2A	Compliance with this CMA is achieved through application of BMP-BIO-45.
	LUPA-BIO-IFS-27	If a permit for golden eagle take is determined to be necessary, an application will be submitted to the USFWS in order to pursue a take permit.	Appendix 2A	Compliance with this CMA is achieved through application of BMP-BIO-45.
	LUPA-BIO-IFS-28	In order to evaluate the potential risk to golden eagles, the following activities are required to conduct 2 years of pre-project golden eagle surveys in accordance with USFWS Eagle Conservation Plan Guidance.	Section 3.4.3 N/A	No reasonable foreseeable expectation for take of golden eagles

CATEGORY	CMA #	CMA TEXT	RELEVANT EIS SECTIONS	COMPLIANCE SUMMARY
Compensation	LUPA-BIO-COMP-1	Impacts to biological resources, identified and analyzed in the activity specific environmental document, from activities in the LUPA Decision Area will be compensated using the standard biological resources compensation ratio, except for the biological resources and specific geographic locations listed as compensation ratio exceptions, specifics in CMAs LUPA-BIO-COMP-2 through -4, and previously listed CMAs. Compensation acreage requirements may be fulfilled through non-acquisition (i.e., restoration and enhancement), land acquisition (i.e., preserve), or a combination of these options, depending on the activity specifics and BLM approval/authorization.	Section 4.4.4 Section 4.4.4 Appendix 2A	Compliance with this CMA is achieved through application of BMP-BIO-46. All compensation requirements would be captured in a Compensation Plan (mitigation measure BIO-1).
		Refer to CMA LUPA-COMP-1 and 2 for the timing requirements for initiation or completion of compensation.	N/A	Acknowledged
	LUPA-BIO-COMP-2	Birds and Bats – The compensation for the mortality impacts to bird and bat Focus and BLM Special Status Species from activities will be determined based on monitoring of bird and bat mortality and a fee re-assessed every 5 years to fund compensatory mitigation. The initial compensation fee for bird and bat mortality impacts will be based on pre-project monitoring of bird use and estimated bird and bat species mortality from the activity. The approach to calculating the operational bird and bat compensation is based on the total replacement cost for a given resource, a Resource Equivalency Analysis. This involves measuring the relative loss to a population (debt) resulting from an activity and the productivity gain (credit) to a population from the implementation of compensatory mitigation actions. The measurement of these debts and gains (using the same “bird years” metric as described in Appendix D) is used to estimate the necessary compensation fee.	Section 4.4.4 Appendix 2A	MM BIO-1 requires the preparation of a Compensation Plan, which would aggregate biological compensatory mitigation requirements. Through APM/BMP-BIO-21 the required monitoring would provide data on bird mortality from which compensation fees would be determined.

CATEGORY	CMA #	CMA TEXT	RELEVANT EIS SECTIONS	COMPLIANCE SUMMARY
		Each activity, as determined appropriate by BLM in coordination with USFWS, and CDFW as applicable, will include a monitoring strategy to provide activity-specific information on mortality effects on birds and bats in order to determine the amount and type of compensation required to offset the effects of the activity, as described above and in detail in Appendix D. Compensation will be satisfied by restoring, protecting, or otherwise improving habitat such that the carrying capacity or productivity is increased to offset the impacts resulting from the activity. Compensation may also be satisfied by non-restoration actions that reduce mortality risks to birds and bats (e.g., increased predator control and protection of roosting sites from human disturbance). Compensation will be consistent with the most up to date DOI mitigation policy.	Section 4.4.4 Appendix 2A	All biological compensatory mitigation requirements would be captured in a Compensation Plan (mitigation measure BIO-1).

2C.1.2 Air Resources

CATEGORY	CMA #	CMA TEXT	RELEVANT EIS SECTIONS	COMPLIANCE SUMMARY
Air Resources	LUPA-AIR-1	All activities must meet the following requirements:		
		• Applicable National Ambient Air Quality Standards (Section 109)	Appendix 2A	Compliance with this CMA is achieved through application of APM-AQ-01, BMP-AQ-05.
		• State Implementation Plans (Section 110)	Appendix 2A	Compliance with this CMA is achieved through application of APM-AQ-01, BMP-AQ-05.
		• Prevention of Significant Deterioration, including visibility impacts to mandatory Federal Class I Areas (Section 160 et seq.)	Appendix 2A	Compliance with this CMA is achieved through application of APM-AQ-01, BMP-AQ-05.
		• Conformity Analyses and Determinations (Section 176[c])	Appendix 2A	Compliance with this CMA is achieved through application of APM-AQ-01, BMP-AQ-05.
		• Apply best management practices on a case by case basis	Appendix 2A	Compliance with this CMA is achieved through application of APM-AQ-01, BMP-AQ-05.
		• Applicable local Air Quality Management Jurisdictions (e.g., 403 SCAQMD)	Appendix 2A	Compliance with this CMA is achieved through application of APM-AQ-01, BMP-AQ-05.

CATEGORY	CMA #	CMA TEXT	RELEVANT EIS SECTIONS	COMPLIANCE SUMMARY
	LUPA-AIR-2	Because project authorizations are a federal undertaking, air quality standards for fugitive dust may not exceed local standards and requirements.	Appendix 2A	Compliance with this CMA is achieved through application of APM-AQ-01, AQ-05.
	LUPA-AIR-3	Where impacts to air quality may be significant under NEPA, requiring analysis through an Environmental Impact Statement, require documentation for activities to include a detailed discussion and analysis of Ambient Air Quality conditions (baseline or existing), National Ambient Air Quality Standards, criteria pollutant nonattainment areas, and potential air quality impacts of the proposed project (including cumulative and indirect impacts and greenhouse gas emissions). This content is necessary to disclose the potential impacts from temporary or cumulative degradation of air quality. The discussion will include a description and estimate of air emissions from potential construction and maintenance activities, and proposed mitigation measures to minimize net PM10 and PM2.5 emissions. The documentation will specify the emission sources by pollutant from mobile sources, stationary sources, and ground disturbance. A Construction Emissions Mitigation Plan will be developed.	Appendix 2A	Compliance with this CMA is achieved through application of APM-AQ-01, AQ-02, and MISC-01.

CATEGORY	CMA #	CMA TEXT	RELEVANT EIS SECTIONS	COMPLIANCE SUMMARY
	LUPA-AIR-4	Because fugitive dust is the number one source of PM10 and PM2.5 emissions in the Mojave and Sonoran Deserts, fugitive dust impacts to air quality must be analyzed for all activities/projects requiring an Environmental Impact Statement and Environmental Assessment.	Section 4.2.1	Air Quality impacts are assessed in the EIS.
		• The NEPA air quality analysis may include modeling of the sources of PM10 and PM2.5 that occur prior to construction and/or ground disturbance from the activity/project, and show the timing, duration and transport of emissions off site. When utilized, the modeling will also identify how the generation and movement of PM10 and PM2.5 will change during and after construction and/or ground disturbance of the activity/project under all activity/project specific NEPA alternatives. The BLM air resource specialist and Authorizing Officer will determine if modeling is required as part of the NEPA analysis based on estimated types and amounts of emissions.	N/A	The NOC, in conjunction with the California BLM determined modeling is not required for this Project.
	LUPA-AIR-5	• A fugitive Dust Control Plan will be developed for all projects where the NEPA analysis shows an impact on air quality from fugitive dust.	Appendix 2A	Compliance with this CMA is achieved through application of APM-AQ-01.

2C.1.3 Cultural Resources and Tribal Interests

CATEGORY	CMA #	CMA TEXT	RELEVANT EIS SECTIONS	COMPLIANCE SUMMARY
Cultural Resources and Tribal Interests	LUPA-CUL-4	Design activities to minimize impacts on cultural resources including places of traditional cultural and religious importance to federally recognized Tribes.	Appendix 2A	Compliance with LUPA-CUL-4 would be satisfied with BMP-CULT-03, which states that the Proponent would follow avoidance and stipulations outlined in the PA and appropriate Historic Property Treatment Plans (HPTPs), and APM-CULT-01 and APM-CULT-02, in which the Proponent commits to following those stipulations.

2C.1.4 Land Use

CATEGORY	CMA #	CMA TEXT	RELEVANT EIS SECTIONS	COMPLIANCE SUMMARY
Lands and Realty	LUPA-LANDS-4	Nonfederal lands within the boundaries of BLM LUPA land use allocations are not affected by the LUPA.	N/A	Acknowledged
	LUPA-LANDS-5	The MUCs used to determine land tenure in the CDCA Plan will be replaced by areas listed in the CMAs below.	Section 4.7.5	Acknowledged
	LUPA-LANDS-8	The CDCA Plan requirement that new transmission lines of 161kV or above, pipelines with diameters greater than 12 inches, coaxial cables for interstate communications, and major aqueducts or canals for interbasin transfers of water will be located in designated utility corridors, or considered through the plan amendment process outside of designated utility corridors, remains unchanged. The only exception is that transmission facilities may be located outside of designated corridors within DFAs without a plan amendment. This CMA does not apply the Bishop and Bakersfield RMPs.	Section 4.7.5	The Project would comply with this CMA because it would be entirely within a DFA; additionally, some of the Project would also be within designated utility corridors.

2C.1.5 Minerals

CATEGORY	CMA #	CMA TEXT	RELEVANT EIS SECTIONS	COMPLIANCE SUMMARY
Minerals	LUPA-MIN-5	Areas Located Outside Identified Mineral Areas		
		• Areas which could not be characterized due to insufficient data and mineral potential may fluctuate dependent on market economy, extraction technology, and other geologic information- requiring periodic updating. Authorizations are subject to the governing laws and regulations and LUPA requirements.	N/A	Compliance would be achieved at a later date, should the BLM change the characterization of lands within the Project ROW.

2C.1.6 Paleontological Resources

CATEGORY	CMA #	CMA TEXT	RELEVANT EIS SECTIONS	COMPLIANCE SUMMARY
Paleontology	LUPA-PALEO-1	If not previously available, prepare paleontological sensitivity maps consistent with the Potential Fossil Yield Classification for activities prior to NEPA analysis.	Appendix 7, Figure 3.2-1	The Project would comply - specific PFYC maps were created using existing PFYC maps of the area and associated geologic unit tables, in addition to known fossil localities.
	LUPA-PALEO-2	Incorporate all guidance provided by the Paleontological Resources Protection Act.	Appendix 2B	The Project complies - Guidance from the Paleontological Resources Protection Act (PRPA) would direct the paleontological resources treatment plan and the paleontological monitoring and mitigation plan (Appendix 2B). Under PRPA, the management of paleontological resources has been further directed through BLM IM 2016-124, IM 2009-011, and IM 2008-009.
	LUPA-PALEO-3	Ensure proper data recovery of significant paleontological resources where adverse impacts cannot be avoided or otherwise mitigated.	Appendix 2A	Compliance with this CMA is achieved through application of APM-PALEO-01.
	LUPA-PALEO-4	Paleontological surveys and construction monitors are required for ground disturbing activities that require an EIS.	Appendix 2A	Compliance with this CMA is achieved through application of BMP-PALEO-02.

2C.1.7 Soil and Water Resources

CATEGORY	CMA #	CMA TEXT	RELEVANT EIS SECTIONS	COMPLIANCE SUMMARY
Soil and Water General	LUPA-SW-1	Stipulations or conditions of approval for any activity will be imposed that provide appropriate protective measures to protect the quantity and quality of all water resources (including ephemeral, intermittent, and perennial water bodies) and any associated riparian habitat (see biological CMAs for specific riparian habitat CMAs). The water resources to which this CMA applies will be identified through the activity-specific NEPA analysis.	Section 3.2.10	Compliance with this CMA is achieved through APMs and BMPs in Biological Resources, Soil Resources, and Water Resources in Appendix 2A. The water resources to which this CMA applies are identified in Section 3.2.10.
	LUPA-SW-2	Buffer zones, setbacks, and activity limitations specifically for soil and water (ground and surface) resources will be determined on an activity/site-specific basis through the environmental review process, and will be consistent with the soil and water resource goals and objectives to protect these resources. Specific requirements, such as buffer zones and setbacks, may be based, in part, on the results of the Water Supply Assessment defined below. In general, placement of long-term facilities within buffers or protected zones for soil and water resources is discouraged, but may be permitted if soil and water resource management objectives can be maintained.	Sections 4.3 and 4.2.10	Compliance with this CMA is achieved by the environmental review in Sections 4.3 and 4.2.10, and the reasoning in the ROD regarding the selected alternative meeting soil and water resource management objectives.
	LUPA-SW-3	Where a seeming conflict between CMAs within or between resources arises, the CMA(s) resulting in the most resource protection apply.	N/A	Acknowledged. No conflicts between CMAs noted.
	LUPA-SW-4	Nothing in the “Exceptions” below applies to or takes precedence over any of the CMAs for biological resources.		

CATEGORY	CMA #	CMA TEXT	RELEVANT EIS SECTIONS	COMPLIANCE SUMMARY
Groundwater Resources	LUPA-SW-5	Exceptions to any of the specific soil and water stipulations contained in this section, as well as those listed below under the subheadings "Soil Resources," "Surface Water," and "Groundwater Resources," may be granted by the authorized officer if the applicant submits a plan, or, for BLM-initiated actions, the BLM provides documentation, that demonstrates:		
		• The impacts are minimal (e.g., no predicted aquifer drawdown beyond existing annual variability in basins where cumulative groundwater use is not above perennial yield and water tables are not currently trending downward) or can be adequately mitigated.	Section 2.2.4	Water would be acquired from private commercial sources.
Soil Resources	LUPA-SW-6	In addition to the applicable required governmental safeguards, third party activities will implement up-to-date standard industry construction practices to prevent toxic substances from leaching into the soil.	Appendix 2A	Compliance with this CMA is achieved through application of APM-HAZ-01.
	LUPA-SW-7	Prepare an emergency response plan, approved by the BLM contaminant remediation specialist, that ensures rapid response in the event of spills of toxic substances over soils.	Appendix 2A	Compliance with this CMA is achieved through application of APM-HAZ-01.
	LUPA-SW-8	As determined necessary on an activity specific basis, prepare a site plan specific to major soil types present (≥5% of footprint or laydown surfaces) in Wind Erodibility Groups 1 and 2 and in Hydrology Soil Class D as defined by the USDA Natural Resource Conservation Service to minimize water and air erosion from disturbed soils on activity sites.	Appendix 2A	Compliance with this CMA is achieved through application of APM-GEO-01.

CATEGORY	CMA #	CMA TEXT	RELEVANT EIS SECTIONS	COMPLIANCE SUMMARY
	LUPA-SW-9	The extent of desert pavement within the proposed boundary of an activity shall be mapped if it is anticipated that the activity may create erosional or ecologic impacts. Mapping will use the best available data and standards, as determined by BLM. Disturbance of desert pavement within the boundary of an activity shall be limited to the extent possible. If disturbance from an activity is likely to exceed 10% of the desert pavement mapped within the activity boundary, the BLM will determine whether the erosional and ecologic impacts of exceeding the 10% cap by the proposed amount would be insignificant and/or whether the activity should be redesigned to minimize desert pavement disturbance.	Appendix 2A	Compliance with this CMA is achieved through application of BMPs SOIL-04 and SOIL-05.
	LUPA-SW-10	The extent of additional sensitive soil areas (cryptobiotic soil crusts, hydric soils, highly corrosive soils, expansive soils, and soils at severe risk of erosion) shall be mapped if it is anticipated that an activity will impact these resources. To the extent possible, avoid disturbance of desert biologically intact soil crusts, and soils highly susceptible to wind and water erosion.	Appendix 2A	Required mapping of sensitive soil areas is contained in the project record. In addition, Compliance with this CMA is achieved through application of BMP-SOIL-07.
	LUPA-SW-11	Where possible, side casting shall be avoided where road construction requires cut- and-fill procedures.	Appendix 2A	Compliance with this CMA is achieved through application of BMP-SOIL-06.
Surface Water	LUPA-SW-12	Except in DFAs, exclude long-term structures in, playas (dry lake beds), and Wild and Scenic River corridors, except as allowed with minor incursions (see definition in the Glossary of Terms).	N/A	The Project would be within a DFA. Non-Federal surface waters outside the DFA would be spanned.
	LUPA-SW-13	BLM will manage all riparian areas to be maintained at, or brought to, proper functioning condition.	Appendix 2A	Compliance with this CMA is achieved through application of AMP/BMP-BIO-19 and BMP-BIO-47.

CATEGORY	CMA #	CMA TEXT	RELEVANT EIS SECTIONS	COMPLIANCE SUMMARY
	LUPA-SW-14	All relevant requirements of Executive Orders 11988 (Floodplain Management) and 11990 (Protection of Wetlands) will be complied with.	Section 4.2.10	The analysis includes a floodplain assessment and statement of findings that analyzes the potential floodplain impacts associated with the Project. The action alternatives would not be likely to disturb or affect any wetlands (e.g., all should be able to be avoided/spanned), thus a wetlands statement of findings is not included.
	LUPA-SW-15	Surface water diversion for beneficial use will not occur absent a state water right.	N/A	No surface water diversions are planned for the Project
	LUPA-SW-16	The 100-year floodplain boundaries for any surface water feature in the vicinity of the project will be identified. If maps are not available from the Federal Emergency Management Agency (FEMA), these boundaries will be determined via hydrologic modeling and analysis as part of the environmental review process. Construction within, or alteration of, 100-year floodplains will be avoided where possible, and permitted only when all required permits from other agencies are obtained.	Section 4.2.10 Appendix 2A	Compliance with this CMA is also achieved through application of APM-BIO-19.
Groundwater	LUPA-SW-18	Water extracted or consumptively used for the construction, operation, maintenance, or remediation of the project shall be solely for the beneficial use of the project or its associated mitigation and remediation measures, as specified in approved plans and permits.	Appendix 2A	Compliance with this CMA is achieved through application of BMP-WQ-05.
	LUPA-SW-20	After application of applicable avoidance and minimization measures, all remaining unavoidable residual impacts to surface waters from the proposed activity shall be mitigated to ensure no net loss of function and value, as determined by the BLM.	Section 4.2.10	Compliance is demonstrated by the fact that no residual impacts are identified.

CATEGORY	CMA #	CMA TEXT	RELEVANT EIS SECTIONS	COMPLIANCE SUMMARY
	LUPA-SW-21	Consideration shall be given to design alternatives that maintain the existing hydrology of the site or redirect excess flows created by hardscapes and reduced permeability from surface waters to areas where they will dissipate by percolation into the landscape.	Appendix 2A	Compliance with this CMA is achieved through application of BMP-WQ-06.
	LUPA-SW-22	All hydrologic alterations shall be avoided that could reduce water quality or quantity for all applicable beneficial uses associated with the hydrologic unit in the project area, or specific mitigation measures shall be implemented that will minimize unavoidable water quality or quantity impacts, as determined by BLM in coordination with USFWS, CDFW, and other agencies, as appropriate. These beneficial uses may include municipal, domestic, or agricultural water supply; groundwater recharge; surface water replenishment; recreation; water quality enhancement; flood peak attenuation or flood water storage; and wildlife habitat.	Appendix 1, Table 1.7-3 Appendix 2A	Compliance with this CMA is achieved through application of BMP-WQ-06 and the Section 404 permitting process.

2C.1.8 Visual Resource Management

CATEGORY	CMA #	CMA TEXT	RELEVANT EIS SECTIONS	COMPLIANCE SUMMARY
Visual Resources Management	LUPA-VRM-1	Manage Visual Resources in accordance with the VRM classes shown on Figure 9.	Section 4.11	Conformance with VRM classes is demonstrated in the EIS analysis.
	LUPA-VRM-2	Ensure that activities within each of the VRM Class polygons meets the VRM objectives described above, as measured through a visual contrast rating process.	Section 4.11	Conformance with VRM classes is demonstrated in the EIS analysis.

CATEGORY	CMA #	CMA TEXT	RELEVANT EIS SECTIONS	COMPLIANCE SUMMARY
	LUPA-VRM-3	Ensure that transmission facilities are designed and located to meet the VRM Class objectives for the area in which they are located. New transmission lines routed through designated corridors where they do not meet VRM Class Objectives will require RMP amendments to establish a conforming VRM Objective. All reasonable effort must be made to reduce visual contrast of these facilities in order to meet the VRM Class before pursing RMP amendments. This includes changes in routing, using lattice towers (vs. monopole), color treating facilities using an approved color from the BLM Environmental Color Chart CC-001 (dated June 2008, as updated on April 2014, or the most recent version) (vs. galvanized) on towers and support facilities, and employing other BMPs to reduce contrast. Such efforts will be retained even if an RMP amendment is determined to be needed. Visual Resource BMPs that reduce adverse visual contrast will be applied in VRM Class conforming situations. For a reference of BMPs for reducing visual impacts see the "Best Management Practices for Reducing Visual Impacts of Renewable Energy Facilities on BLM-Administered Lands", available at http://www.blm.gov/style/medialib/blm/wo/MINERALS__REALTY__AND_RESOURCE_PROTECTION_/energy/renewable_references.Par.1568.File.dat/RenewableEnergyVisualImpacts_BMPs.pdf, or the most recent version of the document or BMPs for VRM, as determined by BLM.	Section 4.11	The Project would meet VRM objectives established for BLM-administered public lands within the Project Area in the PSFO.

2C.2 LUPA-WIDE TRANSMISSION CMAS

2C.2.1 Biological Resources

CATEGORY	CMA #	CMA TEXT	RELEVANT EIS SECTION	COMPLIANCE SUMMARY
Biological Resources	LUPA-TRANS-BIO-1	Where feasible and appropriate for resource protection, site transmission activities along roads or other previously disturbed areas to minimize new surface disturbance, reduce perching opportunities for the Common Raven, and minimize collision risks for birds and bats.	Section 4.4.7 Appendix 2A	Compliance with this CMA is achieved through application of APM-AES-06, APM/BMP-BIO-19, BMP-AES-06, BMP-BIO-21, and BMP-BIO-28.
	LUPA-TRANS-BIO-2	Flight diverters will be installed on all transmission activities spanning or within 1,000 feet of stream and wash channels, canals, ponds, and any other natural or artificial body of water. The type of flight diverter selected will be subject to approval by BLM, in coordination with USFWS and CDFW as appropriate, and will be based on the best available scientific and commercial data regarding the prevention of bird collisions with transmission and guy wires.	Section 4.4.4 Appendix 2A	Compliance with this CMA is achieved through application of APM-BIO-21 and BMP-BIO-48.
	LUPA-TRANS-BIO-3	When siting transmission activities, the alignment should avoid, to the maximum extent practicable, being located across canyons or on ridgelines. Site and design sufficient distance between transmission lines to prevent electrocution of condors.	Appendix 2A	Compliance with this CMA is achieved through application of APM/BMP-BIO-21, BMP-AES-07, and BMP-AES-08. However, there are no canyons or ridgelines in the portion of the Project area located within the CDCA Plan area.

CATEGORY	CMA #	CMA TEXT	RELEVANT EIS SECTION	COMPLIANCE SUMMARY
Biological Resources	LUPA-TRANS-BIO-4	Siting of transmission activities will be prioritized within designated utility corridors, where possible, and designed to avoid, where possible, and otherwise minimize and offset impacts to sand transport processes in Aeolian corridors, rare vegetation alliances and Focus and BLM Special Status Species. Transmission substations will be sited to avoid Aeolian corridors, rare vegetation alliances, and sand-dependent Focus and BLM Special Status Species habitats.	Section 3.3.3 Section 3.4.3 Chapter 2 Section 4.3.4 Section 4.4.4 Appendix 2, 2A	Portions of Segments ca-07, ca-09, and x-19 would cross areas of active windblown sand. Compliance with this CMA is achieved through application of APM-AES-05, BMP-BIO-53, and BMP-BIO-54.

2C.2.2 Cultural Resources and Tribal Interests

CATEGORY	CMA #	CMA TEXT	RELEVANT EIS SECTION	COMPLIANCE SUMMARY
Cultural Resources & Tribal Interests	LUPA-TRANS-CUL-1	For transmission (and renewable energy) activities, require the applicant to pay all appropriate costs associated with the following processes, through the appropriate BLM funding mechanism:	Appendix 2D	Compliance with LUPA-TRANS-CUL-1 would be satisfied by APM-CULT-01 and APM-CULT-02, in which the Proponent commits to conducting a cultural resources inventory of the direct and indirect APE, preparing HPTPs, and conducting cultural resource monitoring during Project construction, operations, and maintenance (as appropriate) to meet stipulations outlined in the PA Appendix 2D.
		• All appropriate costs associated with the BLM's analysis of the DRECP geodatabase and other sources for cultural resources sensitivity.		

CATEGORY	CMA #	CMA TEXT	RELEVANT EIS SECTION	COMPLIANCE SUMMARY
		• All appropriate costs associated with preliminary sensitivity analysis.		
		• All appropriate costs associated with the Section 106 process including the identification and defining of cultural resources. These costs may also include logistical, travel, and other support costs incurred by tribes in the consultation process.	N/A	Enforcement by BLM.
		• All appropriate costs associated with updating the DRECP cultural resources geodatabase with project specific results.		
	LUPA-TRANS-CUL-2	Consistent and in compliance with the NHPA Programmatic Agreement, signed February 5, 2016, or the most up to date signed version – for transmission (and renewable energy) activities, a compensatory mitigation fee will be required within the LUPA Decision Area to address cumulative and some indirect adverse effects to historic properties. The mitigation fee will be calculated in a manner that is commensurate to the size and regional impacts of the project. Refer to the NHPA Programmatic Agreement for details regarding the mitigation fee.	Appendix 2D	Compensatory mitigation determinations pending within the BLM. Compliance with LUPA-TRANS-CULT-2 would be satisfied by BMP-CULT-05, which outlines the fee structure of the compensatory mitigation fee. The compensatory mitigation fee structure is also outlined in the stipulations contained within the PA.
	LUPA-TRANS-CUL-3	For transmission (and renewable energy) activities, the management fee rate will be determined through the NHPA programmatic Section 106 consultation process that will be completed as part of the DRECP land use plan amendment.	Appendix 2D	Management fee determinations pending within the BLM. Compliance with LUPA-TRANS-CUL-3 would be satisfied by BMP-CULT- 05, which outlines the fee structure of the management fee as part of the compensatory mitigation fee. The management fee and compensatory mitigation fee structure is also outlined in the stipulations contained within the PA.

CATEGORY	CMA #	CMA TEXT	RELEVANT EIS SECTION	COMPLIANCE SUMMARY
	LUPA-TRANS-CUL-4	For transmission (and renewable energy) activities, demonstrate that results of cultural resources sensitivity, based on the DRECP geodatabase, and other sources, are used as part of the initial planning pre-application process and to select of specific footprints for further consideration.		Sensitivity analysis responses pending BLM review. Compliance with LUPA-TRANS-CUL-4 would be satisfied with BMP-CUL-06. The BLM has prepared a sensitivity model (Kline 2017).
	LUPA-TRANS-CUL-5	For transmission (and renewable energy) activities, provide a statistically significant sample survey as part of the pre-application process, unless the BLM determines the DRECP geodatabase and other sources are adequate to assess cultural resources sensitivity of specific footprints.	Section 3.5	Class III inventory results pending BLM review. Compliance with LUPA-TRANS-CUL-5 would be satisfied by BMP-CULT-07, which requires cultural resources Class III survey of segments p-17 and p-18 to be conducted during the NEPA and CEQA analyses to meet the conditions of LUPA-TRANS-CUL-5 and DFA-VPL-CUL-5. The Class III survey of segments p-17 and p-18 has been conducted.
	LUPA-TRANS-CUL-6	For transmission (and renewable energy) activities, provide justification in the application why the project considerations merit moving forward if the specific footprint lies within an area identified or forecast as sensitive for cultural resources by the BLM.		Sensitivity analysis responses pending BLM review. Compliance with LUPA-TRANS-CUL-6 would be satisfied by BMP-CULT-08, which requires such justification from the Project proponent.

2C.3 DFA AND VPL-SPECIFIC CMAS

2C.3.1 Biological Resources

CATEGORY	CMA #	CMA TEXT	RELEVANT EIS SECTIONS	COMPLIANCE SUMMARY
Biological Resources: North American Warm Desert Dune and Sand Flats	DFA-VPL-BIO-DUNE-1	Activities in DFAs and VPLs, including transmission substations, will be sited to avoid dune vegetation (i.e., North American Warm Desert Dune and Sand Flats). Unavoidable impacts (see "unavoidable impacts to resources" in the Glossary of Terms) to dune vegetation will be limited to transmission projects, except transmission substations, and access roads that will be sited to minimize unavoidable impacts.	Section 3.3.3 Section 3.4.3 Section 4.3.4 Section 4.4.4 Appendix 2A	Compliance with this CMA is achieved through application of BMP-BIO-53.
		• For unavoidable impacts (see "unavoidable impacts to resources" in the Glossary of Terms) to dune vegetation, the following will be required:		
		o Access roads will be unpaved.	Appendix 2A	Compliance with this CMA is achieved through application of BMP-BIP-53 and BMP-T&T-06.
		o Access roads will be designed and constructed to be at grade with the ground surface to avoid inhibiting sand transportation.	Appendix 2A	Compliance with this CMA is achieved through application of BMP-BIO-53 and BMP-T&T-06.

CATEGORY	CMA #	CMA TEXT	RELEVANT EIS SECTIONS	COMPLIANCE SUMMARY
	DFA-VPL-BIO-DUNE-2	Within Aeolian corridors that transport sand to dune formations and vegetation types downwind inside and outside of the DFAs, all activities will be designed and operated to facilitate the flow of sand across activity sites, and avoid the trapping or diverting of sand from the Aeolian corridor. Buildings and structures within the site will take into account the direction of sand flow and, to the extent feasible, build and align structures to allow sand to flow through the site unimpeded. Fences will be designed to allow sand to flow through and not be trapped.	Section 4.3.4 Section 4.4.4 Appendix 2A	Compliance with this CMA is achieved through application of BMP-BIO-54. Buildings and fences are not proposed for the portion of the Project in California. Structures are proposed to be self-supported lattice, which would minimize obstruction to sand transport. Tangent lattice structures would allow winds to essentially blow through the structure, minimizing the impact on sand transport.
Individual Focus Species (IFS): Desert Tortoise	DFA-VPL-BIO-IFS-1	To the maximum extent practicable (see Glossary of Terms), activities will be sited in previously disturbed areas, areas of low quality habitat, and areas with low habitat intactness in desert tortoise linkages and the Ord-Rodman TCA, identified in Appendix D.	Appendix 2A	Compliance with this CMA is achieved through application of BMP-MISC-04.
Fire Prevention/Protection	DFA-VPL-BIO-FIRE-1	Implement the following standard practice for fire prevention/protection:		

CATEGORY	CMA #	CMA TEXT	RELEVANT EIS SECTIONS	COMPLIANCE SUMMARY
		• Implement site-specific fire prevention/protection actions particular to the construction and operation of renewable energy and transmission project that include procedures for reducing fires while minimizing the necessary amount of vegetation clearing, fuel modification, and other construction-related activities. At a minimum these actions will include designating site fire coordinators, providing adequate fire suppression equipment (including in vehicles), and establishing emergency response information relevant to the construction site.	Section 4.4.4 Appendix 2A	Compliance with this CMA is achieved through application of AMP/BMP-BIO-11, BMP-PH&S-02, and BMP-HAZ-02
Biological Compensation	DFA-VPL-BIO-COMP-1	Impacts to biological resources from all activities in DFAs and VPLs will be compensated using the same ratios and strategies as LUPA-BIO-COMP-1 through 4, with the exception identified below in DFA-VPL-BIO-COMP-2.	N/A	See LUPA-BIO-COMP-1 and 2. All biological compensatory mitigation requirements would be captured in a Compensation Plan (mitigation measure BIO-1).

2C.3.2 Cultural Resources and Tribal Interests

The following CMAs are for renewable energy and transmission land use authorizations only, in DFAs and VPLs. All other activities in DFAs and VPs are subject to the NHPA Section 106 process.

CATEGORY	CMA #	CMA TEXT	RELEVANT EIS SECTIONS	COMPLIANCE SUMMARY
	DFA-VPL-CUL-1	For renewable energy activities and transmission, require the applicant to pay all appropriate costs associated with the following processes, through the appropriate BLM funding mechanism:	Appendix 2D	Compliance with DFA-VPL-CUL-1 would be satisfied by APM-CULT-01 and APM-CULT-02, in which the Proponent commits to conducting a cultural resources inventory of the direct and indirect APE, preparing HPTPs, and conducting cultural resource monitoring during Project construction, operations, and maintenance (as appropriate) to meet stipulations outlined in the PA.
		• All appropriate costs associated with the BLM's analysis of the DRECP geodatabase and other sources for cultural resources sensitivity.		
		• All appropriate costs associated with preliminary sensitivity analysis.	N/A	Enforcement by BLM.
		• All appropriate costs associated with the Section 106 process including the identification and defining of cultural resources. These costs may also include logistical, travel, and other support costs incurred by tribes in the consultation process.		
		• All appropriate costs associated with updating the DRECP cultural resources geodatabase with project specific results.		

CATEGORY	CMA #	CMA TEXT	RELEVANT EIS SECTIONS	COMPLIANCE SUMMARY
	DFA-VPL-CUL-2	Consistent and in compliance with the NHPA Programmatic Agreement, signed February 5, 2016, or the most up to date signed version -for renewable energy activities and transmission, a compensatory mitigation fee will be required within the LUPA Decision Area to address cumulative and some indirect adverse effects to historic properties. The mitigation fee will be calculated in a manner that is commensurate to the size and regional impacts of the project. Refer to the Programmatic Agreement for details regarding the mitigation fee.	Appendix 2D	Compensatory mitigation determinations and final draft PA language pending within the BLM. Compliance with LUPA-TRANS-CULT-2 and DFA-VPL-CUL-2 would be satisfied by BMP-CULT-05, which outlines the fee structure of the compensatory mitigation fee. The compensatory mitigation fee structure is also outlined in the stipulations contained within the PA.
	DFA-VPL-CUL-3	For renewable energy activities and transmission, the management fee rate will be determined through the NHPA programmatic Section 106 consultation process that will be completed as part of the DRECP land use plan amendment.	Appendix 2D	Management fee and mitigation fee determinations, and final draft PA language pending within the BLM. Compliance with DFA-VPL-CUL-3 would be satisfied by BMP-CULT- 05, which outlines the fee structure of the management fee as part of the compensatory mitigation fee. The management fee and compensatory mitigation fee structure is also outlined in the stipulations contained within the PA.

CATEGORY	CMA #	CMA TEXT	RELEVANT EIS SECTIONS	COMPLIANCE SUMMARY
	DFA-VPL-CUL-4	For renewable energy activities and transmission, demonstrate that results of cultural resources sensitivity, based on the DRECP geodatabase, and other sources, are used as part of the initial planning pre-application process and to select of specific footprints for further consideration.		Sensitivity analysis responses pending BLM review. Compliance with DFA-VPL-CUL-4 would be satisfied with BMP-CUL-06. The BLM has prepared a sensitivity model (Kline 2017).
	DFA-VPL-CUL-5	For renewable energy activities and transmission, provide a statistically significant sample survey as part of the pre-application process, unless the BLM determines the DRECP geodatabase and other sources are adequate to assess cultural resources sensitivity of specific footprints.	Section 3.5.3	Sensitivity analysis responses and Class III draft survey report pending BLM review. Compliance with DFA-VPL-CUL-5 would be satisfied by BMP-CULT-07, which requires cultural resources Class III survey of segments p-17 and p-18 to be conducted during the NEPA and CEQA analyses to meet the conditions of DFA-VPL-CUL-5. The Class III survey of segments p-17 and p-18 has been conducted.
	DFA-VPL-CUL-6	For renewable energy activities and transmission, provide justification in the application why the project considerations merit moving forward if the specific footprint lies within an area identified or forecast as sensitive for cultural resources by the BLM.		Sensitivity analysis responses pending BLM review. Compliance with DFA-VPL-CUL-6 would be satisfied by BMP-CULT-08, which requires such justification from the Project proponent.

CATEGORY	CMA #	CMA TEXT	RELEVANT EIS SECTIONS	COMPLIANCE SUMMARY
	DFA-VPL-CUL-7	For renewable energy activities and transmission, complete the NHPA Section 106 Process as specified in 36 CFR Part 800, or via an alternate procedure, allowed for under 36 CFR Part 800.14 prior to issuing a ROD or ROW grant on any utility-scale renewable energy or transmission project. For utility-scale solar energy developments, the BLM may follow the Solar Programmatic Agreement.	Sections 3.5.1, 5.3, and 5.5.1 Appendix 2D	Section 3.5.1.1 presents the regulatory requirement of the NHPA that includes Section 106. Section 5.5.1 summarizes the process of drafting the Programmatic Agreement. Section 5.3 presents the efforts of Native American consultation with Indian tribes. Appendix 2D is the draft Programmatic Agreement for the Project. The PA would be executed prior to issuing a ROD or ROW grant.

2C.3.3 Visual Resource Management

CATEGORY	CMA #	CMA TEXT	RELEVANT EIS SECTIONS	COMPLIANCE SUMMARY
Visual Resources Management	DFA-VPL-VRM-1	Encourage development in a planned fashion within DFAs (e.g., similar to the planned unit development concept used for urban design—i.e., in-fill vs. scattered development, use of common road networks, Generator Tie Lines etc., use of similar support facility designs materials and colors etc.) to avoid industrial sprawl.	Appendix 2, Figure 2.4-5 and Table 2.2-4	The entire portion of the Project Area on BLM-administered lands in California is within a DFA. Portions of the Proposed Action and many of the Action Alternative segments would either be within or immediately adjacent to designated utility corridors on BLM-administered lands in California.
	DFA-VPL-VRM-2	Development in DFAs and VPLs are required to incorporate visual design standards and include the best available, most recent BMPs, as determined by BLM (e.g. Solar, Wind, West Wide Energy Corridor, and Geothermal PEISs, the "*Best Management Practices for Reducing Visual Impacts of Renewable Energy Facilities on BLM-Administered Lands*", and other programmatic BMP-documents).	Appendix 2A	See APMs and BMPs developed for visual resources, some of which came from the referenced document.

CATEGORY	CMA #	CMA TEXT	RELEVANT EIS SECTIONS	COMPLIANCE SUMMARY
	DFA-VPL-VRM-3	Required Visual Resource BMPs. All development within the DFAs and VPLs will abide by the BMPs addressed in the most recent version of the document "*Reducing Visual Impacts of Renewable Energy Facilities on BLM-Administered Lands"*, or its replacement, including, but not limited to the following:	Appendix 2A	See APMs and BMPs developed for visual resources, some of which came from the referenced document. J. Dalton is seeking additional direction regarding dark night skies from Washington; additions will be made once direction is received.
		• Transmission:		
		o Color-treat monopoles Shadow Gray per the BLM Environmental Color Chart CC001 unless a more effective color choice is selected by the local Field Office VRM specialist.	Appendix 2A	Compliance with this CMA is achieved through application of APM-& BMP-AES-04.
		o Lattice towers and conductors will have non-specular qualities.	Appendix 2A	Compliance with this CMA is achieved through application of BMP-AES-04.
		o Lattice Towers will be located a minimum of 3/4 mile away from Key Observation Points such as roads, scenic overlooks, trails, campgrounds, navigable rivers and other areas people tend to congregate and located against a landscape backdrop when topography allows.	Appendix 7, Figure 3.11-8	The Project would comply with this CMA, as the KOPs for the portion of the Project located on Federal lands in California are a minimum of ¾ mile away from Project infrastructure, and self-supporting lattice structures are proposed.

2C.4 DFA-SPECIFIC CMAS

2C.4.1 Biological Resources

CATEGORY	CMA #	CMA TEXT	RELEVANT EIS SECTIONS	COMPLIANCE SUMMARY
Biological Resources	DFA-BIO-IFS-1	Conduct the following surveys as applicable in the DFAs as shown in Table 21.	Appendix 2A	Compliance with this CMA is achieved through application of APM-BIO-02, APM/BMP-BIO-23, APM-BIO-20, BMP-BIO-30, and BMP-BIO-45.
	DFA-BIO-IFS-2	Implement the following setbacks shown below in Table 22 as applicable in the DFAs.	Appendix 2A	Compliance with this CMA is achieved through application of APM-BIO-02, BMP-BIO-29, BMP-BIO-30, and BMP-BIO-45.

2C.4.2 Recreation

CATEGORY	CMA #	CMA TEXT	RELEVANT EIS SECTIONS	COMPLIANCE SUMMARY
Recreation	DFA-REC-1	Retain, to the extent possible, the identified recreation setting characteristics: physical components of remoteness, naturalness and facilities; social components of contact, group size and evidence of use; and operational components of access, visitor services and management controls (see recreation setting characteristics matrix).	Appendix 2A	Compliance with this CMA is achieved through application of BMP-REC-01.
	DFA-REC-2	Avoid large-scale ground disturbance within one-half mile of Level 3	Appendix 2A	Compliance with this CMA is achieved through application of BMP-REC-01.
		Recreation facility footprint including route access and staging areas. If avoidance isn't practicable, the facility must be relocated to the same or higher standard and maintain recreation objectives and setting characteristics.	Appendix 2A	Compliance with this CMA is achieved through application of BMP-REC-01.
	DFA-REC-4	When considering large-scale development in DFAs, retain to the extent possible existing, approved recreation activities.	Appendix 2A	Compliance with this CMA is achieved through application of BMP-REC-01.
	DFA-REC-5	For displacement of dispersed recreation opportunities, commensurate compensation in the form of enhanced recreation operations, recreation facilities or opportunities will be required. If recreation displacement results in resource damage due to increased use in other areas, mitigate that damage through whatever measures are most appropriate as determined by the Authorized Officer.	Appendix 2A	Compliance with this CMA is achieved through application of BMP-REC-01.

CATEGORY	CMA #	CMA TEXT	RELEVANT EIS SECTIONS	COMPLIANCE SUMMARY
	DFA-REC-7	If designated vehicle routes are directly impacted by activities (includes modification of existing route to accommodate industrial equipment, restricted access or full closure of designated route, pull outs, and staging areas to the public, etc.), mitigation will include the development of alternative routes to allow for continued vehicular access with proper signage, with a similar recreation experience. In addition, mitigation will also include the construction of an "OHV touring route" which circumvents the activity area and allows for interpretive signing materials to be placed at strategic locations along the new touring route, if determined to be appropriate by BLM.	Appendix 2A	Compliance with this CMA is achieved through application of BMP-REC-01.

2C.4.3 Lands and Realty

CATEGORY	CMA #	CMA TEXT	RELEVANT EIS SECTIONS	COMPLIANCE SUMMARY
Lands and Realty	DFA-LANDS-7	Transmission facilities are an allowable use and will not require a plan amendment within DFAs.	Section 4.7.9	The Project would be within the established DFA and therefore no RMPA would be required; thus, the Project complies with this CMA.

2C.4.4 Visual Resource Management

CATEGORY	CMA #	CMA TEXT	RELEVANT EIS SECTIONS	COMPLIANCE SUMMARY
Visual Resources Management	DFA-VRM-1	Manage all DFAs as VRM Class IV to allow for industrial scale development. Employ best management practices to reduce visual contrast of facilities.	Section 4.11	The Project would comply with VRM Class IV objectives.
	DFA-VRM-2	Regional mitigation for visual impacts is required in DFAs. Mitigation is to be based on the VRI class and the underlying visual values (scenic quality, sensitivity, and distance zone) for the activity area as it stands at the time the ROD is signed for the DRECP LUPA. Compensatory mitigation may take the form of reclamation of other BLM lands to maintain (neutral) or enhance (beneficial) visual values on VRI Class II and III lands. Other considerations may include acquisition of conservation easements to protect and sustain visual quality within the viewshed of BLM lands. The following mitigation ratios will be applied in DFAs:	Section 4.11	Analysis of impacts determined that the Project would not result in reduction of VRI Class II areas in California to lower VRI classes. Therefore, no compensatory mitigation would be required for the Project.
		VRI Class II 1:1 ratio		

2C.4.5 Compensation

CATEGORY	CMA #	CMA TEXT	RELEVANT EIS SECTIONS	COMPLIANCE SUMMARY
	LUPA-COMP-1	For third party actions, compensation activities must be initiated or completed within 12 months from the time the resource impact occurs (e.g. ground disturbance, habitat removal, route obliteration, etc. for construction activities; wildlife mortality, visual impacts, etc. due to operations).	N/A	Details of reclamation/restoration demonstrating compliance with the CMA will be contained in various plans referenced in the EIS and will be resolved with the BLM prior to issuance of the NTP. All compensation requirements would be captured in a Compensation Plan (mitigation measure BIO-1).
		• BLM will determine, in the environmental analysis, the activity/project-level timing of the compensation (i.e. initiated, completed or a combination) based on the specific resources being impacted, and scope and content of the activity.		
		• A 6 month extension may be authorized, subject to approval by the authorizing officer, dependent on the resources impacted and compensation due diligence of the project developer.		

Appendix 2D Draft Programmatic Agreement

PROGRAMMATIC AGREEMENT
AMONG
THE BUREAU OF LAND MANAGEMENT,
THE ARIZONA STATE HISTORIC PRESERVATION OFFICER,
THE CALIFORNIA STATE HISTORIC PRESERVATION OFFICER,
THE COLORADO RIVER INDIAN TRIBES,
THE BUREAU OF INDIAN AFFAIRS,
DCR TRANSMISSION, LLC,
THE ARIZONA STATE LAND DEPARTMENT,
THE ARIZONA DEPARTMENT OF TRANSPORTATION,
THE U.S. ARMY CORPS OF ENGINEERS, SACRAMENTO DISTRICT,
THE BUREAU OF RECLAMATION, LOWER COLORADO REGION,
THE DEPARTMENT OF DEFENSE, YUMA PROVING GROUNDS,
THE CALIFORNIA PUBLIC UTILITIES COMMISSION,
LA PAZ COUNTY, ARIZONA,
THE TOWN OF QUARTSZITE, ARIZONA,
AND
THE ARIZONA STATE MUSEUM
REGARDING THE
TEN WEST LINK TRANSMISSION PROJECT
BETWEEN TONOPAH, LA PAZ COUNTY, ARIZONA
AND BLYTHE, RIVERSIDE COUNTY, CALIFORNIA

1. **WHEREAS,** DCR Transmission, LLC (the Applicant), intends to construct, operate and maintain the Ten West Link Transmission Project (the Undertaking) in Arizona and California according to general parameters contained in the Undertaking's Plan of Development (POD), as summarized in Stipulation II and Attachment 1; and

2. **WHEREAS**, the Undertaking consists of the construction, operation and maintenance of a 500 kV transmission line approximately 114 miles in length, proposed to begin at the Delaney Substation near Tonopah, Arizona and end at the Colorado River Substation west of Blythe, California, crossing lands with the following jurisdictions: the Bureau of Land Management (BLM); Bureau of Reclamation (Reclamation); U.S. Fish and Wildlife Service (FWS); Colorado River Indian Tribes (CRIT); Arizona State Land Department (ASLD); California State Land Commission (SLC); Counties of Maricopa and La Paz, Arizona and Riverside, California; Town of Quartzite, Arizona; and private lands (Attachment 1); and

3. **WHEREAS,** the Yuma Field Office of the BLM may issue a right-of-way (ROW) grant to the Applicant for the construction, and operation, and maintenance of the Undertaking, and if issued, the ROW grant will incorporate this Programmatic Agreement (PA); and

4. **WHEREAS**, the BLM has determined that issuance of the ROW grant and related authorizations is an Undertaking as defined at 36 C.F.R. § 800.16 that triggers the requirements of 54 U.S.C. § 306108, commonly known as Section 106 of the National Historic Preservation Act (NHPA) of 1966 (54 U.S.C. § 300101 et seq., as amended), hereinafter referred to as Section 106, on federal and non-federal lands during the planning, construction, operation, and maintenance of the Undertaking; and

5. **WHEREAS,** this PA and the Historic Properties Treatment Plans (HPTPs), one for each state, that will be developed pursuant to this PA will be incorporated into the POD; and

6. **WHEREAS,** the BLM, a Signatory to this PA, has been designated to serve as the lead federal agency for the Undertaking, and has identified the area of potential effects (APE) as described in Stipulation V (also see Attachment 1); and

7. **WHEREAS,** the BLM in consultation with the other parties to this PA, has determined that the Undertaking will have adverse effects upon historic properties as defined in 36 C.F.R. § 800.16(l)(1); and this PA has been negotiated to resolve the adverse effect; and

8. **WHEREAS,** pursuant to 36 C.F.R. § 800.6 and 800.14, the BLM has consulted with the Arizona State Historic Preservation Officer and the California State Historic Preservation Officer (collectively, the SHPOs), and the CRIT Tribal Council, and they are Signatories to this PA; and

9. **WHEREAS**, the Arizona and California SHPOs are authorized to enter this agreement in order to fulfill their roles of advising and assisting Federal agencies in carrying out Section 106 responsibilities under the following federal statutes: Sections 101 and 106 of the NHPA, at § 800.2(c)(l)(i), and § 800.6(b); and

10. **WHEREAS**, the AZ SHPO is authorized to advise and assist the federal and state agencies in carrying out their historic preservation responsibilities and cooperate with these agencies under A.R.S. § 41-511.04(D)(4); and

11. **WHEREAS,** pursuant to 36 C.F.R. § 800.6(a)(1)(i)(C), the BLM, on February 15, 2017, notified the Advisory Council on Historic Preservation (ACHP) that the Undertaking will have adverse effects on historic properties that will be resolved through the PA, and the ACHP declined on March 9, 2017 to participate as a party to the PA to resolve such adverse effects; and the BLM requested that the ACHP participate as a party to the PA on January 11, 2018; and the ACHP accepted on January 25, 2018; and

12. **WHEREAS,** CRIT has assumed the role of THPO with respect to lands within its reservation boundaries and this Undertaking may cross lands under its jurisdiction; and

13. **WHEREAS**, no provision of this PA will be construed by any of the Signatories, Invited Signatories, or Concurring Parties to the PA as: (a) abridging, debilitating, or in any way affecting any sovereign powers of CRIT; (b) affecting the trustee-beneficiary relationship between the United States Secretary of the Interior and CRIT (or individual Indian landowners); or (c) interfering with the government-to-government relationship between the United States and CRIT; and

14. **WHEREAS,** the Bureau of Indian Affairs Western Regional Office (BIA) is the agency responsible for issuing permits and approving ROWs on tribal and allotted lands of CRIT, and the BLM has consulted with the BIA about the effects of the Undertaking on historic properties and has invited them to be an Invited Signatory to this PA; and

15. **WHEREAS,** the Applicant has participated in Section 106 consultations and the BLM has consulted with the Applicant about the effects of the Undertaking on historic properties and has invited them to be an Invited Signatory to this PA; and

16. **WHEREAS,** the Undertaking crosses lands in California that are subject to the Programmatic Agreement Regarding Renewable Energy Development on a Portion of Public Lands Administered by the Bureau of Land Management – California, dated February 5, 2016 (the Desert Renewable Energy Conservation Plan or DRECP PA); the California portion of the PA tiers from this version of the DRECP PA, pursuant to Stipulation I(B)(2) of the DRECP PA; and certain stipulations of the DRECP PA apply to the portion of the Undertaking in California; and

17. **WHEREAS,** because the Undertaking crosses lands under the jurisdiction of the ASLD, the ASLD may use provisions of the PA to address the applicable requirements of the Arizona State Historic Preservation Act (A.R.S. § 41-861 et seq.) on State Trust lands in Arizona and may issue a Right of Way (ROW) for the Undertaking; the BLM has consulted with the ASLD about the effects of the Undertaking on historic properties and has invited the ASLD to be an Invited Signatory to the PA; and

18. **WHEREAS,** the SLC may authorize alternatives of the Undertaking on State land and has certain responsibilities under California State laws and regulations to take into account and mitigate the impacts on properties eligible for or included on the California Register of Historic Places; and the SLC has declined in a Consulting Party Return Form dated March 6, 2017 to participate as a Consulting Party in the negotiation of the PA; and

19. **WHEREAS,** the BLM has consulted with the California Department of Transportation (Caltrans), which may issue ROWs to the Applicant for access to and construction of certain components of the Undertaking, about the effects of the Undertaking on historic properties and Caltrans has declined in a Consulting Party Return Form dated February 24, 2017 to participate as a Consulting Party in the negotiation of the PA; and

20. **WHEREAS,** the BLM has consulted with Arizona Department of Transportation (ADOT), which may issue ROWs to the Applicant for access to and construction of certain components of the Undertaking, about the effects of the Undertaking on historic properties and has invited ADOT to be an Invited Signatory to the PA; and

21. **WHEREAS,** the United States Army Corps of Engineers (USACE) administers a permit program under the authority of the Clean Water Act of 1972, Section 404 (33 U.S.C. § 1344) and may issue permits authorizing the discharge of dredged or fill material associated with the Undertaking; and the BLM has consulted with the USACE about the effects of the Undertaking on historic properties and has invited the USACE to be an Invited Signatory to the PA; and

22. **WHEREAS**, the Lower Colorado Region of Reclamation is considering issuing a license to the Applicant to construct, operate, and maintain the proposed transmission line on any Reclamation lands crossed by the Undertaking; and the BLM has consulted with Reclamation about the effects of the Undertaking on historic properties and has invited Reclamation to be an Invited Signatory to the PA; and

23. **WHEREAS**, the Department of Defense Yuma Proving Ground (YPG) is considering issuing a license to the Applicant to construct, operate, and maintain the proposed transmission line on any YPG lands crossed by the Undertaking; and the BLM has consulted with YPG about the effects of the Undertaking on historic properties and has invited YPG to be an Invited Signatory to the PA; and

24. **WHEREAS,** the California Public Utilities Commission (CPUC) agrees that the California State Historic Preservation Officer (SHPO), per 36 CFR 800(c)(2) reflects the interests of the State of California and its citizens in the preservation of their cultural heritage and therefore the interests of CPUC, as a State of California lead agency for purposes of compliance with the California Environmental Quality Act (CEQA); and

25. **WHEREAS,** the California Public Utilities Commission (CPUC) is the lead State agency for compliance with the California Environmental Quality Act (CEQA) and has certain responsibilities under California State laws and regulations to take into account and mitigate the impacts on properties eligible for or included on the California Register of Historical Resources; and the BLM has consulted with the CPUC about the effects of the Undertaking on historic properties and has invited the CPUC to be an Invited Signatory to the PA; and

26. **WHEREAS,** the Undertaking may cross lands under the jurisdiction of La Paz and Maricopa Counties, Arizona and Riverside County, California. The Undertaking may cross lands under the jurisdiction of the Town of Quartzsite, Arizona; and the BLM has invited the above counties and the Town of Quartzsite, Arizona to be Consulting Parties. La Paz County and the Town of Quartzsite have accepted the invitation to be Consulting Parties. The BLM has consulted with them about the effects of the Undertaking on historic properties and has invited each of La Paz County and the Town of Quartzsite to be Invited Signatories to this PA; and

27. **WHEREAS,** the Arizona State Museum (ASM) has been invited to participate in the PA pursuant to 36 C.F.R. § 800.6 (c)(2)(iii) as it has mandated authority and responsibilities under the Arizona Antiquities Act (AAA) A.R.S. § 41-841 et seq. that apply to that portion of the Undertaking on State lands as defined in the AAA in Arizona; and the ASM has mandated authority and responsibilities under A.R.S. § 41-865 that apply to that portion of the Undertaking on private lands; and the BLM has consulted with the ASM about the effects of the Undertaking on historic properties and has invited the ASM to be an Invited Signatory to the PA; and

28. **WHEREAS,** the Western Area Power Administration (WAPA) may participate in the Undertaking by providing funding to the Applicant and also by adding fiber optic cables to the transmission towers (a non-ground disturbing activity); and the BLM has consulted with WAPA about the effects of the Undertaking on historic properties and has invited WAPA to be a Concurring Party to this PA: and

29. **WHEREAS,** the BLM is responsible for government-to-government consultation with Indian tribes pursuant to 36 C.F.R. § 800.2(c)(2)(ii), the American Indian Religious Freedom Act (42 U.S.C. § 1996) (AIRFA), Executive Order 13175, and Section 3(c) of the Native American Graves Protection and Repatriation Act (25 U.S.C. § 3001-13) (NAGPRA), and has formally invited the twenty-one (21) Indian tribes listed below to participate in consultations regarding the potential effects of the Undertaking on properties to which they ascribe traditional religious and cultural significance, provided that CRIT and the CRIT THPO take no position on whether consultation has occurred or is consistent with federal law; and

30. **WHEREAS,** the Agua Caliente Band of Cahuilla Indians, the Ak-Chin Indian Community, the Augustine Band of Cahuilla Indians, the Cabazon Band of Mission Indians, the Chemehuevi Tribe, the Cocopah Tribe, the Colorado River Indian Tribes, the Fort McDowell Yavapai Nation, the Fort Mojave Tribe, the Quechan Tribe, the Gila River Indian Community, Salt River Pima-Maricopa Indian Community, the Hopi Tribe, the Moapa Band of Paiute Indians, the Morongo Band of Mission Indians, the San Manuel Band of Mission Indians, the Soboba Band of Luiseno Indians, the Tohono O'odham Nation, the Torres Martinez Desert Cahuilla Indians, the Twenty-Nine Palms Band of Mission Indians, the Yavapai-Apache Nation, the Yavapai-Prescott Indian Tribe, and the Pueblo of Zuni (collectively, the Tribes) have been contacted, invited to engage in consultations and invited to be Concurring Parties to the PA; and

31. **WHEREAS,** the Ak-Chin Indian Community, the Cocopah Tribe, the Fort Mojave Tribe, the Gila River Indian Community, the Hopi Tribe, the Morongo Band of Mission Indians, the Quechan Tribe, the Salt River Pima-Maricopa Indian Community, the Soboba Band of Luiseno Indians, the Tohono O'odham Nation, the Torres Martinez Desert Cahuilla Indians, the Twenty-Nine Palms Band of Mission Indians, and the Yavapai-Apache Nation, have participated in consultations for the Undertaking and the development of the PA consistent with 36 C.F.R. § 800.2 (c)(2); provided that CRIT and the CRIT THPO take no position on whether consultation has occurred or is consistent with federal law; and

32. **WHEREAS,** the CPUC is responsible for government-to-government consultation with Indian tribes pursuant to CEQA for non-federal lands, CPUC has informed consulting Indian tribes in California that the BLM's consultation process fulfills part of CPUC's consultation obligations; and

33. **WHEREAS,** the BLM has provided the public with opportunities to comment on the Undertaking and participate in the National Environmental Policy Act (NEPA) process through a Notice of Intent to Prepare an Environmental Impact Statement (EIS) published in the Federal Register on March 23, 2016 for the development of the EIS; held three public scoping meetings in April 2016; published the Draft EIS on [DATE] and held [#] public meetings in [DATE]. Public meeting materials included information about the NHPA and the Section 106 process, and the BLM considered comments received through the NEPA and NHPA processes concerning cultural resources in the development of the PA; and

34. **WHEREAS**, Human Remains, Associated/Unassociated Funerary Objects, Sacred Objects, and Objects of Cultural Patrimony recovered within or on Federal and tribal land will be treated in accordance with NAGPRA pursuant to 25 U.S.C. § 3001–13, and in accordance with the AIRFA pursuant to 42 U.S.C. § 1996; and

35. **WHEREAS,** Human Remains and Funerary Objects discovered on State or private land in Arizona will be treated in accordance with A.R.S. § 41-844 and A.R.S. § 41-865, respectively; and in California, in accordance with the Cal. Pub. Res. Code §§ 5097.98, 5097.991 and the Cal. Health & Safety Code § 7050.5(c); and

36. **WHEREAS,** Termination of the agreement by an Invited Signatory shall only apply to lands under their respective jurisdiction. In such case, the BLM shall comply with 36 C.F.R. § 800, subpart B, for all undertakings affecting the terminating Signatory's lands within the scope of the PA. Dispute resolution (Stipulation XV) is strongly encouraged prior to termination

NOW, THEREFORE, the BLM, the Arizona SHPO, the California SHPO, CRIT, and the ACHP (collectively, the Signatories) agree that the Undertaking shall be completed in accordance with the stipulations established in the PA in order to take into account the effects of the Undertaking on historic properties. The BLM shall ensure that the Undertaking is carried out in accordance with the following stipulations in order to take into account the effect of the Undertaking on historic properties:

STIPULATIONS

I. DEFINITIONS USED IN THIS PA

Definitions used in this PA are included as Attachment 2.

II. DESCRIPTION OF THE UNDERTAKING

A. The Undertaking encompasses the construction phase of the proposed transmission line project that takes place after the BLM ROW grant is issued and includes the construction of associated project facilities as well as the reclamation of areas used during construction but not necessary for operation and maintenance of the facilities. The Undertaking may include surveys, geotechnical testing, engineering, mitigation planning and design, or other activities initiated prior to construction of the transmission line and project facilities. The potential effects to historic properties will be the most extensive and substantial during the construction phase. The Undertaking also encompasses those activities necessary to operate and maintain the transmission line and project facilities over the life of the project. Operation and maintenance activities are approved in the ROW grant and confined to the areas specified in the ROW grant. Changes to approved operations and maintenance activities, including new actions outside of the approved BLM ROW grant, require BLM approval and may necessitate a separate Section 106 review and additional ROWs, subject to Stipulation XI. This PA stipulates the process necessary to comply with Section 106 obligations for construction and reclamation as well as operation and maintenance of the proposed transmission line and associated facilities. A detailed description and a map of the Undertaking are included as Attachment 1.

B. If decommissioning occurs in the future, it will be considered a separate undertaking. The ROW grant shall stipulate, and the BLM shall ensure, that decommissioning will be considered a new action for Section 106 review, and that historic properties potentially affected by decommissioning will be considered in accordance with the pertinent laws, regulations, and policies extant at the time.

III. TRIBAL CONSULTATION

A. The BLM acknowledges its government-to-government responsibilities to Tribes for Section 106 review and implementation of the PA and commits to accord tribal officials the appropriate respect and dignity as leaders of sovereign nations. The BLM shall facilitate meaningful consultation with Tribes during the planning and implementation of the Undertaking.

B. The BLM will continue to engage the Tribes in meetings and discussions regarding the Undertaking. The BLM has invited the Tribes to engage at the earliest stages of the Undertaking to gather ethnographic information, property information, and other

resource information to help identify areas which may be of religious and cultural significance to them and which may be eligible for the National Register of Historic Places (NRHP). Engaging in consultation at the earliest stages of project planning has assisted and will continue to assist the BLM in identifying significant issues and resources that may not be identified during conventional cultural resources survey and identification efforts. As part of the consultation process the BLM shall endeavor to provide information and maps that are easily understood by tribal representatives.

C. The BLM will continue to discuss and seek agreement with Tribes regarding processes of consultation that are clear, open and transparent. If a Tribe would like government-to-government consultation with the BLM on an individual basis, this request will be honored at the earliest possible time. If a Tribe would like to establish regular meetings with a BLM Field Office regarding the Undertaking, the Tribe and the BLM Field Manager should consult to develop specific procedures for consultation.

D. The BLM encourages the Applicant to provide the Tribes with opportunities to participate in the archaeological surveys and construction monitoring for the Undertaking, including the monitoring of ground-disturbing activities. Participation during archaeological surveys will be coordinated by the Applicant's cultural resources consultant. Procedures for participation during the construction of the Undertaking will be coordinated with all the Tribes with whom the BLM consulted through the development of a Tribal Participation Plan specific to the Undertaking. At the Applicant's option, all the Tribes with whom the BLM consulted will be afforded the opportunity to monitor and be on site during ground disturbance construction activities for facilities, roads, or other components associated with the Undertaking.

E. The objective of consultation is for BLM to seek agreement with Tribes regarding matters arising in the Section 106 process. The BLM will identify as early as possible any potential historic properties, properties with cultural or religious significance to Indian tribes (including landscape-level resource concerns), or tribal concerns associated with the Undertaking in order to avoid, minimize or mitigate effects on historic properties.

F. The BLM shall make reasonable attempts to contact the Tribes to confirm that the party has elected not to comment or agrees with the course of action proposed by the BLM. "Reasonable attempts" include two forms of written communication, including a formal letter and/or email to the Tribal Chairperson and designated representative for the Tribe; and two follow-up phone calls to the Tribe's designated representative. Unless otherwise agreed to, the BLM shall respond to any request from a Tribe for information and clarification about any proposed language or element that is part of the implementation of the PA, within thirty (30) calendar days of receipt of the request. Where the time period for review or comment has passed after such reasonable attempts, the BLM may proceed with the course of action proposed.

G. The BLM shall coordinate with the CPUC on tribal consultation efforts for all non-federal lands in California, including outreach, information sharing, and other activities, to allow CPUC to fulfill its tribal consultation obligations under CEQA. The CPUC is responsible for Tribal consultation under California state law.

H. In all instances where the BLM provides documents for review by the THPO or Tribes, the BLM shall either incorporate requested changes into the document or provide a written explanation of its inability to make such changes. The BLM shall consult with the appropriate reviewer(s) to resolve differences and/or disagreements.

IV. STANDARDS AND QUALIFICATIONS

A. PROFESSIONAL QUALIFICATIONS. The BLM will ensure that all actions prescribed by this PA shall be carried out by or under the direct supervision of a person or persons meeting, at a minimum, the applicable professional qualification standards set forth in the Office of Personnel management professional qualifications for archaeology and historic preservation, or the Secretary of the Interior's Professional Qualification Standards (PQS), as appropriate (48 Fed. Reg. 44739 dated September 29, 2983, and C.F.R. § 61. The PQS are available online at: http://www.nps.gov/history/local-law/arch_stnds_9.htm.

1. Individuals must also meet the regional experience or other requirements of a BLM-issued Cultural Resources Use Permit issued under the authority of the Archaeological Resources Protection Act of 1979 (ARPA) (16 U.S.C. 470aa-mm) and U.S.C. 431-433) and its regulations (43 C.F.R. § 7), the Antiquities Act of 1906 (P. L. 59-209; 34 Stat. 225, 16 U.S.C. 431-433) and its regulations (43 C.F.R. § 3), and/or the Federal Land Policy and Management Act of 1976 (FLPMA) (Public Law 94-570). However, nothing in this Stipulation may be interpreted to preclude any party qualified under the terms of this paragraph from using the services of persons who do not meet the PQS, so long as the work of such persons is directly supervised in the field and laboratory by someone who meets the PQS.

2. On State lands in Arizona, all actions prescribed by this PA shall be carried out by or under the direct supervision of an AAA-permitted consultant.

B. DOCUMENTATION STANDARDS. The BLM will ensure that reporting on and documenting the actions cited in this PA shall conform to every reasonable extent with the *Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation* (48 Fed. Reg. 44716-40 dated September 29, 1982) and take into consideration the ACHP's handbook, *Section 106 Archaeology Guidance* (http://www.achp.gov/archguide) as well as *Guidelines for Identifying Cultural Resources* BLM Manual H-8110 and Guidelines for Evaluating and Documenting Traditional Cultural Properties, National Register *Bulletin 38*, 1989. The following guidelines are available during development of this PA. Should the guidelines be updated after the execution of the PA, the latest versions will take precedent. In the event that any guidelines are modified in the future to conflict with this PA, the BLM shall notify all Consulting parties and will consult to determine how this PA should be revised, if necessary, pursuant to **Stipulation XVI**.

1. Arizona:

a. The BLM will ensure that on State land in Arizona, all activities and documentation shall be consistent with the AAA and its implementing rules. Additionally, rules for implementing the AAA and AZSHPO guidance on implementing the Arizona State Historic Preservation Act shall conform to

specifications and guidelines contained in *Guidelines for State Historic Preservation Act.* Additionally, *AZ SHPO Standards for Documents Submitted for SHPO Review in Compliance with Historic Preservation Laws* (Revised January 2016) shall guide inventory reports for all work done in Arizona.

b. In Arizona, the Applicant shall ensure that its cultural resources contractor obtains the appropriate AAA permit from the ASM prior to conducting archaeological work for the Undertaking.

2. California: The BLM will ensure that on state land in California, all activities and documentation shall be consistent with the standards as outlined in the California Office of Historic Preservation Archaeological Resource Management Reports (ARMR): Recommended Contents and Format (ARMR Guidelines) for the Preparation and Review of Archaeological Reports.

3. CRIT: The Applicant shall ensure that its cultural resources contractor obtains any necessary permits from CRIT prior to working on CRIT lands. Afterwards, the Applicant's cultural resources contractor shall approach the BIA to consult and determine the need to obtain an ARPA permit.

C. CONFIDENTIALITY. Information concerning the nature and location of any historic property, archaeological resource (historic or prehistoric), or other confidential cultural resource will be considered sensitive and protected from release under the provisions of the Freedom of Information Act (FOIA) (5 U.S.C. § 552, as amended by Public Law No. 104-231, 110 Stat. 3048), Section 9 of ARPA (16 U.S.C. § 470hh), Section 304 of the NHPA (54 U.S.C. § 307103), and Executive Order 13007. For the purposes of consultation under this PA, the BLM may release certain information for the benefit of the resource. Consideration may result in the sharing of summary reports that do not contain sensitive location information. Other than the respective SHPOs/THPO and the ACHP, the BLM will only consider the release of complete reports or other information concerning the nature and location of any historic property, archaeological resource, or other confidential cultural resource to a Consulting Party with a demonstrated interest in the information requested and a signed data sharing agreement. The data sharing agreement shall include provisions to ensure protection to tribal sovereign immunity. It shall also permit tribal members to review reports and information without individually signing the agreement, provided that the affiliated THPO or tribe has signed the data sharing agreement. All Consulting Parties will ensure that all sensitive information is protected from release.

D. CURATION STANDARDS.

1. Collections from Federal Lands: On Federal lands, all records and materials resulting from the actions required by this PA shall be curated in accordance with 36 C.F.R. § 79, and the provisions of the NAGPRA, 43 C.F.R. § 10, as applicable.

2. All artifacts recovered from lands owned, controlled or operated by the State of Arizona, including associated records and documentation, shall be curated at the ASM, or an approved and certified repository, in accordance with the standards and guidelines required by the ASM.

3. To the extent permitted under Sections 5097.98 and 5097.991 of the California Public Resources Code and by private property owners, the materials and records results from the actions required by this PA for lands owned, controlled or operated by the State of California and private lands in California, including associated records and documentation, shall be curated in accordance with 36 C.F.R. § 79.

4. Collections from CRIT lands: On lands within the Colorado River Indian Reservation, all records and materials resulting from the actions required by this PA shall be managed in accordance with tribal law, including any CRIT reburial policy.

5. The BLM will seek to have the materials retrieved from private lands donated through a written donation agreement. The BLM will seek to have all materials from each state curated together in the same curation facility within the state.

V. IDENTIFICATION, EVALUATION, AND FINDINGS OF EFFECT

A. The Areas of Potential Effects (APEs, see map in Attachment 1) are defined as:

1. **Direct effects:** The APE for direct effects for the Undertaking will include all areas likely to be affected by construction and reclamation activities. This APE will include the 200-foot-wide permitted ROW corridor for one 500 kV transmission line and access roads (within the corridor), plus 100 feet on either side of the corridor (400 feet total width). This width will allow for adjustments in transmission line or access road placement to avoid when possible any modern infrastructure, natural features such as drainages and bedrock outcrops, or cultural resources such as archaeological sites and historic buildings or structures.

   a. Proposed new access routes and existing roads requiring improvement outside the transmission line ROW will have a 150-foot wide direct effects APE (75 feet from centerline).

   b. The direct effects APE for staging areas, borrow areas, substations and other transmission infrastructure will include the footprint of the facility and a buffer of 250 feet around the footprint of the proposed activity/facility.

   c. The direct effects APE for pulling/tensioning sites that fall outside the ROW will be the footprint of the site plus a 250-foot buffer around the footprint of these sites.

   d. The BLM has provided the APE definitions above concurrently to the SHPOs/THPO and Consulting Parties for a single thirty (30) calendar day review and comment period.

2. **Indirect effects**: The APE for indirect effects shall be within 3 miles of any project component unless consultation identifies a reasonable need to expand this APE in certain locations. Further analysis, as described in the Research Design and Work Plan, will indicate locations within this three-mile zone where new or improved access may lead to looting or damage to historic properties as described in Stipulation V.C.2. These areas will also be included within the APE for indirect effects.

a. BLM will use a Geographic Information System (GIS) view shed analysis to identify areas in the indirect effects APE from which the Undertaking may be visible.

b. The indirect effects APE may extend beyond the 3-mile convention to encompass properties that have traditional religious and cultural importance, including traditional cultural properties (TCPs) or other geographically extensive historic properties, such as trails, when a Consulting Party requests and the BLM and SHPO/THPO concur that the APE be extended.

3. **Cumulative effects**: The APE for cumulative effects shall be the same as that for direct and indirect effects combined and shall be reasonably foreseeable.

4. **Final APE**: The final APE is shown on the map included with Attachment 1, the Agency Preferred Alternative in the Draft Environmental Impact Statement published on [DATE].

   Should the APE require modification as a result of a refinement in the construction POD, the BLM will consult with the Consulting Parties for no more than fifteen (15) calendar days to reach agreement on the new APE. The BLM will then prepare a description and map(s) of the modified APE and any additional identification efforts and provide them to the Consulting Parties within thirty (30) calendar days of the day upon which agreement was reached.

B. Identification of Historic Properties and/or Historic Districts

The BLM shall ensure that the Applicant completes a cultural resources inventory to identify historic properties and/or historic districts that could be affected by the Undertaking to include the following reports, some of which have been completed:

1. Class I Literature Review, Ethnographic Overview, and Research Design and Work Plan

   a. A Class I records search and literature review (as defined in Attachment 2) of federal and state agency files has been completed for a 1.0-mile wide corridor (.5 miles on either side of centerline) along all alternatives of the proposed Undertaking. The Class I report will inform all subsequent phases and will be used as a reference document to support the Class III surveys (as defined in Attachment 2) conducted for this Undertaking. The BLM will ensure that additional file searches are conducted as needed to address changes in the APE and to be current in advance of any additional Class III inventories.

   b. The BLM has consulted and will continue to consult with the Tribes to identify any resources that have cultural or religious significance to the Tribes.

      i. The Applicant, through its cultural resources contractor, has completed an ethnographic literature review (Ethnographic Overview) based on the review of existing information about resources with cultural or religious significance to the Tribes.

      ii. The BLM requires the development of an ethnographic assessment for a specific geographic area within the Undertaking's APE because a Tribe has indicated that they have additional information not included in the

Ethnographic Overview that should be considered in the Section 106 identification efforts. All the Tribes with whom the BLM consulted will be afforded the opportunity to participate in the Ethnographic Assessment per a work plan to be developed by the Applicant's cultural resources contractor and to review the resulting draft report.

c. The BLM has submitted the Class I report (Brodbeck and Glenny 2017 – See Attachment 3. References Cited) and Ethnographic Overview (Leard and Brodbeck 2017) to the SHPOs, Tribes, and federal and state land managing agencies for review and comment and to seek any additional information regarding resources in the APE with cultural or religious significance to the Tribes.

d. Research Design and Work Plan: The information in the Class I report has been used to develop a Research Design and Work Plan for all cultural resources inventory studies for the proposed Undertaking. The BLM has submitted the Research Design and Work Plan (Brodbeck et al 2017) to the Consulting Parties for a thirty (30)-day review and comment period and has concurrently requested SHPOs/THPO review and concurrence on the proposed identification efforts. The Research Design and Work Plan describes the proposed Class III inventory, the geo-archaeological study, the built environment survey, and the identification and assessment of effects to historic properties in the indirect effects APE.

e. The AZ SHPO commented on the above documents, including the geo-archaeological study referenced in Stipulation V.B.2 below, in a letter to the BLM dated August 23, 2017. The CA SHPO commented in a letter to the BLM dated November 16, 2017. The CRIT THPO commented on the above documents in a letter to the BLM dated November 9, 2017.

2. Geo-archaeological Study: At the BLM's request, the Applicant, through its cultural resources contractor, has completed a geo-archaeological study of the entire direct effects APE (Brodbeck et al 2017), which is included in the research design and work plan (**Stipulation V.B.1.d**). The study considers natural and archaeological site formation processes to determine the likelihood of subsurface archaeological remains within the APE . The purpose of the geo-archaeological study is to assist in the identification of locations where archaeological remains that cannot be seen on the surface are likely to be found, in anticipation of the Class III inventory and construction.

3. Class III Inventory of Geotechnical Testing Locations

a. The Applicant, through their Cultural Resources Contractor, will complete a Class III inventory of geotechnical testing locations required prior to final engineering.

b. The Applicant, through their Cultural Resources Contractor, will submit the Class III inventory report of geotechnical testing locations to the BLM Upon approval by the BLM, the report will be submitted to the SHPOs/THPO and the CPUC for a thirty (30)-calendar day review.

4. Pre-Construction Class III Inventory: Any part of the APE for direct effects for the final selected route that has not already been inventoried to current standards, or not considered by the BLM, the SHPOs/THPO, or other land managing agencies to be adequately inventoried, shall be completely inventoried at a Class III level to the standards of the BLM and SHPO for Arizona and California as detailed in **Stipulation IV.A and B.** Determinations of eligibility, findings of effect, and possible treatment shall be made by the BLM in consultation with the SHPOs/THPO and appropriate Consulting Parties, including Tribes. Identification efforts shall be performed regardless of the ownership (public, private, state, or Tribal) of the lands. The Applicant shall be responsible for gaining access to non-BLM lands. The Class III Inventory will be conducted with sensitivity for locations or other features identified as important through Tribal consultation or ethnographic studies.

   All previously recorded cultural resources within the direct effects APE will be re-visited and the associated records updated and revised as appropriate, including NRHP eligibility recommendations and determinations. Previously recorded cultural resources and newly recorded cultural resources whose boundaries lie partially within or straddle the direct effects APE will be fully recorded outside the direct effects APE, to the extent practical and within .25 miles of the direct effect APE, regardless of surface ownership in order to provide context for any necessary treatment within the direct effects APE.

5. Historic Built-Environment Study: The BLM will require the Applicant, through their cultural resources contractor, to complete a separate historic built-environment study for the entire APE to identify built-environment resources within the direct and indirect APE that have the potential to be historic properties. For the APE for direct effects as defined in **Stipulation V.A**, all historic linear cultural resources such as canals, roads, trails, and railroads will be identified and recorded where they intersect the APE and will be fully recorded within the APE.

C. Determination of Eligibility and Finding of Effect

1. For each cultural resource within the APE, the BLM shall consult with the SHPOs/THPO and any Native American tribe that attaches religious and cultural significance to any identified resource and other Consulting Parties to determine NRHP eligibility pursuant to 36 C.F.R. § 800.4(c)(1) following guidance in *How to Apply the National Register Criteria for Evaluation.* If the BLM and the SHPO/THPO cannot reach concurrence on NRHP eligibility, the documentation will be forwarded to the Keeper of the National Register (Keeper) for a formal determination.

2. The Applicant, through their cultural resources contractor, will use existing resources to the extent available to identify historic properties eligible under Criteria A, B and/or C, that fall within the indirect effects APE and that may be affected by the Undertaking. The Applicant will ensure that ethnographic and other information provided by the Consulting Parties will be included in this identification and assessment effort, including comments on the eligibility of and effects on TCPs. Some historic properties eligible under Criterion D may be

included at the BLM's discretion, if requested by a Consulting Party. This analysis will include potential impacts to historic properties within the indirect effects APE from increased access occurring as a result of the Undertaking. The methods for assessing indirect effects are described in the Research Design and Work Plan.

The BLM shall make findings of the effects to historic properties identified in the APE in consultation with the SHPOs/THPO after Consulting Party comment. If the BLM and the SHPO/THPO cannot reach concurrence on findings, the question will be referred to the ACHP, per 36 C.F.R. § 800.5(c)(2).

D. Reporting

1. For each state, the Applicant shall prepare a comprehensive Inventory Report or Reports incorporating findings from the Class III Intensive Field Inventory, the Geo-archaeological study, the Historic Built-Environment study, and the study on the effects of the Undertaking on historic properties in the APE for indirect effects. The comprehensive inventory report or reports will include a summary of results from the Ethnographic Overview and Ethnographic Assessment; and any additional information provided by the Consulting Parties about places of concern to them, the location of those places in relationship to the Undertaking, and an assessment of the effect of the Undertaking on those places. The reports shall include recommendations on NRHP eligibility and treatment recommendations for historic properties within the APEs for direct, indirect and cumulative effects of the Undertaking as described in **Stipulation V.A**. Any recommendation that avoidance during construction is not possible will be supported by documentary evidence from the Applicant.

2. The Applicant shall submit drafts of the Inventory Report for each state to the BLM. The BLM will provide the reports to the appropriate land managers, the ASM, the CPUC, and the Tribes within each state for review, concurrent with BLM review. These parties will provide written comments to the BLM within sixty (60) calendar days regarding:

a. The adequacy of the identification effort;

b. The NRHP eligibility of the cultural resources identified;

c. The assessment of effects of the Undertaking on the historic properties identified.

d. The presence of TCPs or any properties of traditional religious or cultural importance to Tribes that were not identified in the inventory but that may be affected by the Undertaking.

3. The BLM shall ensure that comments received within sixty (60) calendar days are considered in development of the revised Inventory Reports. The BLM will submit the revised Inventory Report to the appropriate SHPO/THPO, Tribes, and Consulting Parties for a sixty -(60) -calendar-day concurrent review, and will request SHPO/THPO concurrence on the BLM's determinations of NRHP eligibility and treatment recommendations for each historic property identified. The BLM will notify the Consulting Parties via electronic mail of the submittal and the date that comments are due. If the sixty-(60)-calendar-day review time frame

cannot be met, the SHPO/THPO, Tribe or Consulting Party will notify the lead BLM Office main point of contact by e-mail requesting a review extension. The lead BLM Office will determine whether to grant an extension, not to exceed an additional thirty (30) calendar days.

4. The Inventory Reports will provide the following (except for unevaluated cultural resources [see definition in Attachment 2] or properties found during possible future Variances and Discoveries):

a. Completion of the identification of historic properties

b. Determinations of eligibility

c. Recommendations for treatment measures to be applied to historic properties affected by the Undertaking.

VI. RESOLUTION OF ADVERSE EFFECTS: The BLM, in consultation with the Applicant, the SHPOs/THPO, and Consulting Parties, shall ensure that an HPTP is developed and implemented to avoid, minimize and/or mitigate Project-related adverse effects on historic properties.

A. Avoidance

1. The BLM shall make every reasonable effort to avoid adverse effects to historic properties, including those of traditional religious and cultural significance to Tribes, with input from Consulting Parties and affected Tribes.

2. Avoidance measures for historic properties may include (but are not limited to) realignment of the transmission line, fencing of historic properties with a buffer zone during construction, monitoring of construction near the boundaries of historic properties, or placing towers, maintenance roads and ancillary facilities outside of the boundaries of historic properties.

3. BLM will ensure that the Applicant, through their cultural resources contractor, includes a description of these proposed efforts for each applicable historic property in the Class III inventory report and in the applicable state HPTP.

B. Minimization of Adverse Effects

1. When complete avoidance of adverse effects to historic properties is not possible, the BLM shall ensure that the Applicant, in consultation with the Consulting Parties, makes a good faith effort to minimize adverse effects on historic properties by efforts minimizing the visual effects of the Undertaking.

2. The BLM shall ensure that the Applicant, through their cultural resources contractor, includes a description of these proposed efforts for each applicable historic property in the Class III inventory report and in the applicable state HPTP.

C. The BLM shall ensure that the Applicant, through its cultural resources contractor, prepares an HPTP for each state that addresses the effects of the proposed Undertaking on historic properties, including properties of traditional religious and cultural importance to Tribes, and TCPs. The HPTP shall address direct, indirect and

cumulative effects from construction and reclamation as well as from operation and maintenance of the proposed transmission line and associated facilities. The HPTP will be incorporated into the POD as an appendix.

D. The HPTPs will be consistent with the Secretary of the Interior's Standards for Archeology and Historic Preservation (48 FR 44716) (*Federal Register*, September 29, 1983), hereinafter referred to as Secretary's Standards; the ACHP's Section 106 Archaeology Guidance (2009); and all applicable NPS guidance for evaluating and documenting NRHP properties (e.g., *Guidelines for Evaluating and Documenting Traditional Cultural Properties*, *Guidelines for Evaluating and Documenting Rural Historic Landscapes*); and the Rules Implementing the AAA in Arizona as well as the guidelines in California.

E. The HPTPs will include treatment measures developed through the efforts of all Consulting Parties that address adverse effects on all historic properties that will be adversely affected.

F. The HPTP must include the following information:

1. All identified historic properties within the APE by land ownership and by township. The HPTPs will identify the specific avoidance, minimization, and/or treatment strategies proposed to address the direct, indirect, and cumulative adverse effects of the Undertaking on historic properties. Any finding that avoidance during construction is not possible will be supported by documentary evidence from the Applicant.

2. Research questions and goals that are applicable to the Undertaking area and can be addressed through data recovery and archival studies, along with an explanation of their relevance and importance. These research questions and goals will incorporate the concept of historic contexts as defined in *National Register Bulletin 16*.

3. A description of fieldwork and analytical methods and strategies applicable to the Undertaking, along with an explanation of their relevance to the research questions. If phased data recovery will be employed, describe the fieldwork and analytical methods and strategies that will be employed during each phase. Treatment methods will be developed for each class of property identified in the Inventory report and may include, but are not limited to, excavation, archival research, ethnographic studies, and oral history, as appropriate and as agreed upon by the Consulting Parties.

4. The level of effort to be expended on the treatment of each property. For archaeological data recovery, this will include methods of sampling, i.e., sample size, and rationale for specific sample unit selection.

5. Data needs for each research question, i.e., items (for example, ceramics, obsidian, thermal features) that need to be present to be able to address the research question.

6. Results of tribal consultation regarding the incorporation of tribal perspectives into the cultural history, research design, data recovery/treatment methodology, analysis and interpretation.

7. Professional qualifications of staff, including archaeological field personnel, laboratory and analysis personnel, personnel in charge of report writing, and subcontractors

8. Permits required and obtained

9. Curation arrangements

10. Project suspension/termination plan

11. Monitoring and Discovery plan, as described in **Stipulation VIII** below.

12. Protocol for sensitive treatment of human remains, as described in **Stipulation VIII** below.

13. Historic Properties Management Plan (HPMP), as described in **Stipulation IX** below. The HPMP describes management of historic properties during operation and maintenance.

14. Treatment measures will include but not be limited to those that address public outreach as appropriate, such as journal articles, public site visits, brochures, or web sites focusing on the historic properties impacted by the Undertaking. Any proposed public outreach will be developed in consultation with Tribes to ensure that sensitive cultural resource material is kept confidential.

15. Treatment measures may include but not be limited to the synthesis of regional data and the study of related collections.

G. The HPTPs will provide a table listing each historic property, including:

1. The site number and name of the historic property or unevaluated property by land ownership and by township, range, and section number. Locational information for historic properties shall be included as an appendix that can be redacted for the version of the HPTP available to the general public;

2. A brief description of the historic property or unevaluated property;

3. The type of disturbance that will affect the historic property or unevaluated property;

4. For unevaluated properties, the testing plan for determining the eligibility of the property; for nature and extent testing; and for establishing required treatment;

   a. The BLM will ensure that the Applicant, through their cultural resources contractor, implements the approved testing plan in the HPTP and submits a draft testing report including eligibility and treatment recommendations to the BLM.

   b. Upon the BLM's approval of the testing report, the BLM will submit the eligibility determinations, the treatment recommendations, and the supporting reports for unevaluated cultural resources via electronic and regular mail to the respective SHPO/THPO and land manager as well as to the CPUC in California with a request for concurrence. The SHPO/THPO and land manager will respond to the BLM within fifteen (15) calendar days. If the SHPOs/THPO or the land manager do not respond to the BLM within fifteen (15) calendar days,

the BLM will make a good faith effort to contact the entity via email or telephone, rather than assume concurrence with the determination(s) of NRHP eligibility. A "good faith effort" includes two forms of communication, including an email and a telephone call to the SHPO/THPO or land manager point of contact for the Undertaking. After no response to a good faith effort, the BLM will proceed.

c. Where resources are identified that are evaluated as not eligible under Criteria A-C, and where their Criterion D values are unknown but will be avoided by project design or by implementing protection measures, the BLM will treat such resources as eligible for the NRHP under Criterion D without formal evaluation, and their significant values will be avoided. In California, the Applicant must submit a formal letter committing to the avoidance of any resources that are unevaluated under Criterion D; this applies to resources identified on federal and non-federal lands. Any such resources must be included in the HPMP.

5. The nature or kind of each required treatment measure (avoidance, minimization, mitigation) pertaining to each historic property (e.g., landscape photography, archaeological data recovery, etc.);

6. The identification of treatment measures, if any, which must be completed prior to authorization of ground-disturbing activities (e.g., barricading or fencing, archaeological data recovery, landscape photography) and/or those measures which may be completed after authorization of ground disturbance (e.g., historical research, installation of an interpretive kiosk, public education materials, etc.); and

7. The documentation and reporting procedures for each proposed treatment measure, including data management and dissemination methodologies and a proposed schedule of reports.

H. The HPTP may include the following examples of treatment measures for adverse effects:

1. Treatment measures for tribal values that focus on benefit to tribes through public outreach or other means; completion of NRHP nomination forms; Historic American Building Survey, Historic American Engineering Record, and Historic American Landscape Survey documentation to be submitted to the Library of Congress; documentation of local or regional resources to be submitted to the appropriate SHPO/THPO or State Archives; and partnerships and funding for public archaeology projects; print publication (brochure/book); digital media publication (website/podcast/video).

2. Treatment measures may also include conservation easements, including easements held by a Tribe, OR purchase of land containing historic properties for transfer to a protective preservation organization such as The Archaeological Conservancy or Archaeology Southwest or a Tribe, with willing consent of landowner

i. These options should only be considered in rare and special cases because of their difficulty of implementation and preservation in perpetuity.

ii. Implementation of either of these options would require a commitment to long term monitoring, a second legally binding agreement document, a third-party preservation entity to hold the easement or covenant, and the involvement of the SHPO/THPO.

I. Review and Approval of the HPTPs

1. The Applicant shall submit the draft HPTP to the BLM for initial review and comments. Upon approval by the BLM, the BLM shall provide the SHPOs/THPO and other Consulting Parties within each state a copy for review, requesting comments on the adequacy of the proposed treatment measures**.** These parties will be notified of the review period via electronic mail and will have sixty (60) calendar days to review and comment on the plan. If the SHPO/THPO does not respond to the BLM within sixty (60) calendar days, the BLM will contact the SHPO/THPO via email or telephone rather than assume concurrence with the proposed treatment measures embodied in the respective HPTP. After a good faith effort, the BLM will proceed.

2. The BLM will convene at least one consultation meeting to discuss comments on the HPTP in each state with all interested Consulting Parties after the sixty (60)-calendar-day comment period. Tribes may request individual government-to-government consultation meetings, rather than or in addition to participating in the collective consultation meeting. If the sixty (60)-calendar day review time frame cannot be met, the SHPO/THPO, Tribe or Consulting Party will notify the lead BLM Office main point of contact by e-mail requesting a review extension. The lead BLM Office will determine whether to grant an extension, not to exceed an additional thirty (30) calendar days.

3. The BLM shall consolidate the comments from Consulting Parties in each state and advise the Applicant of necessary revisions to the draft HPTP. The BLM shall ensure that all comments are taken into consideration in revising the HPTP and will provide the revised HPTP to the SHPO/THPO for a twenty-one (21)-calendar-day review period. Comments from Consulting Parties will be addressed in the final HPTP. The BLM will notify and provide the Applicant and the Consulting Parties with a copy of the final HPTP when approved.

J. During the treatment phase, if deviations to the approved HPTP are warranted, the Applicant will submit proposed deviations from the HPTP to the BLM for review prior to implementation. The BLM shall provide copies of the proposed deviation via electronic mail to the appropriate SHPO/THPO, the Tribes, the ASM and land manager(s) within the respective state for a five (5)-calendar-day review. The BLM shall consider comments received within the review period and shall determine the adequacy of the proposed deviation. The BLM will notify the Applicant if and when the deviation has been approved.

VII. MONITORING, POST-REVIEW DISCOVERIES, AND UNANTICIPATED EFFECTS

A. All monitoring shall follow clearly stated objectives and methodologies for achieving those objectives delineated in the Monitoring and Discovery Plan (MDP) or the HPMP, both of which are parts of the HPTP, such as to ensure avoidance or minimization during construction and reclamation; to measure the effectiveness of avoidance, minimization and treatment measures; to assess the effects of operations and maintenance activities; or to help define treatments for historic properties with long-term concerns. The MDP describes the monitoring and discovery protocol during construction and reclamation. The HPMP describes the monitoring and discovery protocol during operations and maintenance.

B. Monitoring During Construction and Reclamation

1. The Applicant, through their cultural resources contractor, shall conduct monitoring during construction activities as described in the MDP, to manage post-review discoveries and unanticipated effects during project construction. Monitoring locations will include all areas identified in the MDPs in the HPTPs, including areas of ground disturbance not associated with historic properties. Monitoring procedures, the evaluation of NRHP eligibility, tribal consultation, and the treatment of discovered historic properties shall be handled in accordance with the MDPs in the HPTPs.

2. Post-review discoveries: Any cultural resources determined by the BLM to be historic properties that were discovered or adversely affected during construction and not subjected to pre-construction treatment will be addressed in accordance with the MDP.

3. Roles and responsibilities of the Applicant, the Applicant's cultural resources contractor, the BLM, and the Tribes, including those pertaining to the determinations of eligibility, and treatment of discoveries, are described in the MDP.

4. The MDP includes a Tribal Participation Plan to be prepared as an appendix so that it can be removed and used as a stand-alone document. The BLM strongly encourages the Applicant to afford the Tribes' designated representatives (tribal cultural consultants) the opportunity to monitor and be on site during Class III cultural resources inventory as well as all ground disturbing construction activities for facilities, roads or other components associated with the Undertaking. The Tribal Participation Plan describes the logistics and protocols for tribal participation.

C. Post-Review Discoveries

1. Cultural Resources. All discoveries made during construction shall be addressed in accordance with the MDP, which is a part of the HPTP. A process for timely Tribal notification of discoveries shall be included in the MDP.

a. In Arizona on state and private land, the BLM shall ensure that the discoveries are treated according to A.R.S. § 41-844, and that the SHPO is notified of the discovery.

b. In California on state and private land, the BLM shall ensure that discoveries follow the process in California Public Resources Code (PRC) Sections § 5020 et seq.; § 21000 et seq.; California Code of Regulations (CCR), Title 14, Chapter 3, Sections § 4850 et seq.; § 15000 et seq.; and that the SHPO is notified of the discovery.

2. Human Remains

a. The BLM and Applicant shall ensure that in the event human remains are discovered during the construction activities, work within 300 feet of the discovery will cease and the area will be secured; the Applicant will immediately contact the BLM authorized officer. The BLM will notify the appropriate County officials as outlined in the MDP.

b. The BLM and the Applicant shall ensure that any human remains, funerary objects, items of cultural patrimony, or sacred objects encountered during any construction activities are treated with the respect due such materials and consistent with the MDP.

c. The BLM shall ensure that any Native American human remains, funerary objects, sacred objects, or objects of cultural patrimony discovered on federal lands shall be treated in accordance with the provisions of NAGPRA and its implementing regulations at 43 C.F.R. § 10.

d. In consultation with the Tribes and prior to any ground disturbing work associated with construction and with the HPTP, the BLM shall seek to develop a written NAGPRA plan of action pursuant to 43 C.F.R. § 10.5(e) to manage the inadvertent discovery or intentional excavation of human remains, funerary objects, sacred objects, or objects of cultural patrimony.

e. On lands within the exterior boundaries of the Colorado River Indian Reservation, the CRIT THPO will be contacted and consulted to ensure compliance with NAGPRA and tribal law..

f. In Arizona, the BLM shall ensure that, in consultation with the ASM, human remains and/or funerary objects identified on State and/or private land, will comply with the methods and procedures within A.R.S. § 41-844 and A.R.S. § 41-865 and their implementing rules. The Applicant, through their cultural resources contractor and working through the ASM, shall obtain “burial agreements” with Indian tribes pursuant to Rules Implementing A.R.S. § 41-844 and A.R.S. § 41-865, which govern discoveries of human remains and funerary objects on state, city, county and private lands. The SHPO shall be notified of such discoveries.

g. In California, the BLM shall ensure that the Native American Heritage Commission is notified so that Native American human remains and/or funerary objects discovered on non-federal lands in California are treated in accordance with the applicable requirements of the Cal. Pub. Res. Code §§ 5097.98, 5097.991 and the Cal. Health & Safety Code § 7050.5(c).

h. When the BLM has verified that the requirements of the NAGPRA and Arizona and/or California state laws and tribal law have been met, the BLM may

authorize the Applicant to resume operations in the vicinity of the discovery, as described in the MDP.

VIII. HISTORIC PROPERTIES MANAGEMENT

A. The BLM shall ensure that an Historic Properties Management Plan (HPMP) will be developed as part of the HPTP (but as a stand-alone document) to establish the protocol for the long-term management of historic properties during operations and maintenance. The HPMP will be developed in consultation with the SHPOs/THPO and the Consulting Parties. The HPMP will identify how historic properties will be managed throughout the operations and maintenance of the Undertaking. The BLM will ensure that the Applicant implements the terms of the HPMP, with BLM oversight.

B. The HPMP will prescribe the monitoring of or other protective measures for historic properties (such as fencing, barricades, limiting access, or other protective measures) that may be affected by operations and maintenance within the area of the ROW grant or by increased access to historic properties through the access road network associated with the Undertaking and the related risk of vandalism to those properties.

C. The HPMP shall lay out a protocol for monitoring and protective measures that includes:

1. The specific historic properties to be monitored or subjected to protective measures; the reason for monitoring of each historic property (e.g., proximity to Undertaking components with the potential for damage from operation and maintenance, a property identified as being of particular importance to a Tribe, a property especially susceptible to vandalism, etc.); and schedule for monitoring of each historic property;

2. How these historic properties will be avoided during operations and maintenance and how impacts would be minimized or mitigated if they could no longer be avoided during operations and maintenance;

3. The professional qualifications of archaeologists doing the monitoring;

4. A protocol for involving the Tribes in monitoring;

5. A protocol for the schedule, production and distribution of monitoring reports; and the review of monitoring reports;

6. The objectives that long-term monitoring would achieve as part of the effort to avoid, minimize and/or mitigate adverse effects to those properties.

IX. REPORTING

A. Preliminary/End of Fieldwork Report

1. Upon completion of fieldwork at each historic property or group of historic properties, the Applicant, through their cultural resources contractor, shall provide the BLM with a Preliminary/End of Fieldwork Report of treatment completed at that site. The Preliminary/End of Fieldwork Report will include a brief characterization of the site assemblage/contents, the types of analyses yet to be completed, and a brief description of how the provisions of the HPTP were implemented. The Preliminary/End of Fieldwork Report shall include a description

of any deviations from the HPTP that were implemented and the reasons for such deviations.

2. After the BLM's approval, the BLM shall provide a copy of the Preliminary/End of Fieldwork Report for each site via electronic and regular mail to the appropriate SHPO/THPO and other Consulting Parties for review. For previously unevaluated sites subjected to eligibility testing (discussed in Stipulation VII.H.4), the review period will be fifteen (15) calendar days for comments and concurrence with eligibility determinations and findings of effect as well as review of the proposed treatment. For sites at which data recovery was conducted as per the HPTP, the review period for the adequacy of treatment measures will be fifteen (15) calendar days. The BLM shall consider comments submitted during the review period and shall consult with the appropriate reviewer(s) and SHPOs/THPO to resolve differences and/or disagreements. If the SHPO/THPO does not respond to the BLM within fifteen (15) calendar days, the BLM will contact the SHPO/THPO via email or telephone rather than assume concurrence with the contents of the Report. After a good faith effort, the BLM will proceed.

B. Final Treatment Reports

1. The BLM shall ensure that the Applicant, through their cultural resource contractor, prepares a draft Final Treatment Report for each state that incorporates the results of all the site-specific Preliminary/End of Fieldwork Reports along with post-fieldwork data analysis and synthesis into a comprehensive regional overview for each state. The Final Treatment Reports will also include updated site forms that reflect treatment.

2. The BLM shall review the draft Treatment Reports and provide a copy to the appropriate SHPO/THPO and Consulting Parties for a sixty (60)-calendar-day review, and comment period. The BLM will notify these parties of the submittal and review periods via electronic mail. The BLM shall consider comments received during the review period and shall consult with the appropriate reviewer(s) to resolve differences and/or disagreements. If the SHPO/THPO does not respond to the BLM within sixty (60) calendar days, the BLM will contact the SHPO/THPO via email or telephone rather than assume concurrence with the contents of the Report. After a good faith effort, the BLM will proceed. If the sixty (60) calendar-day review time frame cannot be met, the SHPO/THPO, Tribe or Consulting Party will notify the lead BLM Office main point of contact by e-mail requesting a review extension. The lead BLM Office will determine whether to grant an extension, not to exceed an additional thirty (30) calendar days.

3. The BLM shall ensure that the Applicant prepares a revised Treatment Report that considers comments received on the draft Treatment Report. The BLM shall provide copies to the appropriate SHPO/THPO and other Consulting Parties for a concurrent thirty (30)-calendar-day review period. The BLM will notify these parties of the submittal and review periods via electronic mail. The BLM shall consider comments submitted during the review period and shall consult with the appropriate reviewer(s) to resolve differences and/or disagreements. If the SHPO/THPO does not respond to the BLM within thirty (30) calendar days, the

BLM will contact the SHPO/THPO via email or telephone rather than assume concurrence with the Report contents. After a good faith effort, the BLM will proceed. The BLM shall notify the Applicant when the final Treatment Report has been accepted and will distribute the final version to the Consulting Parties.

4. All Final Treatment Reports will be completed within three years of the termination of fieldwork. The BLM may grant an extension in the event of extenuating circumstances.

X. INITIATION OF CONSTRUCTION ACTIVITIES

A. Land managing agencies may issue a Notice to Proceed (NTP) for any and all segments of the Undertaking only if such authorizations will not restrict subsequent measures to avoid, minimize or mitigate the adverse effects to historic properties through rerouting of the corridor or placement of ancillary facilities.

B. For each segment of the Undertaking, upon the BLM's acceptance of the final Inventory Report for each state, as described in **Stipulation V**, the BLM, at its discretion and pending compliance with all other applicable laws and regulations, may issue an NTP on lands under any ownership or jurisdiction, subject to the appropriate jurisdiction's right-of-entry and ROW requirements, where there are no historic properties present.

C. For each segment of the Undertaking, upon the BLM's acceptance of the final HPTP for each state, the BLM, at its discretion and pending compliance with all other applicable laws and regulations, may issue an NTP on lands under any ownership or jurisdiction, subject to the appropriate jurisdiction's right-of-entry and ROW requirements, if historic properties are present but will not be adversely affected, and all stipulations in the HPTP are in place to ensure no adverse effect. Such measures may include a buffer for avoidance clearly marked in the field and provision for any monitoring, if required (as described in the approved HPTP/MDP/HPMP).

D. For each segment of the Undertaking, if historic properties are present and such historic properties may be adversely affected by the Undertaking, then the BLM may issue an NTP for that segment only if the BLM has accepted a final Preliminary/End of Fieldwork Report of treatment that has occurred at each site described in the HPTP for that segment, and in consultation with all Consulting Parties.

E. Contingent upon **Stipulation XI.D**, the BLM, at its discretion, and pending compliance with all other applicable laws and regulations, may issue an NPT on lands under any ownership or jurisdiction, subject to the appropriate jurisdiction's right-of-entry and ROW requirements for segments where provisions of the HPTP have been successfully implemented.

XI. CHANGES IN CONSTRUCTION ACTIVITIES

A. General requirements for variances: The BLM will require that a Class III inventory be conducted for any variances or amendments to the ROW grant or any other changes to the Undertaking that are outside the APE surveyed for the Undertaking. Where the BLM determines that additional inventory is needed, the BLM will issue an NTP only after the Section 106 process is completed. The BLM will determine where construction may continue while the additional work is being completed.

1. The APEs of all variance areas and the identification and evaluation of historic properties within variance areas will be consistent with those defined in **Stipulation V.**

2. A Record Search and Literature Review (Class I Inventory) and a Class III Intensive Field Inventory will be performed on all variance areas, where not previously inventoried for cultural resources or where SHPO/THPO guidance indicates that new Class III inventory of previously inventoried areas is warranted.

3. The Applicant will assemble all variance reports into a second Class III inventory volume for the Undertaking.

B. Reporting and Review of Class III Inventory Results for Variances - Eligibility, Effects and Treatment: The BLM, SHPOs/THPO, and Consulting Parties will make every effort to expedite review of any changes to construction plans after initiation of construction. Results of the inventory report will be handled as follows:

1. If the inventory results in **no cultural resources or potential properties of traditional cultural or religious importance to Tribes identified**, the Applicant, through their cultural resources contractor, will submit copies of reports on SHPO Survey Report Summary Form (SRSF) (for Arizona) or in the ARMR format or as an addendum to an existing ARMR technical report (for California) to the lead BLM Office for distribution to the appropriate federal and state agencies and Tribes. The BLM will provide an expedited review of the variance request, not to exceed two (2) working days following receipt, and will provide the Applicant, through their cultural resources contractor, with written approval/disapproval of the report via electronic mail. The report data will also be included in any final report for the Undertaking.

2. If the inventory and eligibility evaluation results in **no historic properties** identified (i.e., the cultural resources identified are not eligible), the Applicant, through their cultural resources contractor, will submit the draft inventory report to the lead BLM Office for distribution to the appropriate SHPO/THPO, Tribes and land manager for concurrent review. Reviewers will provide any comments to the lead BLM Office within fifteen (15) calendar days of receipt of the document. The Applicant, through their cultural resources contractor, will revise the report as necessary, and resubmit it to the BLM within fifteen (15) calendar days. If the SHPO/THPO does not respond to the BLM within fifteen (15) calendar days, the BLM will contact the SHPO/THPO via email or telephone rather than assume concurrence with the contents of the report. After a good faith effort, the BLM will proceed. The BLM may issue the NTP or other applicable authorization to proceed at this point pursuant to **Stipulation XI**.

3. If the inventory results in **historic properties identified**, the Applicant, through their cultural resources contractor, will submit copies of the draft inventory report, including the recommendations of eligibility for and assessment of effect on any historic properties, to the lead BLM Office to distribute to the appropriate SHPO/THPO, Tribes and land managers for concurrent review. Reviewers will provide any comments to the lead BLM Office within thirty (30) calendar days. The Applicant, through their cultural resources contractor, will revise the report as

necessary, and resubmit it to the BLM within ten (10) calendar days. If the SHPO/THPO does not respond to the BLM within thirty (30) calendar days, the BLM will contact the SHPO/THPO via email or telephone rather than assume concurrence with the contents of the report. After no response to a good faith effort, the BLM will proceed.

a. No historic properties will be affected: If the variance is modified to avoid or minimize the effects of the Undertaking on the historic property (or properties), the BLM may issue the NTP or other applicable authorization to proceed pursuant to **Stipulation XI.B**.

b. Historic properties will be adversely affected:

i. A Supplemental Treatment Plan for those properties will be developed and reviewed consistent with **Stipulation VII** of this PA.

ii. The Supplemental Treatment Plan shall be appended to the HPTP, and after the completion of these treatment measures, a Preliminary/End of Fieldwork Report will be prepared and distributed in accordance with **Stipulation X.A**.

iii. The BLM shall ensure that the results of such treatment efforts are reported in the final Treatment Report for the Undertaking.

iv. Once the BLM determines that the approved treatment has been completed, the BLM may issue the NTP or other application for authorization to proceed pursuant to **Stipulation XI.C**.

XII. CONSERVATION MANAGEMENT ACTIONS

A. BLM Internal Third-Party Review Process

1. The Applicant will hire a third-party cultural resources consultant to provide cultural resources technical support to the BLM. This support will include, but not be limited to, assisting the BLM as needed throughout the processes identified in **Stipulations V through XII**. The BLM must review and approve the scope of work for the third-party cultural resources consultant's services. Third-party cultural resources consultants must meet the same permitting requirements as the cultural resources consultant, consistent with **Stipulation IV.A,** and report directly to the BLM lead archaeologist for the project. The purpose of the third-party peer review is to ensure information accuracy and consistency with all BLM requirements and to assist the BLM in meeting its Section 106 compliance requirements.

2. Third-party peer reviews will include, but are not limited to the following activities:

a. Review of Class III inventory reports, treatment plans, and other documents required by this PA developed for the Undertaking.

b. Review of all fieldwork conducted by the cultural resources consultants, including on-site check-ins during fieldwork and post-fieldwork field verification assessments.

c. The third-party consultant may also complete other tasks to assist the BLM with meeting its Section 106 compliance requirements including, but not limited to drafting letters, meeting coordination, and Consulting Party coordination.

d. While the third-party consultant may assist the BLM with Section 106 compliance, the third-party consultant cannot conduct government-to-government consultation with Tribes.

3. The results of the field verification under subsection 2.b and review of the information presented in the technical reports will be documented in a summary report to be submitted to the BLM within sixty (60) calendar days of completion of the peer review of those components. The BLM will review the final third-party peer review report. After acceptance by the BLM, the final third-party peer review report will be made available to Consulting Parties.

4. The BLM will consider the information presented in the third-party peer review when making determinations and findings for the portion of the project consistent with **Stipulation V.**

B. Compensatory Mitigation Fee for Cumulative Effects

Only for the portion of the Undertaking in California, the BLM will impose a compensatory mitigation fee that applies only to the portion of the Undertaking located within the DRECP Land Use Planning Amendment Area to address cumulative and some indirect adverse effects to historic properties.

1. The mitigation fee will be calculated in a manner that is commensurate to the size and regional impacts of the Undertaking, as determined by Appendix G of the DRECP PA.

2. If Appendix G of the DRECP PA has not been completed at the time the PA is executed, the BLM will develop mitigation to address cumulative and indirect adverse effects in a manner that is commensurate to the size and regional impacts of the Undertaking, in consultation with the Consulting Parties. The BLM will have final approval of these treatment measures and the BLM will ensure that these treatment measures are described in the HPTP. All types of project-specific treatment may be considered to mitigate the specific cumulative and indirect adverse effects of the Undertaking, as identified in Stipulation V.B.

C. Cultural Resources Training

Prior to conducting environmental training, the Applicant will provide their cultural resource training materials to BLM for a thirty-(30) calendar-day review. During that review period, BLM shall provide a fifteen-(15) calendar-day review by the Consulting Parties within five (5) calendar days of receipt of the training materials.

Before any company is authorized to work within the APE, the Applicant shall train all personnel (including contractors, inspectors and monitors) involved in construction, operation and maintenance of the Undertaking on site avoidance and protection measures and statutes protecting all cultural resources. Training will include sensitivity training regarding properties of traditional religious and cultural significance to the Tribes and Tribal issues in general. At a minimum, all personnel shall receive in-person

training that discusses the importance of cultural resources, including linear resources such as trails; laws and regulations protecting them; penalties for violation; and requirements to avoid damage to historic properties and to report discoveries of cultural resources in accordance with the MDP. The Tribes will be provided opportunities to participate in the training program. This training program will also apply to personnel hired after the project has started. The Applicant shall maintain records demonstrating that the above described personnel training has been carried out and that all on-site workers have received the training.

If construction occurs outside of the approved ROW, the BLM will determine whether to issue a stop-work order and conduct damage assessment under ARPA, if appropriate, while the Applicant provides additional training (and documentation of that training) for personnel in the area.

XIII. APPLICANT'S RESPONSIBILITIES

A. The Applicant will post a financial security (such as a surety bond, letter of credit, etc.) with the BLM in an amount sufficient to cover all costs associated with implementing the HPTP, as negotiated by the Applicant where they contract for services in support of this PA. Such costs should cover all aspects of the HPTP implementation and may include, but are not limited to, inventory; treatment; post-field analyses; research and report preparation; interim and summary reports preparation; the curation of Project documentation, samples, and artifact collections in a BLM-approved curation facility; and the repatriation and reburial of any human remains, sacred objects, or objects of cultural patrimony. The Applicant will post a financial security prior to commencing any work to implement the HPTP.

B. The security posted is subject to forfeiture if the Applicant does not complete tasks within the time period established by the treatment selected; provided, however, that the BLM and Applicant may agree to extend any such time periods. The BLM will notify the Applicant that the security is subject to forfeiture and will allow the Applicant thirty (30) calendar days to respond before action is taken to forfeit the security.

C. The BLM will release the financial security, in whole or in part, as specific tasks are completed and accepted by the BLM.

D. Project Suspension/Termination Plan

1. If the Undertaking is suspended or terminated for any reason after the expiration of a thirty (30)-calendar-day cure period, the Applicant shall provide a plan outlining the steps they will take in order to complete any data recovery or other treatment measures that are in progress at the time of project termination.

2. As part of this plan, the Applicant will also outline how they will complete the analysis, interpretation, reporting, and curation of artifacts obtained during the treatment measures at all historic properties up to the time of suspension or termination.

E. The BLM shall actively oversee activities pursuant to this PA. Should the Applicant or its cultural resources contractor fail to comply with any provision of this PA, the BLM may, at its discretion, counsel the Applicant and/or its cultural resources contractor

regarding performance requirements or suspend the permits under which this PA is executed. Such suspension could, at the BLM's discretion, result in the issuance of a "stop work" order for the entire Undertaking if the BLM determines that the severity of the failure to comply warrants it. The provisions of the PA are mandatory and can be enforced through any administrative or legal remedies available by law.

F. The BLM will remain responsible to inspect for compliance with the terms and conditions of the BLM ROW grant pertaining to historic properties for the life of the grant, including enforcing provisions of this PA and the required HPMP related to operations and maintenance. The BLM will ensure that the appropriate BLM cultural resources specialist participates in these compliance reviews.

XIV. PA ANNUAL REPORT AND REVIEW

The Consulting Parties shall evaluate the implementation and operation of the PA on an annual basis. There shall be an annual meeting among the Consulting Parties on or near the anniversary date of the execution of this Agreement to review the progress and effectiveness of the PA. The BLM will set up this meeting, in coordination with all the Consulting Parties.

A. Prior to the annual meeting, the BLM will provide Consulting Parties with an annual letter report (Annual Report) to review the progress under the PA and under each approved HPTP. The Annual Report will include an update on project schedule, status, and any ongoing cultural resources monitoring or treatment activities, discovery situations, proposed future actions, or outstanding tasks to be completed under the PA or the HPTP. Consulting Parties will have thirty (30) calendar days to review the Annual Report and provide comments to the BLM, who will then use the comments when developing the agenda for the annual meeting.

B. The Annual Report shall address issues and describe actions and accomplishments over the past year, as well as plans for the coming year, as appropriate, and shall minimally include the following components:

1. Historic property surveys and results;
2. Status of treatment activities;
3. Ongoing and completed public education activities;
4. Any issues that are affecting or may affect the ability of the BLM to continue to meet the terms of the PA;
5. Any disputes and objections received, and how they were resolved;
6. Any additional parties who have become signatories or concurring parties to the PA in the past year; and
7. Proposed plans for next year's activities, per each state's HPTP.

C. Within fourteen (14) calendar days after the annual meeting, the BLM will summarize the meeting, including proposed action items identified during the annual meeting and how they are to be addressed, in a letter to Consulting Parties. Proposed action items must be directly linked with the implementation of the PA and the HPTP. Consulting Parties will have twenty (20) calendar days to review and comment on the meeting notes and, if necessary, provide the BLM with any changes that need to be considered

in revising the meeting notes. If changes are needed, the BLM will produce revised meeting notes within thirty (30) calendar days of receipt of comments and will provide the final notes to the Consulting Parties. The BLM, in consultation with the Consulting Parties, must approve of the proposed action items before they are fully implemented.

D. Evaluation of the implementation of the PA may also include in-person meetings or conference calls among Consulting Parties, and suggestions for possible modifications or amendments to the PA. All Consulting Parties should be included in these consultations.

XV. DISPUTE RESOLUTION

A. Should any Consulting Party to this PA object at any time to any actions proposed or the manner in which the terms of this PA are implemented, that party shall notify the BLM in writing expressing its concern and including a proposed resolution. The BLM shall notify the Signatories of any objection and invite them to participate in resolution of the dispute. The BLM and the Signatories shall consult with such party to resolve the objection. If the BLM determines that such objection cannot be resolved, the BLM will notify all Consulting Parties of the dispute and will:

1. Forward all documentation relevant to the dispute, including the BLM's proposed resolution, to the ACHP, asking that office to provide the BLM with its advice on the resolution of the objection within thirty (30) days of receiving adequate documentation. Prior to reaching a final decision on the dispute, the BLM shall prepare a written response that takes into account any timely advice or comments regarding the dispute from the ACHP and Consulting Parties and provide everyone with a copy of this written response. The BLM will then proceed according to its final decision.

2. If the ACHP does not provide its advice regarding the dispute within the thirty-(30) day period, the BLM may make a final decision on the dispute and proceed accordingly. Prior to reaching such a final decision, the BLM shall prepare a written response that takes into account any timely comments regarding the dispute from the Consulting Parties and provide them and the ACHP with a copy of such written response.

3. The BLM will be responsible for carrying out all other actions subject to the terms of this PA that are not the subject of the dispute.

XVI. AMENDMENT

Any Signatory or Invited Signatory to this PA may request that it be amended by informing the BLM in writing of the reason for the request and the proposed amendment language, whereupon the BLM shall inform the other Signatories and request their views concerning the proposed amendment. If there is agreement among all Signatories, the document shall be amended accordingly and the amendment will be effective on the date a copy signed by all of the Signatories is executed by the ACHP. The BLM shall provide all Consulting Parties with a copy of the final amendment.

XVII. TERMINATION

A. Pursuant to 36 C.F.R. § 800.6(c) (8), if any Signatory or Invited Signatory to this PA determines that the terms of the PA cannot be or are not being carried out, then such party must provide written notice to the BLM and the other Signatories and Invited Signatories stating the reasons for the determination and requesting consultation to resolve the stated concerns through amendment of the PA. The Signatories and Invited Signatories shall consult regarding potential amendments to the PA to resolve the stated concerns within thirty (30) calendar days of the written request. If the Signatories and Invited Signatories are unable to amend the PA or agree on other actions to resolve the concerns, the objecting party may terminate the PA by providing written notice to the Signatories and Invited Signatories.

B. Termination of the agreement by an Invited Signatory shall only apply to lands under their respective jurisdiction. In such case, the BLM shall comply with 36 C.F.R. § 800, subpart B, for all undertakings affecting the terminating Signatory's lands within the scope of the PA.

C. In the event that this PA is terminated, the BLM shall have six months after termination, or a longer time period if agreed to in writing by all Signatories, to either (a) have another PA executed by all Signatories, or (b) request, take into account, and respond to ACHP comments in accordance with 36 C.F.R. § 800.7. The BLM shall take reasonable steps to avoid adverse effects to historic properties until either option is carried out. The BLM will notify all parties to this PA as to the course of action it will pursue.

D. If neither option has been carried out within six months after termination (or a longer time period agreed to in writing by all Signatories), BLM shall, within fourteen (14) days thereafter, request ACHP formal comments and, within forty-five (45) days after the ACHP issues them, take into account and respond to them in accordance with 36 C.F.R. § 800.7. The BLM shall continue to take reasonable steps to avoid adverse effects to historic properties until this process is concluded.

XVIII. DURATION OF THE PA

A. This PA will expire if the Undertaking: a) has not been initiated, b) the BLM ROW grant expires or is withdrawn, or c) the stipulations of this PA have not been initiated within 10 years from the date of the execution of the PA. At such time, and prior to work continuing on the Undertaking, the BLM must either execute a memorandum of agreement pursuant to 36 C.F.R. § 800.6; execute a PA pursuant to 36 C.F.R. 800.14(b); or request, take into account, and respond to the comments of the ACHP under 36 CFR 800.7.

B. At least six months prior to the Sunset date, the Signatories and Invited Signatories shall consult to determine whether this PA remains satisfactory. If there is agreement, the agency will amend (revise and update) the PA in accordance with Stipulation XVI, as needed, in consultation with the Consulting Parties. The amended agreement must be signed and executed by all Signatories prior to the expiration date.

C. Unless the PA is terminated, expired, or amended, this PA will remain in full force and effect for 10 years. If, prior to the termination date, the BLM, in consultation with the

other Signatories and Invited Signatories, determines that all terms of this PA have been fulfilled in a satisfactory manner, the BLM may notify consulting parties in writing of the BLM's determination to terminate the PA. The PA will terminate on the day that BLM so notifies the Consulting Parties.

D. The BLM will retain responsibility for administering the terms and conditions of the ROW grant pertaining to historic properties for the life of the grant, including enforcing provisions of this PA and the required HPMP related to operations and maintenance.

XIX. NON-ENDORSEMENT CLAUSE

Nothing in this PA should be interpreted to imply that any party endorses the Ten West Link Transmission Project.

XX. EXECUTION STATEMENT

Execution of this PA by the BLM, the SHPOs/THPO, and the ACHP and implementation of its terms evidence that the BLM has satisfied its Section 106 responsibilities with regard to the construction, operation and maintenance of the Ten West Link Transmission Project and has afforded the ACHP an opportunity to comment.

ATTACHMENT 1: PROJECT DESCRIPTION AND MAP

Project Description

The Applicant filed a ROW application (SF-299) with the BLM on September 14, 2015 to construct, operate, maintain, and decommission an electric transmission line project in western Arizona and eastern California. **(This Undertaking does not consider decommissioning. As per Stipulation II.B, decommissioning will be a separate undertaking.)** The proposed Ten West Link Transmission Line Project (the Project) would consist of a series-compensated, single circuit, 500 kilovolt (kV) transmission line traversing approximately 114 miles.
The Project would be designed with a conductor capacity to transmit 3200 megawatts (MW) and provide interconnection capability for new energy projects located in the region.

The Project would begin at the existing Arizona Public Service Company (APS) Delaney Substation near Tonopah, Arizona, and terminate at the existing Southern California Edison (SCE) Colorado River Substation near Blythe, California. The Project would be located in Maricopa and La Paz counties in Arizona, and Riverside County in California.

The Applicant's proposed Project would be constructed using a combination of guyed V, self-supporting lattice, lattice H-frame and/or monopole structures. The Project would be primarily located within designated utility corridors largely following the existing Devers to Palo Verde (DPV) transmission line and other linear facilities including natural gas pipelines. The Project is designed to be located within a 200-foot wide ROW for the transmission line. In areas of colocation, the Project would maintain a 250-foot separation from the existing DPV 500-kV transmission line in accordance with requirements set forth by the California Independent System Operator (CAISO). To the extent possible, the Applicant proposes to use existing DPV access roads and other existing access roads. Approximately 97 miles of the Project would be in Arizona, and approximately 17 miles would be in California. The Project would cross approximately 83 miles of Federal land, including lands managed by the BLM, Reclamation, and the FWS. The Project would also cross lands administered by the ASLD, the SLC, and private lands.
The Project would take approximately two years to construct. The Project is scheduled to be in service in 2020. Once constructed, the Project would be in operation year-round.

[Insert Agency Preferred Alternative Description]

Overhead Transmission Lines and Substations

[Insert Infrastructure Description]

MAP OF UNDERTAKING

ATTACHMENT 2: DEFINITIONS FOR TERMS USED IN THIS PA

Adverse Effect – Alteration of the characteristics of a historic property qualifying it for inclusion in or eligibility for the National Register of Historic Places (NRHP).

Area of Potential Effects (APE) – The geographic area or areas within which an undertaking may directly, indirectly or cumulatively cause alterations in the character or use of historic properties, if any such properties exist. The APE is influenced by the scale and nature of an undertaking and may be different for different kinds of effects caused by the undertaking [36 C.F.R. §800.16(d)].

Authorized Officer – The Authorized Officer for this Undertaking is the BLM Yuma Field Office Manager and/or his or her delegated representative.

Consultation – The process of seeking, discussing, and considering the views of other participants, and, where feasible, seeking agreement with them regarding matters that arise during the Section 106 process. The Secretary of Interior's "Standards and Guidelines for Federal Agency Preservation Programs pursuant to the National Historic Preservation Act" provide further guidance on consultation.

Consulting Party – Any party (including Tribes) that has participated in the development of this PA and has indicated intent to participate in consultations during its implementation either by signing in concurrence or by written notification to the Agency Official. The refusal of any party invited to sign the PA, other than the Signatories, does not invalidate the PA. Consulting Parties include:

Signatories – Parties who have legal responsibilities for completion of the stipulations in the PA. The Signatories have sole authority to execute the PA, and together with the Invited Signatories, to amend or terminate the PA.

Invited Signatories – The authorized official may invite additional parties to sign the PA and upon signing, they have the same rights with regard to amendments and termination as the Signatories. These parties have legal or financial responsibility in terms of the Undertaking, such as the issuance of a permit, license or ROW, and they have a compliance responsibility under the NHPA or a state cultural resource statute.

Concurring Parties – A party who signs this PA but is not legally or financially responsible for completion of stipulations set forth in the PA.

Construction and Reclamation– The construction phase begins when the BLM has issued a ROW grant to the Applicant for the Undertaking. It includes all activities related to construction of the Undertaking, including activities required to be completed in advance of construction, as well as all activities completed in order to reclaim lands disturbed during construction for two years after construction is completed or until cost recovery agreements related to construction expire.

Cultural Resource – Any location of human activity, occupation, or use identifiable through field inventory, historical documentation, or oral evidence. The term includes archaeological,

historic, or architectural sites, landscapes, buildings, structures, objects, and places that possess historic and/or cultural significance as well as places with important public and scientific uses and may include definite locations (sites or places) of traditional cultural or religious importance to specified social and/or cultural groups. Cultural resources may be but are not necessarily eligible for the NRHP.

Cultural Resource Consultant/Contractor (CRC) – A qualified and permitted professional consultant in cultural resources (archaeologist, historian, ethnographer, historic architect, architectural historian, or anthropologist) who is responsible for implementing cultural resource inventories and who prepares cultural resource documents, reports, analysis, records, and professional literature. CRCs must meet the Secretary of the Interior's Professional Qualification Standards and hold appropriate permits from land managing agencies and/or the Arizona State Museum for lands in Arizona.

Cultural Resource Inventory (from H-8100-1) –

Class I – Existing data inventory: Large-scale review of known cultural resource data

Class II – Sampling field inventory: Sample oriented field inventory

Class III – Intensive field survey: A complete surface inventory of a specific area involving a systematic field examination of an area to gather information regarding the number, location, condition, distribution, and significance of cultural resources present, typically requiring a systematic pedestrian review of an area with transect intervals that shall not exceed 15 meters.

Day – Refers to calendar day unless otherwise stated.

Decommissioning – The action in which the transmission line and/or related facilities such as substations are taken out of commission (cease to operate) and are physically dismantled.

Effects -- Alterations to the characteristics of a historic property qualifying it for inclusion in or eligibility for the NRHP:

Direct effects are caused by the Undertaking and occur at the same time and place as the undertaking.

Indirect effects are also caused by the Undertaking and are effects that may be visual, atmospheric, or audible that could diminish the integrity of the historic properties. Indirect effects may include increased vandalism and looting resulting from increased access.

Cumulative effects are the impacts on cultural resources which result from the incremental impact of the Undertaking when added to other past, present and reasonably foreseeable future actions regardless of what agency (Federal or non-federal) or person undertakes such other actions (per 40.C.F.R. § 1508.7). Cumulative effects may be direct or indirect and result from incremental effects related to the Undertaking over time (e.g., increased access because of new roads, future transmission lines along the same corridor, new projects feeding into the Undertaking, etc.). Additional roads and visitors to the area (construction personnel,

recreationists, etc.) also increase opportunities for impacts from pot hunting, vandalism of historic properties, and disruption of spiritually important sites.

Eligible (for Inclusion in the NRHP) – Includes both properties formally determined as such in accordance with regulations of the Secretary of the Interior and all other properties not formally determined or listed, but that meet the NRHP criteria as determined by the Federal Agency in consultation with the SHPO/THPO, Tribes, and other parties.

Historic Property – Any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the NRHP maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization and that meet the NRHP criteria (36 C.F.R.§ 800.16[l][1]).

Historic Properties Treatment Plan (HPTP) – A document that details the procedures and techniques for resolving adverse effects to historic properties within the APE through avoidance, minimization, and/or mitigation (treatment).

Indian Tribe – An Indian tribe, band, nation, or other organized group or community, including a native village, regional corporation, or village corporation, as those terms are defined in Section 3 of the Alaska Native Claims Settlement Act (43 U.S.C. § 1602), which is recognized as eligible for the special programs and services provided by the United States to Indians because of their status as Indians (36 C.F.R. § 800.16[m])

Integrity – Refers to location, design, setting, materials, workmanship, feeling and association as defined in 36 C.F.R. § 60.

Interested tribal members – Tribal members who have identified themselves either as individuals or a group, through consultations with the BLM, the THPO, or the tribal member designated to participate in consultations concerning this Undertaking, as being interested in attending field inspection visits with the BLM and/or the CRC.

Inventory Report – The (Class III – see above description) inventory report documents the results of the cultural resources inventory detailing the areas surveyed; the survey methodologies used; the cultural framework of the project area and its relationship to the evaluation of significance; and the cultural resources discovered and documented. It provides recommendations to the lead Federal agency on NRHP-eligibility of the cultural resources identified within the inventoried area. It includes assessments of direct, indirect, and cumulative effects for historic properties within the APE of the Undertaking.

Monitoring and Discovery Plan – The Monitoring and Discovery Plan (1) provides a detailed plan to monitor compliance with stipulations of the HPTP to avoid, minimize, or mitigate adverse effects of the Undertaking; (2) may include specific plans where monitoring is necessary to help resolve adverse effects to historic properties; (3) establishes procedures to follow in the event that previously undiscovered cultural resources are encountered during the Undertaking; and (4) may include a Native American Graves Protection and Repatriation Act (NAGPRA) Plan of Action developed specifically to

address the handling of human remains pursuant to 43 C.F.R. §10; and (5) describes how the Undertaking will comply with A.R.S. § 41-844 (with respect to state, county, and city lands) and A.R.S. § 41-865 (with respect to private lands) in Arizona; and in California, with the Cal. Pub. Res. Code §§ 5097.98, 5097.991 and the Cal. Health & Safety Code § 7050.5(c). All monitoring plans shall explicitly state the objectives of the monitoring and provide a methodology for attaining these objectives. The Tribal Participation Plan is a component of the MDP.

Monitoring Report – A document that summarizes the results of monitoring activities performed as outlined within the MDP of the HPTP for each state.

NAGPRA Plan of Action (POA) – A written document that establishes procedures for ensuring the proper treatment of Native American remains and related grave goods encountered on Federal lands pursuant to 43 C.F.R. § 10.

National Register of Historic Places (NRHP) – The official list of the Nation's prehistoric and historic places worthy of preservation, including districts, cultural resources, buildings, structures, and objects significant in American history, architecture, archaeology, engineering, and culture maintained by the Secretary of the Interior.

NRHP Criteria – The criteria of significance established by the Secretary of the Interior for use in evaluating the eligibility of properties for inclusion in the NRHP (36 C.F.R. § 60).

Operation and Maintenance – Activities associated with operation and maintenance of the approved ROW over the life of the ROW grant. This includes all activities related to the functioning of the Undertaking after construction and reclamation are completed and prior to any activities related to decommissioning of the Undertaking. Activities during this time are generally infrequent, predictable, and routine. Any actions not specifically approved in the ROW grant, such as changes in equipment used or actions outside the ROW grant area require approval of the BLM.

Plan of Development (POD) – The Final POD is a BLM approved document that will be an enforceable term and condition as part of the BLM approved ROW grant. Contributors in the development of the Final POD prior to construction will include the Arizona State Land Department (ASLD) and the California Land Commission (SLC). The ASLD and the SLC will be responsible for developing and enforcing their respective stipulations, as they deem necessary, to mitigate natural and cultural resource impacts on state administered lands. Should the ASLD and/or the SLC choose to adopt the terms, conditions, and special stipulations as outlined in the Final POD on their respective state authorized ROWs, responsibility to enforce these Final POD terms, conditions, and stipulations is strictly their sole responsibility. Enforcement will be between the state agency and the applicant.

Post Review Discovery -- A previously unknown cultural resource identified in the APE during construction and after the review of the Class III Inventory report.

Preliminary/End of Fieldwork Report – A document that summarizes results of the treatment activities undertaken on an individual historic property for the purposes of informing the BLM and Consulting Parties and gaining approval for the Undertaking to proceed prior to the acceptance of the final Treatment Report.

Programmatic Agreement (PA)– A document that records the terms and conditions agreed upon to resolve the potential adverse effects of a Federal agency program, complex Project, or other situations in accordance with 36 C.F.R. § 800.14(b).

Reclamation – The activities necessary to restore lands disturbed by construction to as close to a pre-construction condition as possible. This may include ripping, re-seeding and contouring lands disturbed during construction, such as temporary access roads and staging areas.

Research Design and Work Plan – A document that describes the proposed Area of Potential Effect and the reports that the BLM proposes to fulfill identification efforts for the Project per 36 C.F.R. § 800.4.

Right-of-Way (ROW) – The public lands the BLM authorizes for use or occupation under a ROW grant. The POD is an essential component of the ROW grant, and the PA and the HPTP are appended to the POD.

Section 106 – Section 106 of the National Historic Preservation Act of 1966 (NHPA) requires Federal agencies to take into account the effects of their undertakings on historic properties and afford the Advisory Council on Historic Preservation (ACHP) a reasonable opportunity to comment. The historic preservation review process mandated by Section 106 is outlined in regulations issued by the ACHP ("Protection of Historic Properties," 36 C.F.R. § 800, incorporating amendments effective August 5, 2004).

State Historic Preservation Officer (SHPO) – The official appointed or designated pursuant to Section 101(b) (1) of the NHPA to administer the State Historic Preservation Program or a representative designated to act for the State Historic Preservation Officer.

Traditional Cultural Property (TCP) - A property that is eligible for inclusion in the NRHP because of its association with cultural practices or beliefs of a living community that (a) are rooted in that community's history, and (b) are important in maintaining the continuing cultural identity of the community (*National Register Bulletin 38*).

Tribal Participation Plan - As used in this PA, a plan that outlines details and protocols for affording tribally designated representatives (tribal cultural consultants) the opportunity to monitor and be on site during all ground disturbing construction activities for facilities, roads or other components associated with the Undertaking. The Tribal Participation Plan is a component of the MDP.

Treatment Report – As used in this PA, a document that presents the complete results of treatment activities performed on all historic properties, addresses the research questions developed in the HPTP, and synthesizes the results into regional context.

Tribal Historic Preservation Officer (THPO) – The tribal official appointed by the tribe's chief governing authority or designated by a tribal ordinance who has assumed the responsibilities of the SHPO for purposes of Section 106 compliance on tribal lands in accordance with 54 U.S.C. 302702.

Undertaking – A project, activity, or program funded in whole or in part under the direct or indirect jurisdiction of a Federal agency, including those carried out by or on behalf of a Federal agency; those carried out with Federal financial assistance; and those requiring a Federal permit, license, or approval (36 C.F.R. § 800.16[y]). The Undertaking may include surveys, geotechnical testing, engineering, mitigation planning and design, or other activities initiated prior to construction of project facilities.

Unevaluated cultural resources -- As used in this PA, unevaluated cultural resources are those that require additional test excavations, archival or ethnographic research in order for a determination of National Register eligibility to be made.

Variance – A relatively minor change in construction activities (for example, a modification in the route of an access road) requiring the approval of the BLM, including compliance with Section 106 of the NHPA, prior to the issuance of a Notice to Proceed with construction.

ATTACHMENT 3. REFERENCES CITED

Brodbeck, mark and Wayne Glenny
2017 Ten West Link 500Kv Transmission Line Project Cultural Resources Baseline Technical Report. Submitted to the Bureau of Land Management (BLM) Arizona State Office February 2017. HDR, Inc. Phoenix, AZ.

Brodbeck, Mark, Wayne Glenny, Jeanne Barnes, Beniamino Volta, and Daniel Leonard
2017 Ten West Link 500kV Transmission Line Project Research Design and Work Plan for Cultural Resources Identification Efforts. Submitted to the BLM Arizona State Office October 2017. HDR, Inc. Phoenix, AZ.

Leard, Dan and Mark Brodbeck
2017 Ten West Link 500kV Transmission Line Project Ethnographic Overview Report. Submitted to the BLM Arizona State Office March 2017. HDR, Inc. Phoenix, AZ.

Appendix 3 Tabular Data Associated with Chapter 3

Table of Contents

Appendix 3 Tabular Data Associated with Chapter 3

List of Tables

3.1 NON-KEY RESOURCES

See Chapter 3.

3.2 KEY RESOURCES

3.2.1 Soil Resources

Table 3.3-1 Summary of STATSGO Mapped Soils within the Study Area

GENERAL MAP UNIT (STATSGO SOIL ASSOCIATION)	SEGMENT LOCATION	DESCRIPTION[a]	WIND ERODIBILITY GROUP[b,c]	SHRINK/ SWELL POTENTIAL[d]	CORROSION RISK[e]	
					CONCRETE	UNCOATED STEEL
Rositas-Ripley-Indio-Gilman (s275)	Colorado River and California Zone (ca-01, ca-02, ca-04, ca-05, ca-06, p-15w, p-16, x-09, x-10, x-11, x-12, x-13, x-15, x-16)	The soil association consists of very deep, well, or moderately well to somewhat excessively drained soils that formed in stratified stream alluvium, alluvium from mixed rock sources or from sandy aeolian material. The soils are on floodplains and alluvial fans, lacustrine basins, floodplains, dunes or sand sheets and have slopes of 0 to 30 percent.	1–6	0	Low–Moderate	Moderate–High
Rositas-Orita-Carrizo-Aco (s1041)	Colorado River and California Zone (ca-02, ca-06, ca-07, ca-09, p-16, p-17, p-18, x-15, x-16)	The soil association consists of very deep, well drained to excessively drained soils formed in sandy aeolian material, alluvium from mixed sources, and mixed igneous alluvium. The soils are on dunes and sand sheets, fan remnants and terraces, floodplains, fan piedmonts, and bolson floors. Slope ranges from 0 to 30 percent.	1–3, 5–6	0.14, 1.00	Low–Moderate	Moderate

GENERAL MAP UNIT (STATSGO SOIL ASSOCIATION)	SEGMENT LOCATION	DESCRIPTION[a]	WIND ERODI-BILITY GROUP[b,c]	SHRINK/ SWELL POTEN-TIAL[d]	CORROSION RISK[e]	
					CON-CRETE	UNCOAT-ED STEEL
Rillito-Gunsight (s1140)	Colorado River and California Zone (p-17, p-18)	The soil association consists of very deep, somewhat excessively drained soils that formed in mixed alluvium. Gunsight soils are strongly calcareous. The soil association is on fan terraces or stream terraces. Slopes are predominantly 0 to 60 percent.	4L–6	0.5	Moderate	Moderate–High
Rositas-Dune land-Carsitas (s1136)	Colorado River and California Zone (ca-09, p-18, x-19)	The soil association consists of very deep, somewhat excessively drained soils formed in sandy aeolian material or alluvium from granitoid and/or gneissic rocks. The soils are on dunes and sand sheets, alluvial fans, fan aprons, valley fills, dissected remnants of alluvial fans and in drainageways. Slope ranges from 0 to 30 percent.	1, 2, 6	0	Moderate	Moderate
Vaiva-Quilotosa-Hyder-Cipriano-Cherioni (s1141)	Colorado River and California Zone (ca-09, p-18, x-19)	The soil association consists of very shallow and shallow, well drained to somewhat excessively drained soils formed in slope alluvium from granite and gneiss, and alluvium from rhyolite and related volcanic rocks. The soils are on hills and mountains, or fan terraces with slopes of 1 to 70 percent.	None available	0.5	Low–Moderate	Moderate

GENERAL MAP UNIT (STATSGO SOIL ASSOCIATION)	SEGMENT LOCATION	DESCRIPTION[a]	WIND ERODI-BILITY GROUP[b,c]	SHRINK/ SWELL POTEN-TIAL[d]	CORROSION RISK[e]	
					CON-CRETE	UNCOAT-ED STEEL
Ligurta-Gunsight-Cristobal (s290)	Colorado River and California Zone (cb-10, i-08s, p-15e, x-11) Copper Bottom Zone (cb-03, cb-04, cb-05, cb-06, i-06, i-07, p-09, p-11, p-13, p-14, x-08) East Plains and Kofa Zone (i-04, in-01, p-06) Quartzsite Zone (p-07, p-08, qn-01, qn-02, qs-01, qs-02, i-05, x-05, x-06, x-07)	The soil association series consists of very deep, well drained to somewhat excessively drained, strongly saline soils that formed in fan alluvium weathered from a wide variety of rocks. The soils are on fan terraces or stream terraces with slopes of 0 to 60 percent.	5, 6	1	Moderate –High	Moderate–High
Schenco-Rock outcrop-Laposa (s295)	Copper Bottom Zone (cb-01, cb-02, cb-03, cb-04, cb-05, cb-06, i-06, p-09, p-10, p-11, p-12, x-08) East Plains and Kofa Zone (i-04, in-01, p-06) Quartzsite Zone (qn-02, qs-01, qs-02, x-05)	The soil association consists of very shallow and shallow to moderately deep, well drained to somewhat excessively drained soils formed in slope alluvium from schist, granite, gneiss, rhyolite, and aeolian deposits. The soils are on hill slopes, hills and mountains and have slopes of 3 to 75 percent. Average annual precipitation is about 4 to 8 inches and the mean annual temperature is about 72 to 73 degrees Fahrenheit.	8	None available	None available	Moderate

GENERAL MAP UNIT (STATSGO SOIL ASSOCIATION)	SEGMENT LOCATION	DESCRIPTION[a]	WIND ERODI-BILITY GROUP[b,c]	SHRINK/ SWELL POTEN-TIAL[d]	CORROSION RISK[e]	
					CON-CRETE	UNCOAT-ED STEEL
Hyder-Coolidge-Cipriano-Cherioni (s289)	East Plains and Kofa Zone (d-01, i-03, i-04, in-01, p-03, p-04, p-05, p-06, x-01, x-02, x-03, x-04) Quartzsite Zone (x-05)	The soil association consists of very shallow and shallow to very deep, well drained to somewhat excessively-drained soils that formed in fan or stream alluvium from rhyolite and related volcanic rocks. The soils are on fan terraces, stream terraces, mountains, and hills and have slopes of 0 to 70 percent.	None available	1	Low–Moderate	Moderate
Momoli-Denure-Carrizo (s281)	East Plains and Kofa Zone (d-01, p-01)	The soil association consists of very deep, well drained to excessively drained soils formed in fan alluvium and aeolian deposits and mixed igneous alluvium. The soils are on stream terraces and fan terraces, alluvia fans, relict basin floors, floodplains, fan piedmonts, and boldon floors and have slopes of 0 to 15 percent.	3, 5, 6	None available	Low–Moderate	Moderate
Pahaka-Estrella-Antho (s299)	East Plains and Kofa Zone (d-01, i-01, i-02, i-03, p-01, p-02, p-03, p-04, p-05, p-06, x-01, x-02, x-03, x-04)	The soil association consists of very deep, well drained to somewhat excessively drained soils that formed in mixed and stratified fan alluvium. The soils are on alluvial fans, terraces, and floodplains with slopes ranging from 0 to 5 percent.	3, 5	0.06, 0.08, 0.09	Low	Moderate

GENERAL MAP UNIT (STATSGO SOIL ASSOCIATION)	SEGMENT LOCATION	DESCRIPTION[a]	WIND ERODI-BILITY GROUP[b,c]	SHRINK/ SWELL POTEN-TIAL[d]	CORROSION RISK[e]	
					CON-CRETE	UNCOAT-ED STEEL
Rillito-Gunsight-Denure-Chuckawalla (s288)	East Plains and Kofa Zone (d-01, i-01, i-02, i-03, p-01, p-06, x-01, x-02, x-04)	The soil association consists of very deep, well drained to somewhat excessively drained soils that formed in mixed alluvium. Gunsight soils are strongly calcareous. The soils are formed in alluvium from mixed sources and are on fan terraces or stream terraces and relict basin floors. Slopes are 0 to 60 percent.	3, 4L, 5, 6, 8	1	Low–Moderate–High	Moderate–High
Rock outcrop-Quilotosa-Hyder-Gachado (s294)	East Plains and Kofa Zone (d-01, p-01)	The soil association consists of very shallow and shallow, well drained to somewhat excessively drained soils that formed from granitic and metamorphic rocks or in alluvium from rhyolite and related volcanic rocks. The soils are on hills and mountains and have slopes of 1 to 70 percent.	None available	None available	Low	None available
Rock outcrop-Quilotosa-Momoli (s293)	East Plains and Kofa Zone (i-03, x-04)	The soil association consists of very shallow and shallow to very deep, somewhat excessively-drained to excessively drained soils that formed from granitic and metamorphic rocks or in fan alluvium and aeolian deposits. The soils are on hills and mountains, stream terraces, and fan terraces and have slopes of 0 to 65 percent.	6	None available	Moderate	Moderate

GENERAL MAP UNIT (STATSGO SOIL ASSOCIATION)	SEGMENT LOCATION	DESCRIPTION[a]	WIND ERODI-BILITY GROUP[b,c]	SHRINK/ SWELL POTEN-TIAL[d]	CORROSION RISK[e]	
					CON-CRETE	UNCOAT-ED STEEL
Rock outcrop-Lehmans-Gran (s316)	East Plains and Kofa Zone (i-04, p-06) Quartzsite Zone (x-05)	The soil association consists of very shallow and shallow, well drained soils formed in slope alluvium-colluvium from volcanic rock. The soils are on pediments, hill slopes, and mountain slopes and have slopes of 1 to 65 percent.	None available	None available	None available	None available
Valencia-Estrella-Cuerda (s300)	East Plains and Kofa Zone (i-03, p-04, p-05, p-06, x-01, x-02, x-03, x-04)	The soil association consists of very deep, well drained soils formed in recent alluvium and stratified mixed alluvium. The soils are on floodplains and alluvial fans and have slopes of 0 to 5 percent.	3, 5	0.06, 0.08, 0.09	Low–Moderate	Moderate

3.2.2 Biological Resources

3.2.2.1 Vegetation Communities, Habitat Features, and Special Status Plants

Table 3.4-1 Rare Vegetation Alliances on the Palo Verde Mesa Intersected by Project Segments

RARE VEGETATION ALLIANCE	SEGMENT	MILES OF ALLIANCE INTERSECTED
Parkinsonia florida–Olneya tesota Alliance (blue paloverde-ironwood)	ca-07 ca-09 p-17 p-18	0.1 0 0.2 (2 crossings) 0.1
Pleuraphis rigida Alliance (big galleta)	ca-02 ca-07 x-15 x-16	<0.1 0.3 0.1 0.7
Pluchea sericea Alliance (arrowweed)	ca-06	<0.1
Prosopis glandulosa Alliance (honey mesquite)	ca-02 ca-06 p-16	<0.1 <0.1 <0.1
Suaeda moquinii Alliance (bush seepweed)	p-16	<0.1

Table 3.4-2 Wildlife Waters in Arizona Within Two Miles of Route Segments

SEGMENT	WILDLIFE WATER IDENTIFICATION	DISTANCE (MILES)
East Plains and Kofa Zone		
d-01	Courthouse Butte	1.9
i-03	Gravel Pit	1.9
i-04	Ibex Peak/Ram Pasture	1.9
in-01	Ibex Peak/Ram Pasture	1.5
p-01	Big Horn Mountains #5	0.1
p-01	Big Horn Peaks #1	1.6
p-06	Charco 4	1.2
p-06	New Water Well	0.6
p-06	Charco 3	1.0

SEGMENT	WILDLIFE WATER IDENTIFICATION	DISTANCE (MILES)
p-06	Scott Well	0.7
p-06	Twelve Mile Well	0.3
Quartzsite Zone		
p-09	Tule Tank	1.3
Copper Bottom Zone		
cb-01	Dome Rock	0.6
cb-01	Tule Tank	0.7
cb-01	Dome Rock Mountain #1	1.5
cb-02	Dome Rock	0.3
cb-02	Dome Rock Mountain #1	1.1
cb-02	Tule Tank	1.6
cb-03	Dome Rock Mountain #1	0.1
cb-03	Dome Rock	1.0
cb-03	Tule Tank	1.6
cb-04	Dome Rock	0.7
cb-04	Dome Rock Mountain #1	1.6
p-10	Tule Tank	1.2
p-10	Dome Rock Mountain #1	1.6
p-10	Dome Rock	1.7
p-11	Dome Rock Mountain #1	0.1
p-11	Dome Rock	0.8
p-11	Tule Tank	1.6

Table 3.4-3 Arizona Protected Plant Species that are Present or Could Be Present in the Project Area in Arizona

COMMON NAME	SCIENTIFIC NAME[A]	STATUS[B]
Ajo lily	*Hesperocallis undulate*	ANPL-SR
Barrel cactus	*Ferocactus wislizeni*	ANPL-SR
Beavertail cactus	*Opuntia basilaris var. basilaris*	ANPL-SR
Beehive cactus	*Echinomastus johnsonii*	ANPL-SR
Bigelow's nolina	*Nolina bigelovii*	ANPL-SR, HR
Blue paloverde	*Parkinsonia florida*	ANPL-SA

COMMON NAME	SCIENTIFIC NAME[A]	STATUS[B]
Blue sand lily	*Triteliopsis palmeri*	ANPL-SR
Buckhorn cholla	*Cylindropuntia acanthocarpa var. acanthocarpa*	ANPL-SR
Crucifixion thorn	*Castella emoryi*	ANPL-SR
Desert agave	*Agave deserti spp. simplex*	ANPL-SR
Desert holly	*Atriplex hymenelytra*	ANPL-SR
Desert willow	*Chilopsis linearis*	ANPL-SA
Devil's cholla	*Cylindropuntia kunzei*	ANPL-SR
Diamond cholla	*Cylindropuntia ramosissima*	ANPL-SR
Dudleya	*Dudleya arizonica*	ANPL-SR
Elephant tree, torote	*Bursera microphylla*	ANPL-SR
Foothill paloverde	*Parkinsonia microphylla*	ANPL-SA
Hedgehog cactus	*Echinocereus engelmanii var. chrysocentrus*	ANPL-SR
Ironwood	*Olneya tesota*	ANPL-SA, HR
Kearney sumac	*Rhus kearneyi spp. kearneyi*	ANPL-SR
Pincushion cactus	*Mammillaria tetrancistra*	ANPL-SR
Mesquite	*Prosopis spp.*	ANPL-SA, HR
Night blooming cereus	*Peniocereus greggii*	ANPL-SR
Ocotillo	*Fouquieria splendens*	ANPL-SR
Parish wild onion	*Allium parishii*	ANPL-SR
Pencil cholla	*Cylindropuntia leptocaulis*	ANPL-SR
Queen-of-the-night	*Peniocereus greggii var. transmontanus*	ANPL-SR
Saguaro cactus	*Carnegiea gigantea*	ANPL-SR
Saguaro cactus 'crested'	*Carnegia gigantea*	ANPL-HS
Sand food	*Pholisma sonorae*	ANPL-HS
Scaly sandplant	*Pholisma arenarium*	ANPL-HS
Silver cholla	*Cylindropuntia echinocarpa*	ANPL-SR
Smoke tree	*Psorothamnus spinosus*	ANPL-SA
Teddy-bear cholla	*Cylindropuntia bigelovii*	ANPL-SR

[A] Additional cacti and yucca protected under the Arizona Native Plant Law could be present in the biological study area.

[B] Arizona Native Plant Law (ANPL) status: HS = Highly Safeguarded, SR = Salvage Restricted, SA = Salvage Assessed, HR = Harvest Restricted

Table 3.4-4 BLM Priority Plant Species and Potential Presence in the Project Area in Arizona

COMMON NAME	SCIENTIFIC NAME	BLM YUMA PLANNING AREA STATUS	POTENTIAL PRESENCE IN PROJECT AREA
Alverson's foxtail cactus	*Coryphantha alversonii*	BLM priority	Not expected
Big galleta	*Pleuraphis (Hilaria) rigida*	BLM priority	Present
Bush muhly	*Muhlenbergia porteri*	BLM priority	Present
Catclaw acacia	*Acacia greggii*	BLM priority	Present
Cottonwood	*Populus fremontii*	BLM priority	Present
Dune buckwheat	*Eriogonum deserticola*	BLM priority	Not expected
Dune spurge	*Euphorbia platysperma*	BLM priority	Unlikely
Long leaf sandpaper plant	*Petalonyx linearis*	BLM priority	Not expected
Scrub oak	*Quercus turbinella*	BLM priority	Present
Goodding's willow	*Salix gooddingii*	BLM priority	Present

Sources: BLM (2006, Table 3-4), BLM (2008d, Appendix U), BLM (2010a, Table E-4), BLM (2011c, Table J-1)

Table 3.4-5 Special Status Plant Species That Could Occur Within or Near the Biological Study Area in California

SPECIES		STATUS (CALIFORNIA/BLM)	HABITAT
Plants			
Euphorbia abramsiana	Abrams' spurge	CRPR: 2B.2	Sandy soils in Mojave desertscrub and Sonoran desertscrub from 5 to 915 meters (15 to 3,000 feet) above MSL. Annual herb. Blooms September to November. Has been found north of Interstate 10 near McCoy Mountains (BLM 2012b) and could occur within or near biological study area in creosote bush association with sandy soil.
Hymenoxys odorata	Bitter hymenoxys	CRPR: 2B.1	Occurs in sandy soils in riparian scrub and Sonoran desertscrub from 45 to 150 meters (147 to 492 feet) above MSL. Annual herb. Blooms February to November. Low potential to occur along Colorado River and in woodland washes within study area.
Ditaxis serrata var. californica	California ditaxis	CRPR: 3.2	Occurs in Sonoran desertscrub from 30 to 1,000 meters (98 to 3,280 feet) above MSL. Perennial herb. Blooms March to December. Has been found north of Interstate 10 near McCoy Mountains (BLM 2012b) and likely is uncommon or absent on sandy soil in study area.

SPECIES		STATUS (CALIFORNIA/BLM)	HABITAT
Proboscidea althaeifolia	Desert unicorn-plant	CRPR: 4.3	Occurs primarily in sandy soils of Sonoran desertscrub from 85 to 1,000 meters (278 to 3,280 feet) above MSL. Perennial herb. Blooms May to October. Has been found within study area (BLM 2012b; BLM and Riverside County Planning Department 2015).
Teucrium cubense ssp. depressum	Dwarf germander	CRPR: 2B.2	Occurs in Desert dunes, playa margins and Sonoran desertscrub from 45 to 400 meters (147 to 1,312 feet) above MSL. Annual herb. Blooms March to November. Has not been found in or near study area, but could occur on sandy soils there and in surrounding region.
Euphorbia platysperma	Flat-seeded spurge	CRPR: 1B.2 BLM: Sensitive	Sonoran desertscrub habitats with sandy soils and dunes below 200 meters (660 feet) above MSL. Could occur on sandy soils within or near study area, but has not been found there.
Ditaxis claryana	Glandular ditaxis	CRPR: 2B.2	Perennial herb that prefers low-elevation sandy soils in Mojave and Sonoran desert creosote scrub habitats in southern California below 100 meters (328 feet) above MSL. Could occur within or near study area, but has not been found there.
Astragalus sabulonum	Gravel milkvetch	CRPR: 2B.2	Occurs in desert dunes and Mojave/Sonoran desertscrub from –53 to 910 meters (–173 to 2,985 feet) above MSL. Annual herb. Blooms February to July. Could occur within or near study area, but has not been found there.
Eriastrum harwoodii	Harwood's eriastrum	CRPR: 1B.2 BLM: Sensitive	Occurs in Desert dunes from 125 to 915 meters (410 to 3,001 feet) above MSL. Annual herb. Blooms March to June. This species has been found on stabilized dunes and other sandy soils in the biological study area (BLM 2012b; BLM and Riverside County Planning Department 2015; Transcon Environmental 2017).
Astragalus insularis var. harwoodii	Harwood's milkvetch	CRPR: 2B.2	Occurs in sandy or gravelly soils along desert dunes and Mojave desertscrub below 710 meters (2,329 feet) above MSL. Annual herb. Blooms January to May. This species has been found in the biological study area (BLM and Riverside County Planning Department 2015; Transcon Environmental 2017).
Colubrina californica	Las Animas colubrina	CRPR: 2B.3	Perennial deciduous shrub found in Mojave and Sonoran desertscrub and Joshua Tree woodland. Preferred habitat includes sandy, gravelly soils and dry canyons from 10 to 1,000 meters (32 to 3,280 feet) above MSL. Blooms April to June. Has been found north of Interstate 10 near McCoy Mountains but not within study area (BLM 2012b; BLM 2014b). Unlikely to occur in sandy soil within study area.

SPECIES		STATUS (CALIFORNIA/BLM)	HABITAT
Calliandra eriophylla	Pink fairy-duster	CRPR: 2B.3	Perennial deciduous shrub associated with dry wash woodlands in the Sonoran desert from 120 to 1,500 meters (393 to 4,921 feet) above MSL. Blooms January to March. Low potential to occur in desert woodlands within study area.
Cryptantha costata	Ribbed cryptantha	CRPR: 4.3	Occurs in sandy soils in desert dunes and Mojave/Sonoran desertscrub from –60 to 500 meters (–196 to 1,640 feet) above MSL. Annual herb. Blooms February to May. This species has been found in the biological study area (BLM 2012b, 2014b; BLM and Riverside County Planning Department 2015).
Carnegiea gigantea	Saguaro	CRPR: 2B.2	Large perennial succulent and signature species of Sonoran desertscrub. Known to prefer gravelly slopes and rocky soils on mountains or bajadas. Blooms May to June. Could occur in desert woodlands and upper slopes surrounding study area.
Funastrum utahense	Utah vine milkweed	CRPR: 4.2	Occurs in sandy or g Transcon Environmental 2017ravelly soil in Mojave/Sonoran desertscrub from 100 to 1,435 meters (328 to 4,708 feet) above MSL. Perennial herb. Blooms March to October. Has been found north of Interstate 10 near McCoy Mountains but not within study area (BLM 2012b).
Cryptantha holoptera	Winged cryptantha	CRPR: 4.3	Annual herb that occurs in Mojave desert/Sonoran desertscrub from 100 to 1,690 meters (328 to 5,544 feet) above MSL. Blooms March to April. This species has been observed in the study area (BLM 2014b).

Notes: CRPR = California Rare Plant Ranking
MSL = mean sea level
List 1A = Plants presumed extirpated in California and either rare or extinct elsewhere
List 1B = Plants rare, threatened, or endangered in California and elsewhere
List 2A = Plants presumed extirpated in California, but common elsewhere
List 2B = Plants rare, threatened, or endangered in California, but more common elsewhere
List 3 = Plants about which more information is needed – a review list
List 4 = Plants of limited distribution – a watch list
0.1 Seriously endangered in California
0.2 Fairly endangered in California
0.3 Not very endangered in California

3.2.2.2 Noxious and Invasive Weeds

Table 3.4-6 Federal and State-regulated Noxious Weeds Found in or Near the Biological Study Area

SCIENTIFIC NAME	COMMON NAME	FEDERAL DESIGNATION	CALIFORNIA DESIGNATION	ARIZONA DESIGNATION
Acroptilon repens	Russian knapweed	-	Noxious	Prohibited; Restricted
Alhagi maurorum	Camelthorn	-	Noxious	Prohibited; Restricted
Arundo donax	Giant-reed	-	Noxious	-
Carduus nutan	Musk thistle	-	Noxious	-
Centaurea diffusa	Diffuse knapweed	-	Noxious	Prohibited; Restricted
Centaurea solstitialis	Yellow star thistle	-	Noxious	Prohibited; Restricted
Cuscuta spp.	Dodder	-	Noxious	Prohibited; Restricted
Eichhornia crassipes	Water hyacinth	-	-	Prohibited; Restricted
Halogeton glomeratus	Halogeton	-	Noxious	Prohibited; Restricted
Hydrilla verticaillata	Hydrilla	-	Noxious	Prohibited
Onopordum acanthium	Scotch thistle	-	Noxious	Prohibited; Restricted
Salvinia molesta	Giant salvinia	Noxious	-	Prohibited
Salsola tragus	Prickly Russian thistle	-	Noxious	-
Tamarix spp.	Saltcedar	-	Noxious	-
Tribulus terrestris	Puncturevine	-	Noxious	Prohibited; Regulated

Table 3.4-7 Harwood's Eriastrum Plants Located during 2017 Surveys along Route Segments on the Palo Verde Mesa

SEGMENT	PLANTS LOCATED IN 2017 SURVEYS (NUMBER)	SUITABLE HARWOOD'S ERIASTRUM HABITAT INTERSECTED (MILES)
p-16	0	0
p-17	0	0
p-18	1	0.6
x-15	1	0.1
x-16	0	0
x-19	0 Partial survey	0.4
ca-02	Not surveyed	0
ca-06	Not surveyed	0
ca-07	65	1.1
ca-09	27	2.6

Table 3.4-8 Federal ESA-Listed Threatened, Endangered, and Proposed Species in or near the Biological Study Area

SPECIES		STATUS[AB]	HABITAT	POTENTIAL FOR OCCURRENCE
Mammals				
Antilocapra americana sonoriensis	Sonoran pronghorn	ESA: NSE AZ: SGCN CA: N/A	Sonoran desertscrub in open valleys	Introduced in 2011 into Kofa NWR south of the Proposed Action. Has been documented along or near the route segments in and near the Refuge.
Birds				
Coccyzus americanus occidentalis	Western yellow-billed cuckoo	ESA: T AZ: SGCN CA: E BLM: Sensitive BLM: Focus Species	Nests in dense, wide riparian woodlands with well-developed understories	Present along the Colorado River in suitable habitat. Habitat at proposed river crossings is not suitable for nesting, although this species is likely to use the habitat during migration. The route segments cross proposed critical habitat along the Colorado River.

SPECIES		STATUS[AB]	HABITAT	POTENTIAL FOR OCCURRENCE
Empidonax traillii extimus	Southwestern willow flycatcher	ESA: E AZ: SGCN CA: E BLM: Sensitive BLM: Focus species	Nests in early successional riparian willow-dominated riparian habitats	Present along the Colorado River in suitable habitat. Habitat at proposed river crossings is not suitable for nesting, although this species could use the habitat during migration.
Rallus obsoletus yumanensis (Rallus longirostris yumanensis)	Yuma Ridgway's rail (Yuma clapper rail)	ESA: E AZ: SGCN CA: T BLM: Sensitive BLM: Focus species	Freshwater marshes with stands of bulrushes and cattails	Known to be present in canals and drains adjacent to agricultural fields in California. No proposed crossing of the Colorado River has suitable marsh habitat, but there is potential habitat in nearby backwater channels.
Reptiles				
Gopherus agassizii	Mojave desert tortoise	ESA: T AZ: SGCN CA: T BLM: Sensitive BLM: Focus species	Desertscrub	Known to be present on the Palo Verde Mesa around the Colorado River Substation. Designated critical habitat 3 miles west of the substation.
Fish				
Xyrauchen texanus	Razorback sucker	ESA: E AZ: SGCN CA: E BLM: Sensitive	*Spring* – deep runs, eddies, backwater, and flooded off-channels *Summer* – runs and pools in shallow water with sandbars; *Winter* – low-velocity runs, pools, and eddies	Known to be present in mainstream Colorado River and nearby backwaters in and near the Project Area. The transmission line would span critical habitat.

Source: USFWS (2016a)

[A] E = Endangered; T = Threatened; NSE = Nonessential experimental population;

[B] BLM Focus species as designated under the DRECP LUPA

N/A = not applicable (species is not present in the state); SGCN = Species of Greatest Conservation Need

Table 3.4-9 Special Status Wildlife Species (not including Federal ESA-listed species) that Could Occur within or near the Biological Study Area in Arizona

SPECIES		STATUS DESIGNATION (ARIZONA/ BLM)	HABITAT
Amphibians			
Bufo alvarius	Sonoran desert toad	Arizona: SGCN	Central and southern Arizona within several miles of permanent or temporary water sources.
Reptiles			
Lichanura trivirgata	Rosy boa	BLM: Sensitive	Rocky areas or boulder fields in mountains, bajadas, and hillsides in Sonoran desertscrub.
Heloderma suspectum	Gila monster	Arizona: SGCN	Prefers rocky areas in desertscrub and semi-desert grassland. Found in lower mountain slopes, rocky bajadas, canyon bottoms, and arroyos.
Gopherus morafkai	Sonoran desert tortoise	Arizona: SGCN BLM: Sensitive	Rocky terrain in Sonoran desertscrub.
Kinosternon sonoriense sonoriense	Sonora mud turtle	BLM: Sensitive	Usually found in rocky streams, creeks, and rivers. It also inhabits ponds, cattle tanks, and ditches. Within Project Area, rare along lower Colorado River.
Micruroides euryxanthus	Sonoran coralsnake	Arizona: SGCN	Sonoran, Mohave, and Chihuahuan desertscrubs, through Semi-desert Grassland, and into the lower reaches of the woodlands. Usually encountered in or near rocky or gravelly drainages, mesquite-lined washes, and canyons.
Sauromalus ater	Chuckwalla	BLM: Sensitive	Rocky outcrops, boulder fields, hillsides, and slopes in Sonoran desertscrub.
Uma scoparia	Mojave fringe-toed lizard	Arizona: SGCN BLM: Sensitive	Sparsely-vegetated arid areas with fine wind-blown sand, including dunes, flats with sandy hummocks formed around the bases of vegetation, washes, and the banks of rivers. Needs fine, loose sand for burrowing.
Fish - None (see Table 3.4-8 for federally listed fish)			
Birds (see Table 3.4-8 for federally listed birds)			
Melozone aberti	Abert's towhee	Arizona: SGCN	Low-elevation desert riparian and desert wash habitats. Habitat includes dense vegetation, including thickets of willow, cottonwood, mesquite, and saltcedar. Likely restricted to within and near xeroriparian washes with dense shrubs and agricultural areas within Project Area.

SPECIES		STATUS DESIGNATION (ARIZONA/ BLM)	HABITAT
Botaurus lentiginosus	American bittern	Arizona: SGCN	Marshlands and very wet meadows. Rarely seen away from dense reeds, rushes, cordgrass, cattails and other emergent vegetation. Within Project Area, restricted to Colorado River.
Vireo bellii arizonae	Arizona Bell's vireo	Arizona: SGCN	Desert riparian woodlands, primarily with dense willow or mesquite. Uncommon along lower Colorado River.
Haliaeetus leucocephalus	Bald eagle	Arizona: SGCN BLM: Sensitive	Coasts, rivers, and large lakes. Open country and mountains during migration. Migrant and winter resident along lower Colorado River.
Ceryle alcyon	Belted kingfisher	Arizona: SGCN	Occurs near water and along banks throughout the United States. Only habitat within Project Area is along and near Colorado River.
Laterallus jamaicensis coturniculus	California black rail	Arizona: SGCN BLM: Sensitive	Salt and brackish water marshes. Occurs in the lower Colorado River in areas of pickle weed thickets.
Aechmophorus clarki	Clark's grebe	Arizona: SGCN	Occurs in marshes, lakes, and, less frequently, along rivers. Only habitat near the Project Area is along and near Colorado River.
Buteogallus anthracinus	Common black hawk	Arizona: SGCN	Generally within wooded washes and streams in Arizona. Uncommon migrant and winter resident in southwestern Arizona.
Progne subis hesperia	Desert purple martin	Arizona: SGCN BLM: Sensitive	Open, flat areas and farms. Inhabits saguaros in southern Arizona. Much more common in southcentral Arizona than within and near Project Area.
Phalacrocorax auritus	Double-crested cormorant	Arizona: SGCN	Occurs along coasts, bays, and rivers. Only habitat near the Project Area is along and near Colorado River.
Buteo regalis	Ferruginous hawk	Arizona: SGCN BLM: Sensitive	Plains and prairies throughout western North America. In southwestern Arizona, migrant and winter resident primarily near cultivated fields.
Melanerpes uropygialis	Gila woodpecker	Arizona: SGCN	Upper Sonoran desert in areas with stands of saguaro, riparian woodlands, and suburban areas.
Colaptes chrysoides	Gilded flicker	Arizona: SGCN BLM: Sensitive	Upper Sonoran desert in areas with stands of saguaro, riparian woodlands, and suburban areas.
Casmerodius albus	Great egret	Arizona: SGCN	Marshes and mudflats along shorelines throughout warmer areas of the world. Only habitat near the Project Area is along and near Colorado River.
Aquila chrysaetos	Golden eagle	Arizona: SGCN BLM: Sensitive	Open areas, plains, and mountains throughout North America. Nests in mountains of western Arizona.

SPECIES		STATUS DESIGNATION (ARIZONA/ BLM)	HABITAT
Toxostoma lecontei	Le Conte's thrasher	Arizona: SGCN BLM: Sensitive	Flat desert areas with sparse vegetation, especially saltbush flats.
Melospiza lincolnii	Lincoln's sparrow	Arizona: SGCN	Winters in the southern United States in brushes and weedy habitats. Within Project Area, restricted to Colorado River and possibly along large xeroriparian washes.
Charadrius montanus	Mountain plover	Arizona: SGCN	Winters in semiarid plains and flats in the southwestern United States. Uncommon or rare along lower Colorado River.
Circus cyaneus	Northern harrier	Arizona: SGCN	Marshes, fields, and open areas.
Falco peregrinus anatum	Peregrine falcon	Arizona: SGCN	Open country and cliffs. Sometimes inhabits urban areas. Uncommon resident in southwestern Arizona.
Pandion haliaetus	Osprey	Arizona: SGCN	Open coastlines, rivers, and lakes throughout western United States. Only riparian habitat near the Project Area is along and near Colorado River, although infrequently seen away from water.
Passerculus sandwichensis	Savannah sparrow	Arizona: SGCN	Associated with open plains and meadows. Uncommon in Arizona along lower Colorado River.
Egretta thula	Snowy egret	Arizona: SGCN	Marshes, tidal flats, and ponds throughout the Americas.
Anthus spragueii	Sprague's pipit	Arizona: SGCN	Grasslands, pastures, and cultivated fields with dense, low vegetation. Rare in cultivated fields along lower Colorado River.
Tyrannus crassirostris	Thick-billed kingbird	Arizona: SGCN	Breeds in southeastern Arizona in riparian gallery forests. Rare in winter along Colorado River.
Athene cunicularia hypugaea	Western burrowing owl	Arizona: SGCN BLM: Sensitive	Utilizes burrows made by mammals in arid regions and deserts. Within Project Area, likely to be common only near agricultural areas and along and near Colorado River.
Aix sponsa	Wood duck	Arizona: SGCN	Wooded areas of rivers and ponds. Uncommon in winter along the lower Colorado River.
Mammals (see Table 3.4-8 for federally listed mammals)			
Idionycteris phyllotis	Allen's (Mexican) big-eared bat	Arizona: SGCN BLM: Sensitive	Forested areas above 3,000 feet.
Castor canadensis	American beaver	Arizona: SGCN	Rivers, streams, and lakes. Could occur along Colorado River.
Myotis occultus	Arizona myotis	Arizona: SGCN	In southwestern Arizona, they are found along the lower Colorado River.

SPECIES		STATUS DESIGNATION (ARIZONA/ BLM)	HABITAT
Perognathus amplus	Arizona pocket mouse	Arizona: SGCN	Valley bottoms with shrub cover and stable soil. Likely to occur in Harquahala and Ranegras plains.
Nyctinomops macrotis	Big free-tailed bat	Arizona: SGCN	Arid lowlands and hills to 6,000 feet (1,800 m). Roosts in crevices, buildings, and sometimes trees.
Macrotus californicus	California leaf-nosed bat	Arizona: SGCN BLM: Sensitive	Mostly found in the Sonoran desertscrub; summer and winter range the same; primarily roost in mines, caves, and rock shelters.
Myotis californicus	California myotis	Arizona: SGCN	Semi-arid and grassland areas of the southwestern United States. Roosts in caves, mines, crevices, and shrubs.
Myotis velifer	Cave myotis	Arizona: SGCN BLM: Sensitive	Desertscrub of creosote, brittlebush, palo verde, and cacti. Roost in caves, tunnels, and mineshafts, and under bridges, and sometimes in buildings within a few miles of water.
Sigmodon arizonae plenus	Colorado River cotton rat	Arizona: SGCN	Riparian thickets, dense grass cover, drier grassy areas. Restricted to Colorado River floodplain and surrounding area.
Ovis canadensis mexicana	Desert bighorn sheep	Arizona: SGCN	Desert crags, rocky outcrops, and valleys in southern Arizona. Occurs in all mountain ranges throughout Project Area.
Invertebrates – None			

Table 3.4-10 Length of Special Status Wildlife Species Habitat Intersected by the Proposed Action Route Segments in Arizona, in Miles

SPECIES HABITAT	PROPOSED ACTION SEGMENT														
	p-01	p-02	p-03	p-04	p-05	p-06	p-07	p-08	p-09	p-10	p-11	p-12	p-13	p-14	p-15e
Geographic Area[a]	EP&K	EP&K	EP&K	EP&K	EP&K	EP&K	QTZ	QTZ	QTZ	CB	CB	CB	CB	CB	CB
Sonoran desert toad	2.2	0.0	0.1	0.3	0.2	3.4	0.2	0.0	0.7	0.2	0.2	1.2	0.8	0.4	0.5
Gila monster	29.2	1.5	2.9	5.8	2.1	41.3	2.6	0.8	8.6	1.4	5.4	3.7	4.8	1.3	3.3
Mojave fringe-toed lizard	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sonoran desert tortoise	3.7	0.0	1.3	0.4	0.7	21.0	0.0	0.0	2.8	1.6	5.1	0.0	0.0	0.0	0.0
Sonoran coral snake	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Abert's towhee	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2
American bittern	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3
Arizona Bell's vireo	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bald eagle	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3
Brewer's sparrow	1.2	0.0	0.0	0.0	0.0	24.1	1.5	0.8	6.3	1.6	4.4	1.4	2.7	0.5	1.1
Brown-crested flycatcher	0.5	0.0	0.0	0.0	0.0	8.9	0.0	0.0	0.0	0.8	4.4	1.4	1.9	0.0	1.4
Costa's hummingbird	1.2	0.0	0.0	0.0	0.0	24.1	1.5	0.8	6.3	1.6	4.4	1.4	2.7	0.5	1.1
Elf owl	1.2	0.0	0.0	0.0	0.0	24.1	1.5	0.8	6.3	0.8	0.0	0.0	0.0	0.0	0.0
Ferruginous hawk	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

SPECIES HABITAT	PROPOSED ACTION SEGMENT														
	p-01	p-02	p-03	p-04	p-05	p-06	p-07	p-08	p-09	p-10	p-11	p-12	p-13	p-14	p-15e
Gila woodpecker	1.3	0.0	0.0	0.0	0.0	24.1	1.5	0.8	6.3	1.6	4.4	1.4	2.7	0.5	1.2
Gray vireo	0.0	0.0	0.0	0.0	0.0	12.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Gilded flicker	1.2	0.0	0.0	0.0	0.0	24.1	1.5	0.8	6.3	1.6	4.4	1.4	2.7	0.5	1.1
Golden eagle	0.0	0.0	0.0	0.0	0.0	11.7	1.7	0.8	6.5	0.8	0.0	0.0	0.0	0.0	0.0
Le Conte's thrasher	27.9	1.5	2.9	5.8	2.1	16.7	1.1	0.0	2.2	0.0	0.0	0.0	0.0	0.0	0.0
Lucy's warbler	1.2	0.0	0.0	0.0	0.0	24.1	1.5	0.8	6.3	1.6	4.4	1.4	2.7	0.5	1.3
Marsh wren	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
Mountain plover	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sage sparrow	27.9	1.5	2.9	5.8	2.1	16.7	1.1	0.0	2.2	0.0	1.0	2.1	2.0	0.8	1.8
Sage thrasher	27.9	1.5	2.9	5.8	2.1	16.7	1.1	0.0	2.2	0.0	1.0	1.0	0.0	0.0	0.0
Savannah sparrow	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sprague's pipit	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Virginia rail	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Western burrowing owl	0.3	0.0	0.0	0.0	0.0	1.3	0.0	0.0	0.0	0.8	4.4	1.5	2.5	0.5	1.2
Western least bittern	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Western yellow-billed cuckoo	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.38	0.1	0.3
Wood duck	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
American beaver	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8
Arizona myotis	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2

SPECIES HABITAT	PROPOSED ACTION SEGMENT														
	p-01	p-02	p-03	p-04	p-05	p-06	p-07	p-08	p-09	p-10	p-11	p-12	p-13	p-14	p-15e
California leaf-nosed bat	23.6	0.0	1.0	5.8	0.2	31.2	2.6	0.8	8.6	1.6	5.4	3.6	4.8	1.3	3.0
Arizona pocket mouse	29.3	1.5	2.9	5.8	2.1	28.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cave myotis	29.3	1.5	2.9	5.8	2.1	41.3	2.6	0.8	8.6	1.6	5.4	3.6	4.8	1.3	2.3
Colorado River cotton rat	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.9	4.5	1.2	3.2
Desert bighorn sheep	3.2	0.0	0.0	1.3	1.0	5.8	0.0	0.0	6.4	1.6	5.4	0.8	0.0	0.0	0.0
Greater Western mastiff bat	29.3	1.5	2.9	5.8	2.1	41.3	2.6	0.8	8.6	1.6	5.4	3.6	4.8	1.3	2.9
Harquahala Southern pocket gopher	29.0	1.5	2.9	5.8	1.8	15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Harris' antelope squirrel	29.3	1.5	2.9	5.8	2.1	41.3	2.6	0.8	8.6	1.6	5.4	3.6	4.8	1.3	3.2
Kit fox	29.3	1.5	2.9	5.8	2.1	41.3	2.6	0.8	8.6	1.6	5.4	3.6	4.8	1.3	2.8
Little pocket mouse	29.3	1.5	2.9	5.8	2.1	41.3	2.6	0.8	8.6	1.6	5.4	3.6	4.8	1.3	2.8
Mexican free-tailed bat	29.4	1.5	2.9	5.8	2.1	41.4	2.6	0.8	8.6	1.6	5.4	3.7	4.8	0.8	0.5
Pale Townsend's big-eared bat	29.4	1.5	2.9	5.8	2.1	41.4	2.6	0.8	8.6	1.6	5.4	3.7	4.8	1.3	3.1
Pocketed free-tailed bat	3.0	0.0	0.0	0.0	0.0	26.1	2.2	0.8	6.8	1.6	4.7	1.8	3.5	0.8	1.7
Spotted bat	27.7	1.5	2.9	5.8	2.1	17.2	1.1	0.0	2.3	0.0	0.9	2.2	2.2	0.8	2.0

SPECIES HABITAT	PROPOSED ACTION SEGMENT														
	p-01	p-02	p-03	p-04	p-05	p-06	p-07	p-08	p-09	p-10	p-11	p-12	p-13	p-14	p-15e
Western red bat	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6
Western yellow bat	29.4	1.5	2.9	5.8	2.1	41.4	2.6	0.8	8.6	1.6	5.4	3.7	2.7	0.0	0.0
Yuma myotis	29.3	1.5	2.9	5.8	2.1	41.3	2.6	0.8	8.6	1.6	5.4	3.6	4.8	1.3	3.2

[a] Geographic Area: EP&K = East Plains and Kofa Zone, QTZ = Quartzsite Zone, CB = Copper Bottom Zone, CR&CA – Colorado River and California Zone

Table 3.4-11 Length of Special Status Wildlife Species Habitat Intersected by Alternative Route Segments d-01, x-01 to x-08, and i-01 to i-08s in Arizona, in Miles

SPECIES HABITAT	ALTERNATIVE ROUTE SEGMENT																
	d-01	x-01	x-02	x-03	x-04	x-05	x-06	x-07	x-08	i-01	i-02	i-03	i-04	i-05	i-06	i-07	i-08s
Geographic Area[a]	EP&K	EP&K	EP&K	EP&K	EP&K	QTZ	QTZ	QTZ	CB	EP&K	EP&K	EP&K	EP&K	QTZ	CB	CB	CR&CA
Sonoran desert toad	1.6	0.3	0.1	0.2	1.1	1.7	1.4	0.8	0.4	0.1	0.0	1.2	1.7	1.5	1.6	1.7	0.1
Gila monster	21.0	9.5	9.2	7.9	29.4	13.2	11.2	8.0	1.5	9.8	3.8	23.4	12.2	3.2	8.4	7.9	1.4
Mojave fringe-toed lizard	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sonoran desert tortoise	0.7	0.0	0.0	1.0	0.6	0.0	0.0	0.0	0.0	0.0	0.1	2.5	11.0	0.0	5.6	0.0	0.0
Sonoran coral snake	0.0	0.0	0.0	0.0	1.9	0.0	0.0	0.0	0.0	0.0	0.0	1.3	5.8	0.0	0.0	0.0	0.0
Abert’s towhee	7.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	2.4	0.0	0.0	2.0	3.5	0.8
American bittern	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2

SPECIES HABITAT	ALTERNATIVE ROUTE SEGMENT																
	d-01	x-01	x-02	x-03	x-04	x-05	x-06	x-07	x-08	i-01	i-02	i-03	i-04	i-05	i-06	i-07	i-08s
Arizona Bell's vireo	0.2	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0
Bald eagle	7.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6
Brewer's sparrow	8.8	0.0	0.0	0.0	2.1	9.2	8.7	5.4	0.1	0.1	0.0	3.5	10.8	1.8	2.5	3.4	0.6
Brown-crested flycatcher	0.0	0.0	0.0	0.0	0.0	0.6	0.2	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.2	3.2	0.4
Costa's hummingbird	1.0	0.0	0.0	0.0	2.1	9.2	8.7	5.4	0.1	0.1	0.0	3.5	10.8	1.8	2.5	3.4	0.2
Elf owl	1.0	0.0	0.0	0.0	2.1	9.2	8.7	5.4	0.0	0.1	0.0	3.5	10.8	1.8	0.0	0.0	0.0
Ferruginous hawk	7.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5
Gila woodpecker	1.0	0.0	0.0	0.0	2.1	9.2	8.7	5.4	0.1	0.1	0.0	3.5	10.8	1.8	2.5	3.4	0.3
Gray vireo	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Gilded flicker	1.0	0.0	0.0	0.0	2.1	9.2	8.7	5.4	0.1	0.1	0.0	3.5	10.8	1.8	2.5	3.4	0.3
Golden eagle	0.0	0.0	0.0	0.0	0.0	9.3	8.9	5.4	0.0	0.0	0.0	0.0	5.0	1.8	0.5	0.0	0.0
Le Conte's thrasher	19.8	9.5	9.2	7.9	27.2	3.9	2.4	2.4	0.0	9.7	3.8	19.5	1.3	1.3	1.7	0.0	0.0
Lucy's warbler	1.0	0.0	0.0	0.0	2.1	9.2	8.7	5.4	0.1	0.1	0.0	3.5	10.8	1.8	2.5	3.4	0.3
Marsh wren	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6
Mountain plover	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5

SPECIES HABITAT	ALTERNATIVE ROUTE SEGMENT																
	d-01	x-01	x-02	x-03	x-04	x-05	x-06	x-07	x-08	i-01	i-02	i-03	i-04	i-05	i-06	i-07	i-08s
Pacific wren	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Sage sparrow	19.8	9.5	9.2	7.9	27.2	3.9	2.4	2.4	1.4	9.7	3.8	19.5	1.3	1.3	5.6	4.3	0.6
Sage thrasher	19.8	9.5	9.2	7.9	27.2	3.9	2.4	2.4	1.4	9.7	3.8	19.5	1.3	1.3	5.6	0.4	0.0
Savannah sparrow	7.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5
Sprague's pipit	7.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5
Virginia rail	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Western burrowing owl	1.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.1	0.0	2.0	0.0	0.0	2.0	3.4	0.3
Western least bittern	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Western yellow-billed cuckoo	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
Wood duck	0.0	0.0	0.0	0.0	<0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
American beaver	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6
Arizona myotis	0.0	0.0	0.0	<0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6
California leaf-nosed bat	14.9	2.4	4.5	0.0	3.5	13.2	11.2	8.0	1.5	4.4	0.0	6.3	12.2	3.2	8.4	7.9	0.9
Arizona pocket mouse	18.6	9.5	9.2	7.9	29.4	0.0	0.0	0.0	0.0	9.8	3.8	23.4	6.6	0.0	0.0	0.0	0.0
Cave myotis	21.0	9.5	9.2	7.9	29.4	13.2	11.2	8.0	1.5	9.8	3.8	23.4	12.2	3.2	8.4	7.9	0.7

SPECIES HABITAT	ALTERNATIVE ROUTE SEGMENT																
	d-01	x-01	x-02	x-03	x-04	x-05	x-06	x-07	x-08	i-01	i-02	i-03	i-04	i-05	i-06	i-07	i-08s
Colorado River cotton rat	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	7.8	1.3
Desert bighorn sheep	0.0	0.0	0.0	1.0	2.0	1.7	0.0	0.0	0.9	0.0	0.0	1.5	7.5	0.0	7.2	0.0	0.0
Greater Western mastiff bat	28.8	9.5	9.2	7.9	29.4	13.2	11.2	8.0	1.5	9.8	3.8	23.4	12.2	3.2	8.4	7.9	1.2
Harquahala Southern pocket gopher	21.0	9.5	9.2	7.9	16.8	0.0	0.0	0.0	0.0	9.8	3.8	12.5	0.0	0.0	0.0	0.0	0.0
Harris' antelope squirrel	21.0	9.5	9.2	7.9	29.4	13.2	11.2	8.0	1.5	9.8	3.8	23.4	12.2	3.2	8.4	7.9	0.9
Kit fox	21.0	9.5	9.2	7.9	29.4	13.2	11.2	8.0	1.5	9.8	3.8	23.4	12.2	3.2	8.4	7.9	0.8
Little pocket mouse	21.0	9.5	9.2	7.9	29.4	13.2	11.2	8.0	1.5	9.8	3.8	23.4	12.2	3.2	8.4	7.9	0.8
Mexican free-tailed bat	28.8	9.5	9.2	7.9	29.4	13.2	11.3	8.0	1.5	9.8	3.8	23.4	12.2	3.2	8.4	5.5	0.0
Pale Townsend's big-eared bat	28.8	9.5	9.2	7.9	29.4	13.2	11.3	8.0	1.5	9.8	3.8	23.4	12.2	3.2	8.4	7.9	1.3
Pocketed free-tailed bat	2.1	0.0	0.0	0.0	3.2	10.8	10.1	6.6	0.3	0.2	0.0	5.2	11.3	2.3	3.9	5.1	0.3

SPECIES HABITAT	ALTERNATIVE ROUTE SEGMENT																
	d-01	**x-01**	**x-02**	**x-03**	**x-04**	**x-05**	**x-06**	**x-07**	**x-08**	**i-01**	**i-02**	**i-03**	**i-04**	**i-05**	**i-06**	**i-07**	**i-08s**
Spotted bat	19.7	9.5	9.2	7.9	27.3	3.9	2.5	2.6	1.4	9.7	3.8	19.7	1.5	1.4	5.8	4.3	0.7
Western red bat	0.0	0.0	0.0	0.0	<0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
Western yellow bat	21.0	9.5	9.2	7.9	29.4	13.2	11.3	8.0	1.5	9.8	3.8	23.4	12.2	3.2	8.4	2.9	0.0
Yuma myotis	21.0	9.5	9.2	7.9	29.4	13.2	11.2	8.0	1.5	9.8	3.8	23.4	12.2	3.2	8.4	7.9	1.0

[a] Geographic Area: EP&K = East Plains and Kofa Zone, QTZ = Quartzsite Zone, CB = Copper Bottom Zone, CR&CA – Colorado River and California Zone

Table 3.4-12 Length of Special Status Wildlife Species Habitat Intersected by Alternative Route Segments in-01, cb-01 to cb-10, qn-01, qn-02, qs-01, and qs-02 in Arizona, in Miles

SPECIES HABITAT	ALTERNATIVE ROUTE SEGMENT											
	in-01	cb-01	qn-01	cb-02	qn-02	cb-03	qs-01	cb-04	qs-02	cb-05	cb-06	cb-10
Geographic Area[a]	EP&K	CB	QTZ	CB	EP&K	CB	QTZ	CB	QTZ	CB	CB	CB
Sonoran desert toad	2.3	0.0	0.2	0.2	1.8	0.4	1.0	0.6	1.4	0.9	0.1	0.1
Gila monster	15.9	3.7	0.5	2.5	12.2	5.7	3.6	2.2	5.7	5.2	2.7	1.8
Mojave fringe-toed lizard	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.0	0.0
Sonoran desert tortoise	10.3	3.7	0.1	2.5	1.8	5.1	0.0	0.9	2.0	0.0	0.0	0.0
Sonoran coral snake	5.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Abert's towhee	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7
American bittern	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4
Arizona Bell's vireo	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bald eagle	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4
Brewer's sparrow	11.5	3.7	0.4	2.4	4.9	3.2	1.4	0.5	1.3	1.3	1.1	0.3
Brown-crested flycatcher	0.0	0.9	0.0	1.5	0.0	3.2	0.0	0.0	0.0	0.5	0.0	0.7

SPECIES HABITAT	ALTERNATIVE ROUTE SEGMENT											
	in-01	cb-01	qn-01	cb-02	qn-02	cb-03	qs-01	cb-04	qs-02	cb-05	cb-06	cb-10
Costa's hummingbird	11.5	3.7	0.4	2.4	4.9	3.2	1.4	0.5	1.3	1.3	1.1	0.3
Elf owl	11.5	0.8	0.4	0.0	3.5	0.0	1.4	0.0	0.6	0.0	0.0	0.0
Ferruginous hawk	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Gila woodpecker	11.6	3.7	0.4	2.4	5.0	3.2	1.4	0.5	1.3	1.3	1.1	0.5
Gray vireo	0.0	0.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Gilded flicker	11.5	3.7	0.4	2.4	4.9	3.2	1.4	0.5	1.3	1.3	1.1	0.4
Golden eagle	6.7	0.8	0.4	0.0	5.3	0.0	1.8	0.0	1.9	0.0	0.0	0.0
Le Conte's thrasher	4.1	0.0	0.1	0.0	6.9	0.0	2.1	0.0	4.2	0.0	0.0	0.0
Lucy's warbler	11.5	3.7	0.4	2.4	4.9	3.2	1.4	0.5	1.3	1.3	1.1	0.6
Marsh wren	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Mountain plover	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pacific wren	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3
Sage sparrow	4.1	0.0	0.1	0.2	6.9	2.1	2.1	1.7	4.2	3.8	1.5	1.0
Sage thrasher	4.1	0.0	0.1	0.2	6.9	2.1	2.1	1.7	4.2	1.1	1.0	0.0
Savannah sparrow	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sprague's pipit	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Virginia rail	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

SPECIES HABITAT	ALTERNATIVE ROUTE SEGMENT											
	in-01	cb-01	qn-01	cb-02	qn-02	cb-03	qs-01	cb-04	qs-02	cb-05	cb-06	cb-10
Western burrowing owl	0.0	2.9	0.0	2.4	0.0	3.4	0.0	0.5	0.0	1.2	1.1	0.5
Western least bittern	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Western yellow-billed cuckoo	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.3
Wood duck	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
American beaver	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5
Arizona myotis	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.2
California leaf-nosed bat	15.9	3.7	0.5	2.5	12.2	5.6	3.6	2.1	5.7	5.2	2.6	1.5
Arizona pocket mouse	6.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cave myotis	15.9	3.7	0.5	2.5	12.3	5.6	3.6	2.1	5.7	5.2	2.7	1.1
Colorado River cotton rat	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.9	2.5	1.7
Desert bighorn sheep	7.6	3.7	0.0	2.5	0.0	5.7	0.0	0.9	0.0	0.0	0.0	0.0
Greater Western mastiff bat	15.9	3.7	0.5	2.5	12.2	5.6	3.6	2.1	5.7	5.2	2.6	1.3

SPECIES HABITAT	ALTERNATIVE ROUTE SEGMENT											
	in-01	cb-01	qn-01	cb-02	qn-02	cb-03	qs-01	cb-04	qs-02	cb-05	cb-06	cb-10
Harquahala Southern pocket gopher	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Harris' antelope squirrel	15.9	3.7	0.5	2.5	12.3	5.6	3.6	2.1	5.7	5.2	2.7	1.6
Kit fox	15.9	3.7	0.5	2.5	12.3	5.6	3.6	2.1	5.7	5.2	2.7	1.4
Little pocket mouse	15.9	3.7	0.5	2.5	12.3	5.6	3.6	2.1	5.7	5.2	2.7	1.4
Mexican free-tailed bat	16.0	3.7	0.6	2.5	12.6	5.7	3.7	2.2	5.7	5.2	2.7	0.5
Pale Townsend's big-eared bat	16.0	3.7	0.6	2.5	12.4	5.7	3.7	2.1	5.7	5.2	2.7	1.6
Pocketed free-tailed bat	13.6	3.7	0.4	2.5	7.1	4.4	2.1	0.7	2.2	1.9	1.5	0.8
Spotted bat	4.1	0.0	0.2	0.2	7.2	2.3	2.1	1.7	4.1	3.8	1.6	1.3
Western red bat	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4
Western yellow bat	16.0	3.7	0.6	2.5	12.4	5.7	3.7	2.1	5.7	4.3	2.7	0.0
Yuma myotis	15.9	3.7	0.5	2.5	12.3	5.6	3.6	2.1	5.7	5.2	2.7	1.7

[a] Geographic Area: EP&K = East Plains and Kofa Zone, QTZ = Quartzsite Zone, CB = Copper Bottom Zone, CR&CA – Colorado River and California Zone

Table 3.4-13 Sonoran Desert Tortoise Habitat Intersected by Route Segments

SEGMENT	DISTANCE (MILES) OF INTERSECTED SONORAN DESERT TORTOISE HABITAT	
	CATEGORY 2	CATEGORY 3
East Plains and Kofa Zone [A]		
i-03	-	4.2
i-04	4.2	-
in-01	9.5	-
p-01	-	6.7
p-04	-	-
p-05	0.8	-
p-06	Not mapped [A]	Not mapped [A]
x-03	-	-
x-04	-	-
Quartzsite Zone		
p-09	-	2.6
x-05	-	-
qs-02	-	1.4
qn-02	-	2.9
Copper Bottom Zone		
cb-01	-	3.2
cb-02	-	2.2
cb-03	-	4.3
cb-04	-	1.9
cb-05	-	1.7
cb-06	-	1.9
i-06	-	7.1
i-07	-	1.0
x-08	-	1.3
p-10	-	1.2
p-11	-	4.0
p-12	-	2.7
p-13	-	0.3

[A] Sonoran desert tortoise habitat in the Kofa NWR is not mapped. Good-quality habitat is along parts of this route in the New Water Mountains and Livingston Hills.

Table 3.4-14 Special Status Wildlife Species (not including Federal ESA-listed species) that Could Occur within or near the Biological Study Area in California

SPECIES		STATUS DESIGNATION (CALIFORNIA/ BLM)	HABITAT
Amphibians			
Scaphiopus couchii	Couch's spadefoot	California: SSC BLM: Sensitive	Desert, arid, and semi-arid shrublands/chaparral, shortgrass plains, cropland/hedgerow, savanna. High potential to occur in and near ephemeral pools and agricultural areas in eastern portion of Project Area in California.
Bufo alvarius	Sonoran desert toad	California: SSC	Occurs in a variety of habitats including creosote bush desertscrub, grasslands, along major river corridors, and the edges of agriculture. Generally, within several miles of permanent or temporary water sources.
Reptiles (see Table 3.4-8 for federally listed reptiles)			
Uma scoparia	Mojave fringe-toed lizard	California: SSC BLM: Sensitive	Sparsely vegetated dunes, flats, riverbanks and washes with fine, loose sand. This species is common on sandy soils within the biological study area.
Kinosternon sonoriense	Sonoran mud turtle	California: SSC	Usually found in rocky streams, creeks, and rivers. It also inhabits ponds, cattle tanks, and ditches. Within study area, rare along lower Colorado River.
Fish – None (see Table 3.4-8 for federally listed fish)			
Mammals			
Taxidea taxus	American badger	California: SSC	Agricultural land, grassland, and other open areas and brush lands with sparse groundcover. This species has been detected near the study area.
Myotis occultus	Arizona myotis	California: SSC	Ponderosa pine and oak-pine woodland near water and wooded riparian areas in desert areas.
Macrotus californicus	California leaf-nosed bat	California: SSC BLM: Sensitive	Lowland desertscrub roosting in caves, abandoned mine tunnels and rock shelters in canyon walls.
Myotis velifer	Cave myotis	California: SSC BLM: Sensitive	Evergreen or pine-oak forest and pine forest at mid-high elevations and riparian habitats near desertscrub at lower elevations.
Sigmodon arizonae plenus	Colorado River cotton rat	California: SSC	Riparian thickets, dense grass cover, drier grassy areas. Likely rare or absent along Colorado River in study area.

SPECIES		STATUS DESIGNATION (CALIFORNIA/ BLM)	HABITAT
Felis concolor brownii	Yuma mountain lion	California: SSC	From mountains to valley bottoms where prey is abundant. Absent or very rare in study area.
Ovis canadensis nelson	Desert bighorn sheep	California: FP BLM: Sensitive BLM: Focus Species	Canyons, hills, and mountains in rough terrain throughout the southwestern US. There is no habitat for this species within the study area.
Antrozous pallidus	Pallid bat	California: SSC BLM: Sensitive	Deserts and grasslands, mostly near rocky outcrops and water. Roosts in rock crevices.
Nyctinomops femorosaccus	Pocketed free-tailed bat	California: SSC	Rocky canyons with outcroppings and high cliffs. Roosts in rock crevices and caves. Observed near shrubland, mixed tropical deciduous forest, and floodplains with sycamore and mesquite with nearby high cliffs.
Corynorhinus townsendii	Townsend's big-eared bat	California: SSC BLM: Sensitive	Near the entrance of caves, mine tunnels, and other well-ventilated areas. Night roosts can include caves as well as buildings and tree cavities. Potential foraging habitat exists along the Colorado River and in adjacent agricultural fields, and it is likely that this species is present in the area at least occasionally.
Lasiurus xanthinus	Western yellow bat	California: SSC	Roosts in trees, including woodland and riparian habitat.
Myotis yumanensis	Yuma myotis	BLM: Sensitive	Riparian, desertscrub, moist woodlands, and forests, typically near open water.
Birds (see Table 3.4-8 for federally listed birds)			
Vireo bellii arizonae	Arizona bell's vireo	California: Endangered BLM: Sensitive	Dense shrub vegetation in riparian areas, fields, woodlands, scrub oak, chaparral near water in arid regions. Could occur uncommonly within or near study area.
Toxostoma bendirei	Bendire's thrasher	California: SSC BLM: Sensitive BLM: Focus Species	Rare or uncommon during summer, dry and semi-arid washes and other areas containing shrubs, trees, and especially yucca. Unlikely to occur in study area.
Athene cunicularia	Burrowing owl	California: SSC BLM: Sensitive BLM: Focus Species	Open grasslands, savannas and plains. Occasionally in vacant lots. This species has been detected within the study area.

SPECIES		STATUS DESIGNATION (CALIFORNIA/ BLM)	HABITAT
Laterallus jamaicensis coturniculus	California black rail	California: Threatened BLM: Focus Species	Marshlands and very wet meadows. Rarely seen away from dense reeds, rushes, cordgrass, cattails and other emergent vegetation. Within Project Area, restricted to Colorado River.
Toxostoma crissale	Crissal thrasher	California: SSC	Microphyll woodland and riparian washes, mesquite woodlands, other dense scrub vegetation. Uncommon year-round resident in region.
Micrathene whitneyi	Elf owl	California: Endangered BLM: Sensitive	Riparian forests, desert, woodlands. No suitable habitat along California route segments, but could be present uncommonly in the surrounding area.
Melanerpes uropygialis	Gila woodpecker	California: Endangered BLM: Sensitive BLM: Focus Species	Arid lowland scrub, second-growth and montane scrub, deciduous forests, riparian woodlands. There is very little or no habitat for this species in the study area.
Colaptes chrysoides	Gilded flicker	California: Endangered BLM: Sensitive	Saguaro cactus or Joshua tree stands, riparian areas lined with cottonwood and willows in desert lowlands and foothills. There is very little or no habitat for this species in the study area.
Aquila chrysaetos	Golden eagle	California: Fully Protected Eagle Protection Act BLM: Sensitive BLM: Focus Species	Open areas, plains, and mountains throughout North America. This species is not known to nest or forage in the vicinity of the study area in California, and the Palo Verde Mesa offers low prey availability.
Grus canadensis tabida	Greater sandhill crane	California: Threatened BLM: Sensitive	Overwinters in agricultural fields and irrigated pastures and nearby shallow-water wetlands for roosting. Sandhill cranes, including possibly this subspecies, have been observed uncommonly in agricultural fields near Blythe.
Toxostoma lecontei	Le Conte's thrasher	California: SSC	Vegetated washes and desertscrub with saltbush, shadscale, cholla cacti, or other species suitable for nesting. This species has been detected within or near the study area.

SPECIES		STATUS DESIGNATION (CALIFORNIA/ BLM)	HABITAT
Asio otus	Long-eared owl	California: SSC	Uncommon to rare year-round resident in riparian and desert woodlands throughout deserts of southern California. There are no stands or riparian trees or large desert woodlands within the study area that would be suitable habitat for this species.
Lanius ludovicianus	Loggerhead shrike	California: SSC	Year-round resident in open habitats with scattered shrubs, trees, posts, fences, utility lines, or other perches. This species has been detected in or near the study area.
Charadrius montanus	Mountain plover	California: SSC BLM Sensitive	Winters in and near cultivated fields along lower Colorado River. Could occur uncommonly within and near cultivated fields.
Circus cyaneus	Northern harrier	California: SSC	Grasslands, flat areas, and hills with open habitat. This species has been detected within or near the study area.
Asio flammeus	Short-eared owl	California: SSC	Rare in open areas, fields, and wetlands. Unlikely to occur in study area.
Setophaga petechia sonorana	Sonora yellow warbler	California: SSC	Cottonwood, willow, and salt cedar riparian woodlands. Limited habitat within the study area.
Piranga rubra	Summer tanager	California: SSC	Summer resident in mature cottonwood riparian woodlands along Colorado River. Limited or no habitat within and near study area.
Buteo swainsoni	Swainson's hawk	California: Threatened BLM: Sensitive BLM: Focus Species	Plains and hills with open vegetation. This species is not expected to nest within or near the study area.
Pyrocephalus rubinus	Vermilion flycatcher	California: SSC	Cropland, cultivated lands, desert, shrubland, riparian woodlands near water. Could occur uncommonly near cultivated fields.
Icteria virens	Yellow-breasted chat	California: SSC	Summer resident in dense, early successional riparian woodlands and thickets with willows, salt cedar, vine tangles, and dense brush with well-developed understories and some overstory for perches.

SPECIES		STATUS DESIGNATION (CALIFORNIA/ BLM)	HABITAT
Xanthocephalus xanthocephalus	Yellow-headed blackbird	California: SSC	Freshwater wetlands with open water and dense, emergent vegetation. Foraging in fields and open cultivated areas. Could occur uncommonly along Colorado river and among agricultural fields.
Rallus obsoletus yumanensis	Yuma Ridgway's rail	California: Threatened BLM: Focus Species	Freshwater marshes with stands of bulrushes and cattails. Known to be present in wetlands in canals and drains adjacent to cultivated fields.
Invertebrates – None			

Notes: BLM = Bureau of Land Management; FP = Fully Protected; SSC = Species of Special Concern
BLM Focus species as designated under the DRECP LUPA

Table 3.4-15 Length of Special Status Wildlife Species Habitat Intersected by the Proposed Action Route Segments in California, in Miles, Based on DRECP Habitat Models

SPECIES HABITAT	PROPOSED ACTION SEGMENT			
	p-15w	p-16	p-17	p-18
Couch's spadefoot toad	6.6	4.7	3.0	2.4
Mojave fringe-toed lizard	0.0	2.7	3.0	2.4
Arizona Bell's vireo	0.0	0.0	0.0	0.0
Bendire's thrasher	0.0	0.0	0.1	2.4
Burrowing owl	6.6	4.7	1.9	0.0
California black rail	1.2	0.0	0.0	0.0
Elf owl	6.1	0.0	0.0	0.0
Gila woodpecker	0.0	0.0	0.0	0.0
Golden eagle	0.0	0.2	1.9	0.0
Greater sandhill crane	6.6	4.7	2.9	0.0
Le Conte's thrasher	0.0	2.7	3.0	2.4
Long-eared owl	6.6	4.7	3.0	2.4
Southwestern willow flycatcher	1.2	0.	0.0	0.0
Western yellow-billed cuckoo	6.1	0.0	0.0	0.0
Yuma Ridgway's rail	1.2	0.0	0.0	0.0
American badger	6.6	4.7	3.0	2.4
Desert bighorn sheep	0.0	0.2	1.9	0.0
California leaf-nosed bat	0.0	2.7	3.0	2.4
Desert kit fox	0.0	2.7	3.0	2.4
Mule deer	0.0	2.7	3.0	2.4
Pallid bat	0.0	2.7	3.0	2.4
Townsend's big-eared bat	0.0	2.7	3.0	2.4

Table 3.4-16 Length of Special Status Wildlife Species Habitat Intersected by Alternative Route Segments in California, in Miles, Based on DRECP Habitat Models

SPECIES HABITAT	ALTERNATIVE ROUTE SEGMENT													
	x-09	x-10	x-11	x-12	x-13	x-15	x-16	ca-01	ca-02	ca-04	ca-05	ca-06	ca-07	ca-09
Couch's spadefoot toad	0.5	1.4	1.4	2.1	1.3	2.2	1.7	2.1	3.6	3.5	0.8	6.6	2.6	1.4
Mojave fringe-toed lizard	0.0	0.00	1.4	0.8	1.3	2.2	1.7	0.0	0.5	3.5	0.0	0.6	2.6	1.4
Arizona Bell's vireo	0.5	1.4	0.0	0.0	0.0	0.0	0.0	1.2	1.1	0.0	0.8	1.1	0.0	0.0
Bendire's thrasher	0.0	0.0	0.0	0.0	0.0	0.0	1.4	0.0	0.0	0.1	0.0	0.0	0.0	0.0
Burrowing owl	0.5	1.4	1.4	2.1	1.3	2.2	1.5	2.1	3.6	0.9	0.8	6.6	2.6	0.1
California black rail	0.5	1.4	0.0	0.0	0.0	0.0	0.0	2.1	3.6	0.0	0.8	3.5	0.0	0.0
Elf owl	0.5	1.4	1.4	0.8	0.0	0.0	0.0	2.1	3.6	0.0	0.8	6.6	1.9	0.0
Gila woodpecker	0.5	1.4	0.0	0.0	0.0	0.0	0.0	1.2	1.1	0.0	0.8	1.1	0.0	0.0
Golden eagle	0.0	0.0	0.0	0.0	0.9	0.4	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Greater sandhill crane	0.5	1.4	1.4	2.1	1.3	2.2	1.7	2.1	3.6	3.4	0.8	6.6	2.6	1.4
Le Conte's thrasher	0.5	0.0	1.4	0.8	1.3	2.2	1.7	0.0	0.5	3.5	0.8	0.6	2.6	1.4
Long-eared owl	0.5	1.4	1.4	2.1	1.3	2.2	1.7	2.1	3.6	3.5	0.8	6.6	2.6	1.4
Southwestern willow flycatcher	0.5	1.4	0.0	0.0	0.0	0.0	0.0	2.1	1.1	0.0	0.8	1.1	0.0	0.0
Western yellow-billed cuckoo	0.5	1.4	0.0	0.0	0.0	0.0	0.0	2.1	3.6	0.0	0.8	6.0	0.0	0.0
Yuma Ridgway's rail	0.5	1.4	0.0	0.0	0.0	0.0	0.0	2.1	1.1	0.0	0.8	1.1	0.0	0.0
American badger	0.5	1.4	1.4	2.1	1.3	2.2	1.7	2.1	3.6	3.5	0.8	6.6	2.6	1.4
Desert bighorn sheep	0.0	0.0	0.0	0.0	0.0	0.4	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0

SPECIES HABITAT	ALTERNATIVE ROUTE SEGMENT													
	x-09	x-10	x-11	x-12	x-13	x-15	x-16	ca-01	ca-02	ca-04	ca-05	ca-06	ca-07	ca-09
California leaf-nosed bat	0.0	0.0	0.0	0.0	1.3	2.2	1.7	0.0	0.0	3.5	0.0	0.0	0.7	1.4
Desert kit fox	0.0	0.0	0.0	0.0	1.3	2.2	1.7	0.0	0.0	3.5	0.0	0.0	0.7	1.4
Mule deer	0.0	0.0	1.4	0.8	1.3	2.2	1.7	0.0	0.5	3.5	0.0	0.6	2.6	1.4
Pallid bat	0.0	0.0	0.0	0.0	1.3	2.2	1.7	0.0	0.0	3.5	0.0	0.0	0.7	1.4
Townsend’s big-eared bat	0.0	0.0	0.0	0.0	1.3	2.2	1.7	0.0	0.0	3.5	0.0	0.0	0.7	1.4

Table 3.4-17 Suitable Mojave Fringe-toed Lizard Habitat Intersected by Segment

SEGMENT	MILES OF SUITABLE MOJAVE FRINGE-TOED LIZARD HABITAT INTERSECTED
p-16	0
p-17	0
p-18	0.6
x-15	0.1
x-16	0
x-19	0.4
ca-02	0
ca-06	0
ca-07	1.1
ca-09	2.6

Table 3.4-18 Length of Wildlife Habitat Management Areas Crossed by Route Segments

WILDLIFE HABITAT MANAGEMENT AREA	ZONE	SEGMENT	LENGTH (MILES)
Belmont/Big Horn Mountains	East Plains and Kofa Zone	p-01	2.8
Havasu Habitat Management Area	East Plains and Kofa Zone	in-01	7.5
Palomas Plain	East Plains and Kofa Zone	d-01	7.4
		i-01	8.3
		i-02	3.3
		i-03	8.7
		p-01	0.4
		p-02	1.1
		p-03	2.1
		p-04	5.5
		p-05	2.0
		p-06	10.2
		x-01	7.9
		x-02	6.7
		x-03	5.6
		x-04	10.8
Wildlife Movement Corridors	East Plains and Kofa Zone	i-04	2.8
		in-01	1.2
		p-06	0.6
	Quartzsite	p-07	2.1
		p-08	0.7
		p-09	3.9
		x-05	4.0
		x-06	4.0
		x-07	3.5
	Copper Bottom	i-06	1.3
		i-07	0.2
		x-08	0.8

WILDLIFE HABITAT MANAGEMENT AREA	ZONE	SEGMENT	LENGTH (MILES)
Desert Mountains	East Plains and Kofa Zone	d-01	4.2
		i-03	3.0
		i-04	8.3
		in-01	1.9
		p-04	2.1
		p-05	1.1
		x-04	1.7
	Quartzsite	p-08	0.4
		p-09	6.7
		qn-02	1.7
		qs-02	0.2
		x-07	0.3
	Copper Bottom	cb-01	3.2
		cb-02	2.2
		cb-03	2.4
		cb-04	1.0
		cb-05	1.1
		i-06	4.0
		p-10	1.2
		p-11	4.0
		p-12	1.0
Lower Colorado and Gila River Riparian Area	Copper Bottom	cb-10	0.7
		p-15e	0.9
	Colorado River and California	ca-04	0.3
		i-08s	0.2
		p-15w	0.1
		x-11	0.1

3.2.3 Cultural Resources

Table 3.5-1 Cultural Sites per NRHP Eligibility by Site Type in Arizona (All Segments, 1-Mile-Wide Corridor)

ELIGIBILITY[1]	HISTORIC	PREHISTORIC	MULTI COMPONENT	UNKNOWN CHRONOLOGY	TOTAL
NRHP-listed	0	0	0	0	0
Determined eligible	1	2	0	10	13
Recommended eligible	5	6	0	33	44
Determined ineligible	0	0	0	11	11
Recommended ineligible	0	0	0	0	0
Unevaluated/ Unknown	19	158	2	357	536
Total	25	166	2	411	604

[1]Recommended= recorder's opinion. Determined=agency determination.

Table 3.5-2 Cultural Sites per NRHP Eligibilities by Site Types in California (All Segments, 1-Mile-Wide Corridor)

ELIGIBILITY[1]	HISTORIC	PREHISTORIC	MULTI COMPONENT	UNKNOWN CHRONOLOGY	TOTAL
NRHP-listed	0	0	0	0	0
Determined eligible	0	4	3	0	7
Recommended eligible	0	2	3	0	5
Determined ineligible	106	36	16	0	158
Recommended ineligible	0	0	0	0	0
Unevaluated/ Unknown	64	64	13	1	142
Total	170	106	35	1	312

[1]Recommended= recorder's opinion. Determined=agency determination.

3.2.4 Concerns of Indian Tribes

See Chapter 3.

3.2.5 Land Use

See Chatper 3.

3.2.6 Recreation

See Chatper 3.

3.2.7 Socioeconomics

Table 3.9-1 Population in the Socioeconomics Study Area and the Block Group Study Area

AREA	2000[1]	2010	2014	ABSOLUTE CHANGE (2010–2014)	% CHANGE (2010–2014)
United States	281,421,906	308,745,538	314,107,084	5,361,546	1.7
Arizona	5,130,632	6,392,017	6,561,516	169,499	2.7
California	33,871,648	37,253,956	38,066,920	812,964	2.2
La Paz County, AZ	19,715	20,489	20,348	–141	–0.7
Maricopa County, AZ	3,072,149	3,817,117	3,947,382	130,265	3.4
Riverside County, CA	1,545,387	2,189,641	2,266,899	77,258	3.5
Socioeconomic Study Area Total	4,637,251	6,027,247	6,234,629	207,382	3.4
Block Group Study Area Total	N/A	21,913	21,710	–203	–0.9
La Paz County, Arizona Block Group Total	—	9,956	9,674	-282	-2.8
Block Group 3, Census Tract 201	—	1,411	1,266	–145	–10.3
Block Group 1, Census Tract 205.01	—	991	1,218	227	22.9
Block Group 2, Census Tract 205.01	—	993	703	–290	–29.2
Block Group 1, Census Tract 205.02	—	1,338	1,360	22	1.6

AREA	2000[1]	2010	2014	ABSOLUTE CHANGE (2010–2014)	% CHANGE (2010–2014)
Block Group 2, Census Tract 205.02	—	1,659	1,257	–402	–24.2
Block Group 3, Census Tract 205.02	—	1,391	1,673	282	20.3
Block Group 1, Census Tract 206.02	—	1,072	633	–439	–41.0
Block Group 2, Census Tract 206.02	—	669	703	34	5.1
Block Group 2, Census Tract 9403	—	432	861	429	99.3
Block Group 1, Census Tract 9800	—	0	0	0	N/A
Maricopa County, Arizona Block Group Total	—	4,536	3,867	-669	-14.7
Block Group 1, Census Tract 506.03	—	1,116	868	–248	–22.2
Block Group 2, Census Tract 506.03	—	2,888	2,382	–506	–17.5
Block Group 3, Census Tract 506.03	—	532	617	85	16.0
Riverside County, California Block Group Total	—	7,421	8,169	748	10.1
Block Group 1, Census Tract 459	—	994	884	–110	–11.1
Block Group 2, Census Tract 459	—	844	693	–151	–17.9
Block Group 2, Census Tract 462	—	1,791	2,197	406	22.7
Block Group 1, Census Tract 469	—	2,043	2,684	641	31.4
Block Group 1, Census Tract 470	—	653	823	170	26.0
Block Group 2, Census Tract 470	—	1,096	888	–208	–19.0

Table 3.9-2 Trends in Population Age Distribution by Age Groups in the Socioeconomics Study Area and the Block Group Study Area

AREA	2010 TOTALS				2014 TOTALS				2014 SHARE OF POPULATION (%)			
	17 YEARS AND YOUNGER	18 TO 44 YEARS	45 TO 64 YEARS	65 AND OLDER	17 YEARS AND YOUNGER	18 TO 44 YEARS	45 TO 64 YEARS	65 AND OLDER	17 YEARS AND YOUNGER	18 TO 44 YEARS	45 TO 64 YEARS	65 AND OLDER
United States	74,181,467	112,806,642	81,489,445	40,267,984	73,777,658	114,306,519	82,844,946	43,177,961	23.5	36.4	26.4	13.7
Arizona	1,629,014	2,312,398	1,568,774	881,831	1,620,492	2,360,674	1,605,863	974,487	24.7	36.0	24.5	14.9
California	9,295,040	14,423,538	9,288,864	4,246,514	9,212,288	14,677,650	9,559,075	4,617,907	24.2	38.6	25.1	12.1
La Paz County, AZ	3,678	4,422	5,706	6,683	3,557	4,427	5,363	7,001	17.5	21.8	26.4	34.4
Maricopa County, AZ	1,007,861	1,444,341	902,274	462,641	1,011,479	1,477,926	944,441	513,536	25.6	37.4	23.9	13.0
Riverside County, CA	620,108	804,470	506,477	258,586	616,767	834,712	532,732	282,688	27.2	36.8	23.5	12.5
Block Group Study Area Total	4,798	5,207	5,940	5,968	4,078	5,305	6,009	6,318	18.8	24.4	27.7	29.1
La Paz County, Arizona Block Group Total	1,125	1,435	2,750	4,646	1,141	1,301	2,356	4,876	11.8	13.4	24.4	50.4

AREA	2010 TOTALS				2014 TOTALS				2014 SHARE OF POPULATION (%)			
	17 YEARS AND YOUNGER	18 TO 44 YEARS	45 TO 64 YEARS	65 AND OLDER	17 YEARS AND YOUNGER	18 TO 44 YEARS	45 TO 64 YEARS	65 AND OLDER	17 YEARS AND YOUNGER	18 TO 44 YEARS	45 TO 64 YEARS	65 AND OLDER
Block Group 3, Census Tract 201	172	182	356	701	253	118	251	644	20.0	9.3	19.8	50.9
Block Group 1, Census Tract 205.01	89	87	277	538	252	258	128	580	20.7	21.2	10.5	47.6
Block Group 2, Census Tract 205.01	75	84	312	522	73	67	276	287	10.4	9.5	39.3	40.8
Block Group 1, Census Tract 205.02	89	116	374	759	0	0	402	958	0.0	0.0	29.6	70.4
Block Group 2, Census Tract 205.02	106	145	377	1,031	0	0	89	1,168	0.0	0.0	7.1	92.9

AREA	2010 TOTALS				2014 TOTALS				2014 SHARE OF POPULATION (%)			
	17 YEARS AND YOUNGER	18 TO 44 YEARS	45 TO 64 YEARS	65 AND OLDER	17 YEARS AND YOUNGER	18 TO 44 YEARS	45 TO 64 YEARS	65 AND OLDER	17 YEARS AND YOUNGER	18 TO 44 YEARS	45 TO 64 YEARS	65 AND OLDER
Block Group 3, Census Tract 205.02	102	161	387	741	3	192	461	1,017	0.2	11.5	27.6	60.8
Block Group 1, Census Tract 206.02	245	336	325	166	164	182	219	68	25.9	28.8	34.6	10.7
Block Group 2, Census Tract 206.02	122	169	238	140	138	109	353	103	19.6	15.5	50.2	14.7
Block Group 2, Census Tract 9403	125	155	104	48	258	375	177	51	30.0	43.6	20.6	5.9
Block Group 1, Census Tract 9800	0	0	0	0	0	0	0	0	N/A	N/A	N/A	N/A

AREA	2010 TOTALS				2014 TOTALS				2014 SHARE OF POPULATION (%)			
	17 YEARS AND YOUNGER	18 TO 44 YEARS	45 TO 64 YEARS	65 AND OLDER	17 YEARS AND YOUNGER	18 TO 44 YEARS	45 TO 64 YEARS	65 AND OLDER	17 YEARS AND YOUNGER	18 TO 44 YEARS	45 TO 64 YEARS	65 AND OLDER
Maricopa County, Arizona Block Group Total	1,396	1,436	1,292	412	785	1,345	1,249	488	20.3	34.8	32.3	12.6
Block Group 1, Census Tract 506.03	380	375	278	83	194	284	307	83	22.4	32.7	35.4	9.6
Block Group 2, Census Tract 506.03	836	867	900	285	393	831	838	320	16.5	34.9	35.2	13.4
Block Group 3, Census Tract 506.03	180	194	114	44	198	230	104	85	32.1	37.3	16.9	13.8
Riverside County, California Block Group Total	2,277	2,336	1,898	910	2,152	2,659	2,404	954	26.3	32.5	29.4	11.7

AREA	2010 TOTALS				2014 TOTALS				2014 SHARE OF POPULATION (%)			
	17 YEARS AND YOUNGER	18 TO 44 YEARS	45 TO 64 YEARS	65 AND OLDER	17 YEARS AND YOUNGER	18 TO 44 YEARS	45 TO 64 YEARS	65 AND OLDER	17 YEARS AND YOUNGER	18 TO 44 YEARS	45 TO 64 YEARS	65 AND OLDER
Block Group 1, Census Tract 459	328	303	267	96	275	239	273	97	31.1	27.0	30.9	11.0
Block Group 2, Census Tract 459	300	257	197	90	198	237	136	122	28.6	34.2	19.6	17.6
Block Group 2, Census Tract 462	612	615	384	180	683	698	727	89	31.1	31.8	33.1	4.1
Block Group 1, Census Tract 469	550	653	545	295	517	1,072	722	373	19.3	39.9	26.9	13.9
Block Group 1, Census Tract 470	209	197	155	92	233	234	278	78	28.3	28.4	33.8	9.5
Block Group 2, Census Tract 470	278	311	350	157	246	179	268	195	27.7	20.2	30.2	22.0

Sources: Calculated using data from 2010 Census Data and 2014 American Community Survey 5-year estimates.

Table 3.9-3 Number of Housing Units in the Socioeconomics Study Area and the Block Group Study Area

AREA	2000[1]	2010	2014	ABSOLUTE CHANGE (2010–2014)	% CHANGE (2010–2014)
United States	115,904,641	131,704,954	132,741,033	1,036,079	0.8
Arizona	2,189,189	2,844,526	2,874,548	30,022	1.1
California	12,214,549	13,680,081	13,781,929	101,848	0.7
La Paz County, AZ	15,133	16,049	16,113	64	0.4
Maricopa County, AZ	1,250,231	1,639,279	1,657,753	18,474	1.1
Riverside County, CA	584,674	800,707	810,426	9,719	1.2
Socioeconomics Study Area Total	1,850,038	2,456,035	2,484,292	28,257	1.2
Block Group Study Area Total	—	14,238	13,750	–488	–3.4
La Paz County, Arizona					
Block Group 3, Census Tract 201	—	1,127	967	–160	–14.2
Block Group 1, Census Tract 205.01	—	1,096	698	–398	–36.3
Block Group 2, Census Tract 205.01	—	824	672	–152	–18.4
Block Group 1, Census Tract 205.02	—	1,197	1,179	–18	–1.5
Block Group 2, Census Tract 205.02	—	1,541	1,419	–122	–7.9
Block Group 3, Census Tract 205.02	—	1,344	1,516	172	12.8
Block Group 1, Census Tract 206.02	—	692	580	–112	–16.2
Block Group 2, Census Tract 206.02	—	573	564	–9	–1.6
Block Group 2, Census Tract 9403	—	185	348	163	88.1
Block Group 1, Census Tract 9800	—	0	0	0	N/A
Maricopa County, Arizona					
Block Group 1, Census Tract 506.03	—	465	422	–43	–9.2
Block Group 2, Census Tract 506.03	—	1,369	1,235	–134	–9.8
Block Group 3, Census Tract 506.03	—	227	249	22	9.7
Riverside County, California					
Block Group 1, Census Tract 459	—	413	449	36	8.7
Block Group 2, Census Tract 459	—	375	380	5	1.3
Block Group 2, Census Tract 462	—	659	652	–7	–1.1
Block Group 1, Census Tract 469	—	1,161	1,391	230	19.8

AREA	2000[1]	2010	2014	ABSOLUTE CHANGE (2010–2014)	% CHANGE (2010–2014)
Block Group 1, Census Tract 470	—	379	469	90	23.7
Block Group 2, Census Tract 470	—	611	560	–51	–8.3

Source: US Census Bureau, 2000 Decennial Census, 2010 Decennial Census, and 2014 American Community Survey 5-year estimates. Note that the margin of error is not included in the 2014 estimates.

[1]Note that due to changes in population, new census tracts and block groups were created between the 2000 and 2010 Census and thus the block group information is excluded for 2000.

Table 3.9-4 Number of Households in the Socioeconomics Study Area and the Block Group Study Area

AREA	2000[1]	2010	2014	ABSOLUTE CHANGE (2010–2014)	% CHANGE (2010–2014)
United States	105,480,101	116,716,467	116,211,092	–505,375	–0.4
Arizona	1,901,327	2,380,990	2,387,246	6,256	0.3
California	11,502,870	12,577,498	12,617,280	39,782	0.3
La Paz County, AZ	8,362	9,198	9,707	509	5.5
Maricopa County, AZ	1,132,886	1,411,583	1,424,244	12,661	0.9
Riverside County, CA	506,218	686,260	690,388	4,128	0.6
Socioeconomics Study Area Total	1,647,466	2,107,041	2,124,339	17,298	0.8
Block Group Study Area Total		9,159	8,972	–187	–2.0
La Paz County, Arizona					
Block Group 3, Census Tract 201		684	535	–149	–21.8
Block Group 1, Census Tract 205.01		518	560	42	8.1
Block Group 2, Census Tract 205.01		541	376	–165	–30.5
Block Group 1, Census Tract 205.02		712	775	63	8.8
Block Group 2, Census Tract 205.02		894	836	–58	–6.5
Block Group 3, Census Tract 205.02		797	1,089	292	36.6

AREA	2000[1]	2010	2014	ABSOLUTE CHANGE (2010–2014)	% CHANGE (2010–2014)
Block Group 1, Census Tract 206.02		467	253	–214	–45.8
Block Group 2, Census Tract 206.02		309	318	9	2.9
Block Group 2, Census Tract 9403		151	304	153	101.3
Block Group 1, Census Tract 9800		0	0	0	N/A
Maricopa County, Arizona					
Block Group 1, Census Tract 506.03		342	315	–27	–7.9
Block Group 2, Census Tract 506.03		987	849	–138	–14.0
Block Group 3, Census Tract 506.03		163	199	36	22.1
Riverside County, California					
Block Group 1, Census Tract 459		342	317	–25	–7.3
Block Group 2, Census Tract 459		276	284	8	2.9
Block Group 2, Census Tract 462		584	624	40	6.8
Block Group 1, Census Tract 469		732	710	–22	–3.0
Block Group 1, Census Tract 470		238	280	42	17.6
Block Group 2, Census Tract 470		422	348	–74	–17.5

Source: US Census Bureau, American Community Survey.

[1]Note that due to changes in population, new census tracts and block groups were created between the 2000 and 2010 Census and thus the block group information is excluded for 2000.

Table 3.9-5 Average Ownership Residential Property Value in the Socioeconomics Study Area

YEAR	LA PAZ COUNTY	MARICOPA COUNTY	RIVERSIDE COUNTY	UNITED STATES
2007	$85,500	$248,800	$395,100	$181,800
2010	$100,000	$238,600	$325,300	$188,400
2014	$81,800	$175,600	$236,400	$175,700
Change 2007–2014 (%)	–4.3	–29.4	–40.2	–3.4

Source: US Census Bureau, American Community Survey (3-year and 5-year estimates).

Table 3.9-6 Total Employment in the Socioeconomics Study Area

YEAR	MARICOPA COUNTY	LA PAZ COUNTY	RIVERSIDE COUNTY	COUNTY TOTAL	ARIZONA	CALIFORNIA	UNITED STATES
2001	1,908,689	7,084	677,205	2,592,978	2,840,781	19,411,367	165,519,200
2002	1,923,026	7,192	711,097	2,641,315	2,861,339	19,437,490	165,159,100
2003	1,971,000	7,326	740,535	2,718,861	2,934,459	19,573,490	166,026,500
2004	2,056,808	7,722	790,461	2,854,991	3,063,915	19,876,899	169,036,700
2005	2,189,317	7,914	836,426	3,033,657	3,238,928	20,255,748	172,557,400
2006	2,303,682	8,099	873,513	3,185,294	3,401,000	20,644,868	176,123,600
2007	2,357,669	8,173	884,695	3,250,537	3,494,178	21,040,405	179,885,700
2008	2,323,252	7,882	866,135	3,197,269	3,434,174	20,818,920	179,639,900
2009	2,196,712	7,448	824,279	3,028,439	3,264,077	20,038,208	174,233,700
2010	2,152,299	7,429	814,349	2,974,077	3,208,325	19,803,742	173,034,700
2011	2,206,171	7,576	844,458	3,058,205	3,268,482	20,172,087	176,278,700
2012	2,248,357	7,896	869,508	3,125,761	3,322,733	20,850,443	179,081,700
2013	2,311,453	7,857	903,859	3,223,169	3,398,932	21,496,020	182,390,100
2014	2,362,912	7,898	941,386	3,312,196	3,461,581	22,040,057	185,798,800
Absolute Change 2001–2014	454,223	814	264,181	719,218	620,800	2,628,690	20,279,600
% Change 2001–2014	23.8	11.5	39.0	27.7	21.9	13.5	12.3

Source: Employment by place of work (Bureau of Economic Analysis 2016).

Table 3.9-7 Unemployment Rate (%) in the Socioeconomics Study Area

YEAR	MARICOPA COUNTY	LA PAZ COUNTY	RIVERSIDE COUNTY	ARIZONA	CALIFORNIA	UNITED STATES
2000	3.2	6.3	5.4	4.0	4.9	4.0
2001	4.2	6.7	5.5	4.8	5.4	4.7
2002	5.6	6.9	6.4	6.1	6.7	5.8
2003	5.2	7.1	6.5	5.7	6.8	6.0
2004	4.4	6.7	6.0	5.0	6.2	5.5
2005	4.0	6.8	5.4	4.7	5.4	5.1
2006	3.6	5.8	5.0	4.2	4.9	4.6
2007	3.3	5.1	6.0	3.9	5.4	4.6
2008	5.4	7.7	8.6	6.2	7.3	5.8
2009	9.1	9.9	13.1	9.9	11.2	9.3
2010	9.5	10.2	13.8	10.4	12.2	9.6
2011	8.6	9.8	13.2	9.5	11.7	8.9
2012	7.3	8.6	11.6	8.3	10.4	8.1
2013	6.6	8.2	9.9	7.7	8.9	7.4
2014	5.8	7.6	8.2	6.8	7.5	6.2
2015	5.2	7.6	6.7	6.1	6.2	5.3

Source: Local Area Unemployment Statistics (Bureau of Labor Statistics 2016)

Table 3.9-8 Total Employment by Industry in the Socioeconomics Study Area and Percent Change from 2001 to 2014

INDUSTRY	MARICOPA COUNTY			LA PAZ COUNTY			RIVERSIDE COUNTY			COUNTY AREA TOTAL			ARIZONA			CALIFORNIA			UNITED STATES		
	2001	2014	CHANGE (%)	2001	2014	CHANGE (%)	2001	2014	CHANGE (%)	2001	2014	CHANGE (%)	2001	2014	CHANGE (%)	2001	2014	CHANGE (%)	2001	2014	CHANGE (%)
Farm Employment	8,529	6,615	-22.4	344	314	-8.7	11,960	7,634	-36.2	20,833	14,563	-30.1	22,274	31,102	39.6	289,195	243,247	-15.9	3,060,000	2,643,000	-13.6
Nonfarm Employment	1,900,160	2,356,297	24.0	6,994	7,584	8.4	665,245	933,752	40.4	2,572,399	3,297,633	28.2	2,818,507	3,430,479	21.7	19,122,172	21,796,810	14.0	162,459,200	183,155,800	12.7
Private Nonfarm Employment	1,704,578	2,130,888	25.0	4,659	5,188	11.4	562,543	807,517	435.	2,271,780	2,943,593	29.6	2,421,325	2,985,670	23.3	16,508,016	19,180,182	16.2	139,308,200	159,125,800	14.2
Forestry, Fishing, and Related Activities	2,876	2,571	-10.6	(D)	458	N/A	8,932	7,025	-21.4	11,808	10,054	-14.9	18,088	15,492	-14.4	190,088	239,317	25.9	801,500	937,000	16.9
Mining, Quarrying, and Oil and Gas Extraction	3,193	8,248	158.3	(D)	257	N/A	1,029	2,173	111.2	4,222	10,678	152.9	12,888	23,762	84.4	38,070	74,205	94.9	808,400	1,692,000	109.3
Utilities	7,617	7,886	3.5	(D)	(D)	N/A	1,467	1,713	16.8	9,084	9,599	5.7	11,239	12,352	9.9	56,349	60,497	7.4	615,800	582,400	-5.4
Construction	150,723	126,364	-16.2	214	(D)	N/A	69,756	71,017	1.8	220,693	197,381	-10.6	214,198	177,409	-17.2	1,063,005	1,009,359	-5.0	9,816,700	9,610,400	-2.1
Manufacturing	155,861	122,598	-21.3	270	198	-26.7	54,775	46,827	-14.5	210,906	169,623	-19.6	210,914	170,847	-19.0	1,868,376	1,386,726	-25.8	16,921,600	12,993,400	-23.2
Wholesale Trade	85,215	85,817	0.7	128	(D)	N/A	18,493	29,751	60.9	103,836	115,568	11.3	105,127	107,369	2.1	728,229	797,591	9.5	6,233,400	6,419,700	3.0
Retail Trade	215,560	256,466	19.0	1,283	1,277	-0.5	81,254	110,062	35.5	298,097	367,805	23.4	324,514	377,982	16.5	1,954,160	2,037,193	4.2	18,257,800	18,710,900	2.5
Transportation and Warehousing	60,976	74,103	21.5	(D)	234	N/A	16,522	38,198	131.2	77,498	112,535	45.2	81,295	101,125	24.4	575,725	668,898	16.2	5,480,000	6,225,000	13.6
Information	47,301	42,131	-10.9	56	85	51.8	8,382	9,064	8.1	55,739	51,280	-8.0	62,299	54,809	-12.0	629,498	549,517	-12.7	4,047,800	3,302,000	-18.4
Finance and Insurance	126,353	179,595	42.1	71	105	47.9	20,262	34,072	68.2	146,686	213,772	45.7	151,154	216,841	43.5	856,686	1,018,599	18.9	7,800,600	9,833,100	26.1
Real Estate and Rental and Leasing	96,927	164,130	69.3	356	309	-13.2	32,800	61,106	86.3	130,083	225,545	73.4	138,630	221,120	59.5	825,776	1,245,909	50.9	5,548,400	8,135,100	46.6
Professional, Scientific, and Technical Services	123,731	160,720	29.9	152	(D)	N/A	28,428	44,869	57.8	152,311	205,589	35.0	166,130	216,827	30.5	1,529,401	1,894,820	23.9	10,271,800	12,822,700	24.8
Management of Companies and Enterprises	18,513	29,936	61.7	0	0	0.0	3,819	3,712	-2.8	22,332	33,648	50.7	22,669	34,839	53.7	297,056	243,062	-18.2	1,789,300	2,336,000	30.6
Administrative and Support and Waste Management and Remediation Services	183,599	217,119	18.3	159	210	32.1	43,648	72,721	66.6	227,406	290,050	27.5	234,265	285,219	21.8	1,232,861	1,456,983	18.2	9,603,500	11,734,900	22.2
Educational Services	22,070	54,792	148.3	(D)	(D)	N/A	6,350	12,015	89.2	28,420	66,807	135.1	32,121	73,887	130.0	322,246	497,758	54.5	3,011,300	4,439,000	47.4
Health Care and Social Assistance	142,412	249,742	75.4	(D)	(D)	N/A	54,924	99,359	80.9	197,336	349,101	76.9	228,350	373,099	63.4	1,512,057	2,418,291	59.9	15,253,400	20,832,900	36.6
Arts, Entertainment, and Recreation	34,899	51,917	48.8	(D)	(D)	N/A	14,945	20,801	39.2	49,844	72,718	45.9	53,903	74,922	39.0	458,087	603,203	31.7	3,165,100	4,149,400	31.1

INDUSTRY	MARICOPA COUNTY			LA PAZ COUNTY			RIVERSIDE COUNTY			COUNTY AREA TOTAL			ARIZONA			CALIFORNIA			UNITED STATES		
	2001	2014	CHANGE (%)	2001	2014	CHANGE (%)	2001	2014	CHANGE (%)	2001	2014	CHANGE (%)	2001	2014	CHANGE (%)	2001	2014	CHANGE (%)	2001	2014	CHANGE (%)
Accommodation and Food Services	136,587	175,327	28.4	(D)	(D)	N/A	52,469	75,650	44.2	189,056	250,977	32.8	213,261	264,398	24.0	1,247,563	1,601,752	28.4	10,806,200	13,476,300	24.7
Other Services (except Public Administration)	90,165	121,426	34.7	(D)	326	N/A	44,288	67,382	52.1	134,453	189,134	40.7	140,280	183,371	30.7	1,122,783	1,376,502	22.6	9,075,600	10,893,600	20.0
Government and Government Enterprises	195,582	225,409	15.3	2,335	2,396	2.6	102,702	126,235	22.9	300,619	354,040	17.8	397,182	444,809	12.0	2,614,156	2,616,628	0.1	23,151,000	24,030,000	3.8
Total Employment	1,908,689	2,362,912	23.8	7,338	7,898	7.6	677,205	941,386	39.0	2,593,232	3,312,196	27.7	2,840,781	3,461,581	21.9	19,411,367	22,040,057	13.5	165,519,200	185,798,800	12.3

(D) Not shown to avoid disclosure of confidential information, but the estimates for this item are included in the totals.
Note that industry-specific county area total values exclude the non-disclosed values.

Source: Employment by Industry data (Bureau of Economic Analysis 2016).

Table 3.9-9 Average Per-capita Personal Income in the Socioeconomics Study Area ($)

YEAR	MARICOPA COUNTY	LA PAZ COUNTY	RIVERSIDE COUNTY	ARIZONA	CALIFORNIA	UNITED STATES
2001	30,422	17,732	25,483	27,220	34,091	31,540
2002	30,708	17,820	26,054	27,590	34,306	31,815
2003	31,520	18,787	27,111	28,446	35,381	32,692
2004	33,363	20,434	28,404	30,222	37,244	34,316
2005	35,743	21,583	29,599	32,429	39,046	35,904
2006	38,754	22,338	31,203	34,848	41,693	38,144
2007	39,803	24,620	31,586	35,929	43,182	39,821
2008	39,406	25,017	31,497	36,077	43,786	41,082
2009	36,966	24,635	29,869	34,063	41,588	39,376
2010	37,318	24,872	29,753	34,185	42,411	40,277
2011	39,024	27,553	31,073	35,675	44,852	42,453
2012	40,424	28,344	31,879	36,788	47,614	44,266
2013	40,003	28,255	32,503	36,723	48,125	44,438
2014	41,222	29,219	33,590	37,895	49,985	46,049

Source: CA4 Personal Income and Employment by Major Component (BEA 2016).

Table 3.9-10 Average Composition (%) of Per-capita Personal Income in the Socioeconomics Study Area

AREA	2001			2014		
	EARNINGS	DIVIDENDS, INTEREST, AND RENT	TRANSFER PAYMENTS	EARNINGS	DIVIDENDS, INTEREST, AND RENT	TRANSFER PAYMENTS
United States	68.4	18.3	13.3	64.2	18.5	17.2
Arizona	67.3	19.2	13.5	61.4	18.2	20.4
California	70.2	18.3	11.5	64.8	20.1	15.1
La Paz County, AZ	53.1	20.1	26.8	44.7	18.9	36.4
Maricopa County, AZ	71.4	17.9	10.7	65.6	17.6	16.8
Riverside County, CA	66.6	18.1	15.3	64.4	15.7	19.9

Source: Calculated based on personal income data (BEA 2016).

Table 3.9-11 Sales Tax Revenues Distributed by State Governments to Cities and Counties in the Socioeconomics Study Area (Millions $)

YEAR	TOTAL CITY AND COUNTY DISTRIBUTIONS			MUNICIPAL DISTRIBUTIONS	
	LA PAZ COUNTY	MARICOPA COUNTY	RIVERSIDE COUNTY	QUARTZSITE, AZ	BLYTHE, CA
2006	2.8	760.5	223.0	0.4	1.4
2007	2.7	810.2	224.0	0.3	1.5
2008	2.6	783.8	212.5	0.3	1.4
2009	2.3	676.1	183.7	0.3	1.3
2010	2.1	621.8	167.8	0.3	1.1
2011	2.2	649.0	178.7	0.3	1.2
2012	2.5	674.9	196.4	0.3	1.2
2013	2.7	706.2	216.4	0.3	1.5
2014	2.9	754.4	229.1	0.3	1.4
2015	2.8	796.7	242.8	0.3	1.5

Sources: Arizona: Compiled from Annual Reports (Arizona Department of Revenue 2016). California: Research and statistics page (California Board of Equalization 2016).

Notes: The reports are for fiscal year and aligned to calendar year (2006 represents FY2005–2006). The municipal distributions are a subset of the total for each county, collected by the state on behalf of the municipality and distributed on a weekly basis. No other municipalities in the block group study area received municipal distributions.

Table 3.9-12 Property Tax Revenues in the Socioeconomics Study Area (Millions $)

YEAR	MARICOPA COUNTY	LA PAZ COUNTY	RIVERSIDE COUNTY
2006	3,646.2	16.8	1,826.8
2007	3,981.4	16.9	2,210.2
2008	4,271.1	17.7	2,575.1
2009	4,567.4	19.5	2,627.1
2010	4,401.1	19.7	2,333.8
2011	4,120.6	21.4	2,404.4
2012	4,019.7	21.7	2,258.1
2013	3,995.2	21.8	2,437.3
2014	4,223.1	22.3	2,437.3
2015	4,319.4	22.3	2,635.3

Source: Arizona: Compiled from Annual Reports (Arizona Department of Revenue 2016). California: California Board of Equalization, research and statistics page. For Arizona counties, the reported tax revenues represent the sum of primary and secondary tax revenues as reported in annual reports of the Department of Revenue.

Table 3.9-13 Total Assessed Property Value in the Socioeconomics Study Area (Millions $)

YEAR	MARICOPA COUNTY	LA PAZ COUNTY	RIVERSIDE COUNTY
2006	36,294.7	172.1	164,667.2
2007	49,534.6	200.1	202,526.9
2008	58,303.6	235.1	236,147.7
2009	57,984.1	244.8	239,053.8
2010	49,708.0	245.1	213,500.7
2011	38,760.3	241.4	203,842.1
2012	34,400.5	235.0	199,947.7
2013	32,229.0	224.6	199,947.7
2014	35,079.6	210.7	224,081.1
2015	34,623.7	201.8	224,081.1

Source: Arizona: Compiled from Annual Reports (Arizona Department of Revenue 2016). California: California Board of Equalization, research and statistics page.

Table 3.9-14 Payments in Lieu of Taxes for the Counties in the Socioeconomics Study Area, 2000-2016

YEAR	LA PAZ COUNTY		MARICOPA COUNTY		RIVERSIDE COUNTY	
	ACRES	AMOUNT ($M)	ACRES	AMOUNT ($M)	ACRES	AMOUNT ($M)
2000	1,849,673	0.5	2,299,643	1.0	2,526,533	1.0
2001	1,849,608	0.8	2,299,602	1.5	2,526,041	1.5
2002	1,848,542	0.9	2,299,624	1.5	2,531,559	1.6
2003	1,849,012	1.0	2,307,190	1.7	2,539,871	1.8
2004	1,842,767	1.0	2,456,262	1.8	2,337,931	1.8
2005	1,842,767	1.1	2,458,021	1.8	2,337,255	1.9
2006	1,842,767	1.1	2,457,360	1.9	2,337,025	1.9
2007	1,829,124	1.1	2,457,368	1.8	2,336,944	1.9
2008	1,829,162	1.7	2,456,838	2.9	2,341,522	3.0
2009	1,831,900	1.7	2,440,166	3.0	2,382,390	3.1
2010	1,831,900	1.8	2,440,166	2.7	2,386,342	3.1
2011	1,857,761	1.8	2,441,551	2.7	2,393,259	3.2
2012	1,857,761	1.8	2,441,551	2.8	2,397,320	3.2
2013	1,852,047	1.8	2,441,551	2.8	2,401,623	3.1
2014	1,848,763	1.9	2,434,825	3.0	2,381,909	3.3
2015	1,848,763	1.9	2,434,825	3.0	2,383,212	3.3

YEAR	LA PAZ COUNTY		MARICOPA COUNTY		RIVERSIDE COUNTY	
	ACRES	AMOUNT ($M)	ACRES	AMOUNT ($M)	ACRES	AMOUNT ($M)
2016	1,848,763	1.9	2,434,825	3.1	2,389,185	3.3
Total, all years	$23,901,066		$38,964,309		$42,154,831	
2016 dollars per acre	$1.05		$1.25		$1.40	

Source: Payment in Lieu of Taxes (DOI 2016)

Table 3.9-15 Tourism-related Visitor Spending and Tax Revenues in the Socioeconomics Study Area, 2014

CATEGORY	LA PAZ COUNTY	MARICOPA COUNTY	RIVERSIDE COUNTY
Visitor Spending, $ Millions	$137.4	$9,500.0	$6,600.0
Visitor Spending per County Resident, $	$6,792	$2,324	$2,834
Total Tourism-related Tax Collected, $ Millions	$10.3	$946.1	$557.6
Tax Distribution as Percentage of Total Sales Tax Collected, %	27.7	79.7	41.1

Source: Based on Interactive County Travel Impacts Reports (Arizona Office of Tourism 2016) and Interactive County Travel Impact Reports (Visit California 2016).

Table 3.9-16 Direct Employment in Tourism-related Industries in the Socioeconomics Study Area, 2014

INDUSTRY	LA PAZ COUNTY	MARICOPA COUNTY	RIVERSIDE COUNTY
Accommodation and Food Services	702	44,800	43,700
Arts, Entertainments, and Recreation	504	18,900	18,700
Retail	173	13,900	6,800
Other Travel	6	7,300	1,800
Ground Transportation	0	6,200	1,500
Visitor Air Transportation	0	3,100	300
Total Tourism-related Jobs	1,385	94,200	72,800
Share of County Employment (%)	17.5	4.0	7.7

Source: Based on Interactive County Travel Impacts Reports (Arizona Office of Tourism 2016) and Interactive County Travel Impact Reports (Visit California 2016).

3.2.8 Environmental Justice

Table 3.10-1 Total Population and Minority Population in the Environmental Justice Study Area

GEOGRAPHY	TOTAL POPULATION [a]	WHITE (NON-HISPANIC)	MINORITY POPULATION					
			BLACK OR AFRICAN-AMERICAN (NON-HISPANIC)	AMERICAN INDIAN AND ALASKA NATIVE (NON-HISPANIC)	ASIAN (NON-HISPANIC)	OTHER RACE CATEGORY (NON-HISPANIC)[b]	HISPANIC OR LATINO	% MINORITY
Environmental Justice Comparison Area								
EJ Comparison Area (sum of the three counties)	6,234,629	3,162,273	326,451	73,736	277,135	153,870	2,241,164	49.3%
States								
Arizona	6,561,516	3,734,853	257,620	262,626	186,451	142,940	1,977,026	43.1%
California	38,066,920	14,905,601	2,155,929	145,736	5,062,736	1,262,469	14,534,449	60.8%
Counties								
Maricopa County, Arizona	3,947,382	2,281,134	192,604	60,987	142,261	89,296	1,181,100	42.2%
La Paz County, Arizona	20,348	12,396	49	2,513	140	213	5,037	39.1 %
Riverside County, California	2,266,899	868,743	133,798	10,236	134,734	64,361	1,055,027	58.8%
Cities and Designated Places								
Parker CCD, La Paz County, Arizona	20,348	12,396	49	2,513	140	213	5,037	39.1%
Buckeye CCD, Maricopa County, Arizona	64,761	34,542	3,427	1,237	979	1,112	23,464	46.7%

GEOGRAPHY	TOTAL POPULATION [a]	WHITE (NON-HISPANIC)	MINORITY POPULATION					
			BLACK OR AFRICAN-AMERICAN (NON-HISPANIC)	AMERICAN INDIAN AND ALASKA NATIVE (NON-HISPANIC)	ASIAN (NON-HISPANIC)	OTHER RACE CATEGORY (NON-HISPANIC) [b]	HISPANIC OR LATINO	% MINORITY
Blythe CCD, Riverside County, California	15,779	4,976	1,367	0	283	79	9,074	68.5%
Chuckwalla Valley CCD, Riverside County, California	9,056	2,109	1,764	157	165	354	4,507	76.7%
Brenda CDP, Arizona	416	402	0	0	0	0	14	3.4%
Ehrenberg CDP, Arizona	1,017	824	0	0	13	0	180	19.0%
La Paz Valley CDP, Arizona	644	601	0	16	0	0	27	6.7%
Quartzsite town, Arizona CDP	3,646	3,496	0	3	0	0	147	4.1%
Vicksburg CDP, Arizona	1,025	644	0	0	0	15	366	37.2%
Blythe City, California CDP	20,101	5,657	2,741	123	424	320	10,836	71.9%
Mesa Verde CDP, California	1,004	285	85	5	0	17	612	71.6%
Ripley CDP, California	659	33	6	0	0	0	620	95.0%
Block Group Data La Paz County, Arizona								
Block Group 3, Census Tract 201	1,266	923	0	0	0	0	343	27.1%

GEOGRAPHY	TOTAL POPULATION [a]	WHITE (NON-HISPANIC)	MINORITY POPULATION					
			BLACK OR AFRICAN-AMERICAN (NON-HISPANIC)	AMERICAN INDIAN AND ALASKA NATIVE (NON-HISPANIC)	ASIAN (NON-HISPANIC)	OTHER RACE CATEGORY (NON-HISPANIC) [b]	HISPANIC OR LATINO	% MINORITY
Block Group 1, Census Tract 205.01	1,218	831	0	0	0	15	372	31.8%
Block Group 2, Census Tract 205.01	703	621	0	0	10	0	72	11.7%
Block Group 1, Census Tract 205.02	1,360	1,230	0	0	0	0	130	9.6%
Block Group 2, Census Tract 205.02	1,257	1,214	0	16	0	0	27	3.4%
Block Group 3, Census Tract 205.02	1,673	1,653	0	3	0	0	17	1.2%
Block Group 1, Census Tract 206.02	633	440	0	0	13	0	180	30.5%
Block Group 2, Census Tract 206.02	703	647	0	0	10	0	46	8.0%
Block Group 2, Census Tract 9403	861	17	0	228	65	14	537	98.0%
Block Group 1, Census Tract 9800	0	0	0	0	0	0	0	N/A
Block Group Data, Maricopa County, Arizona								
Block Group 1, Census Tract 506.03	868	648	0	13	0	7	200	25.3%
Block Group 2, Census Tract 506.03	2,382	1,541	11	25	0	0	805	35.3%

GEOGRAPHY	TOTAL POPULATION [a]	WHITE (NON-HISPANIC)	MINORITY POPULATION					
			BLACK OR AFRICAN-AMERICAN (NON-HISPANIC)	AMERICAN INDIAN AND ALASKA NATIVE (NON-HISPANIC)	ASIAN (NON-HISPANIC)	OTHER RACE CATEGORY (NON-HISPANIC)[b]	HISPANIC OR LATINO	% MINORITY
Block Group 3, Census Tract 506.03	617	231	0	12	0	0	374	62.6%
Block Group Data, Riverside County, California								
Block Group 1, Census Tract 459	884	383	18	0	0	0	483	56.7%
Block Group 2, Census Tract 459	693	45	6	0	0	0	642	93.5%
Block Group 2, Census Tract 462	2,197	193	443	0	0	9	1,552	91.2%
Block Group 1, Census Tract 469	2,684	899	384	14	41	97	1,249	66.5%
Block Group 1, Census Tract 470	823	422	103	0	0	0	298	48.7%
Block Group 2, Census Tract 470	888	615	0	0	41	16	216	30.7%

Source: US Census Bureau ACS 5-year Estimates, 2010–2014: Table B03002

Notes: CCD = census county division, CDP = census designated place, EJ = environmental justice

[a] Total population figures will differ for minority and low-income population tables because some individuals are not counted within the income population.

[b] The "Other Race Category" includes non-Hispanic residents identified as Native Hawaiian and other Pacific Islander, some other race, or two or more races.

Table 3.10-2 Total Population and Percentage Living Below Poverty Level

GEOGRAPHY	TOTAL POPULATION (FOR POVERTY ESTIMATES)[a]	POPULATION BELOW POVERTY LEVEL (%)
Environmental Justice Comparison Area		
EJ Comparison Area (sum of the three counties)	6,148,443	17.0%
States		
Arizona	6,411,354	18.2%
California	37,323,127	16.4%
Counties		
La Paz County, Arizona	20,108	18.4%
Maricopa County, Arizona	3,895,963	17.1%
Riverside County, California	2,232,372	16.9%
Cities and Designated Places		
Parker CCD, La Paz County, Arizona	20,108	18.4%
Buckeye CCD, Maricopa County, Arizona	64,291	17.0%
Blythe CCD, Riverside County, California	15,510	24.3%
Chuckwalla Valley CCD, Riverside County, California	2,000	19.2%
Brenda CDP, Arizona	416	14.2%
Ehrenberg CDP, Arizona	1,017	18.4%
La Paz Valley CDP, Arizona	644	11.5%
Quartzsite town CDP, Arizona	3,643	9.6%
Vicksburg CDP, Arizona	1,025	14.6%
City of Blythe CDP, California	13,653	23.2%
Mesa Verde CDP, California	1,004	24.6%
Ripley CDP, California	659	33.7%
Maricopa County, Arizona		
Block Group 1, Census Tract 506.03	868	14.6%
Block Group 2, Census Tract 506.03	2,382	13.3%
Block Group 3, Census Tract 506.03	617	32.9%

GEOGRAPHY	TOTAL POPULATION (FOR POVERTY ESTIMATES)[a]	POPULATION BELOW POVERTY LEVEL (%)
La Paz County, Arizona		
Block Group 3, Census Tract 201	1,266	21.1%
Block Group 1, Census Tract 205.01	1,218	15.6%
Block Group 2, Census Tract 205.01	703	15.4%
Block Group 1, Census Tract 205.02	1,360	7.1%
Block Group 2, Census Tract 205.02	1,257	5.9%
Block Group 3, Census Tract 205.02	1,670	15.1%
Block Group 1, Census Tract 206.02	633	15.6%
Block Group 2, Census Tract 206.02	703	18.1%
Block Group 2, Census Tract 9403	861	16.5%
Block Group 1, Census Tract 9800	0	Not applicable
Riverside, California		
Block Group 1, Census Tract 459	884	13.9%
Block Group 2, Census Tract 459	693	33.3%
Block Group 2, Census Tract 462	2,152	39.6%
Block Group 1, Census Tract 469	1,852	20.1%
Block Group 1, Census Tract 470	823	12.0%
Block Group 2, Census Tract 470	888	28.9%

Source: US Census Bureau American Community Survey 5-year Estimates, 2010–2014: Table C17002
Notes: CCD = census county division, CDP = census designated place, EJ = environmental justice
[a] Total population figures will differ for minority and low-income population tables because some individuals are not counted within the income population data.

Table 3.10-3 Block Groups with Populations Greater than the Environmental Justice Comparison Area Minority and Low-income Population Percentages

BLOCK GROUP	PROPOSED SEGMENT IN BLOCK GROUP	ALTERNATIVE SEGMENT IN BLOCK GROUP	MINORITY POPULATION (%)	POPULATION BELOW POVERTY LEVEL (%)
Maricopa County, Arizona				
Block Group 3, Census Tract 506.03	None	None	62.6	32.9
La Paz County, Arizona				
Block Group 3, Census Tract 201	p-01 to p-06	d-01, x-01 to x-04, i-01 to i-05	27.1	21.1
Block Group 2, Census Tract 206.02	p-10 to p-15c	x-08, i-06, i-07, i-08s, cb-01 to cb-6, cb-10	8.0	18.1
Block Group 2, Census Tract 9403	None	i-06, cb-03	98.0	16.5
Riverside County, California				
Block Group 1, Census Tract 459	None	x-12, x-13, x-15, x-16, ca-01, ca-02, ca-05	56.7	13.9
Block Group 2, Census Tract 459	p-15w, p-16	x-13	93.5	33.3
Block Group 2, Census Tract 462	None	ca-05	91.2	39.6
Block Group 1, Census Tract 469	p-17, p-18	x-15, x-16, x-19, ca-07, ca-09	66.5	20.1
Block Group 2, Census Tract 470	None	None	30.7	28.9

Source: 2014 American Community Survey, 5-year Estimates, Tables B03002 and C17002

Note: Shading indicates the population meets the criteria of an EJ population. Block groups with EJ populations are identified as those with minority populations greater than 49.3 percent or low-income populations greater than 17 percent.

3.2.9 Visual Resources

Table 3.11-1 KOPS, Segments, and Applicable Planning Area(s) by Zone

KOP	KOP NAME	SEGMENTS VIEWED	APPLICABLE PLANNING AREA(S)
EAST PLAINS AND KOFA ZONE			
1	Saddle Mountain Trailhead	p-01, d-01	Maricopa County, La Paz County, Tonopah/Arlington Area Plan
2	Salome Road South	p-01, d-01	Maricopa County, La Paz County, Tonopah/Arlington Area Plan
3	I-10 Crossing East	p-01	Maricopa County, La Paz County, Tonopah/Arlington Area Plan
5	Private Residence	d-01	Maricopa County, La Paz County, Tonopah/Arlington Area Plan
6	Salome Road North	p-01	Maricopa County, La Paz County, Tonopah/Arlington Area Plan
7	Snowbird West RV Park	p-01	Maricopa County, La Paz County, Tonopah/Arlington Area Plan
8	I-10 Crossing West	p-01, p-02, p-03, i-01, x-01, x-02	Maricopa County, La Paz County, Tonopah/Arlington Area Plan
9	Eagletail Mountains (Courthouse Rock)	d-01	Maricopa County, La Paz County, Tonopah/Arlington Area Plan
10	Palomas – Harquahala Road	p-04, p-05, x-03	La Paz County
11	Intersection of AT&T and Connector Road	x-03, i-02	La Paz County
12	Hovatter Road	x-04	La Paz County
59	I-10 West Crossing Eastbound	i-01, i-02, i-03, x-03, x-01, p-02, p-03, p-04	La Paz County
60	I-10 Eastbound On-ramp at Hovatter Road	i-03, i-04, x-04, in-01	La Paz County
62	I-10 Westbound South of Brenda	Alt SCS	La Paz County
63	I-10 Eastbound South of Brenda	Alt SCS	La Paz County
QUARTZSITE ZONE			
13	Kofa Wayside/Vicksburg Road	p-06	La Paz County
14	Kofa #1	p-06	La Paz County
15a	Kofa #2 – Wilbanks Road	p-06	La Paz County
15b	Kofa East Pinch Point	p-06	La Paz County
16	Kofa #3	p-06	La Paz County

KOP	KOP NAME	SEGMENTS VIEWED	APPLICABLE PLANNING AREA(S)
17	I-10 Rest Area East	i-03, x-04	La Paz County
18	I-10 Westbound	i-03, x-04	La Paz County
19	Brenda RV Park	i-04, in-01	La Paz County
20	Gold Nugget Road	i-04, in-01	La Paz County
21	Mitchell Mine Road Residence	x-05	La Paz County
22	BLM Long Term Visitor Area (LTVA) #1	x-06, x-05	La Paz County, Town of Quartzsite
23	BLM LTVA #2	x-06, x-05, x-07	La Paz County, Town of Quartzsite
24	RV Park Quartzsite	qs-01	Town of Quartzsite
26	Quartzsite Civic Event Parcel	qs-02	La Paz County, Town of Quartzsite
27	Boyer Road – Quartzsite North Side	qn-02	La Paz County, Town of Quartzsite
28	Highway 95 LTVA	x-07	La Paz County, Town of Quartzsite
29	Highway 95 Crossing	x-06, x-05, p-07, p-08, p-09	La Paz County, Town of Quartzsite
61	I-10 Eastbound West of Quartzsite	Qs-01, qs-02, i-06, qn-02, x-07	La Paz County, Town of Quartzsite
COPPER BOTTOM ZONE			
30	Copper Bottom Pass Road #1	p-09, p-10	La Paz County
32	Copper Canyon	p-10	La Paz County
33	Johnson Canyon	cb-02	La Paz County
34	Copper Bottom Alternatives Intersection	cb-01, cb-02, cb-04	La Paz County
35	Copper Bottom Pass Road #2	p-11, cb-03	La Paz County
36	Dome Rock Mountains	cb-04, cb-06	La Paz County
37	Ehrenberg-Cibola Road	p-13, cb-05	La Paz County
38	Ehrenberg Wash	p-12, cb-06, cb-05	La Paz County
39	I-10 Hilltop	i-06	La Paz County
40	I-10 Rest Area West	i-07, p-13	La Paz County
COLORADO RIVER AND CALIFORNIA ZONE			
41	Colorado River Crossing	i-08s, ca-04	N/A
42	Colorado River Corridor	x-10, x-11	La Paz County, Palo Verde Valley Area Plan, City of Blythe, Colorado River Corridor Plan

KOP	KOP NAME	SEGMENTS VIEWED	APPLICABLE PLANNING AREA(S)
43	Riviera Drive, West Side of Colorado River	x-10, ca-01	La Paz County, Palo Verde Valley Area Plan, City of Blythe, Colorado River Corridor Plan
44	Oxbow Road Colorado River Crossing	cb-10, x-11, p-15e/w	La Paz County, Riverside County, Palo Verde Valley Area Plan
45	McIntyre County Park	p-15e/w	La Paz County, Riverside County, Palo Verde Valley Area Plan
46	Confidential		
47	Appleby Elementary School	ca-05, ca-01	Riverside County, Palo Verde Valley Area Plan, City of Blythe
48	Miller Park	ca-05, ca-01	Riverside County, Palo Verde Valley Area Plan, City of Blythe
49	Intersection of Seeley and Lovekin	ca-05, ca-06, ca-01, p-15	Riverside County, Palo Verde Valley Area Plan, City of Blythe
50	18th Avenue Houses	p-15w, ca-01, ca-05	Riverside County, Palo Verde Valley Area Plan
51	Lovekin Private Residence	p-15w, ca-01	Riverside County, Palo Verde Valley Area Plan, City of Blythe
52	Intersection of I-10 and Neighbours Boulevard	ca-05, ca-06, ca-01, p-15, p-16	Riverside County, Palo Verde Valley Area Plan
53	Ripley	p-15, p-16, x-12, x-13	Riverside County, Palo Verde Valley Area Plan
54	Mesa Verde Community	ca-07	Riverside County, Palo Verde Valley Area Plan
55	I-10 Communication Site	ca-09, p-17	Riverside County, Palo Verde Valley Area Plan
56	I-10 North of Colorado River Substation	ca-09, p-18	La Paz County, Riverside County, Palo Verde Valley Area Plan
57	Confidential		

Notes: I-10 = Interstate 10, KOP = key observation point, LTVA = long-term visitor area, RV = recreational vehicle

Table 3.11-2 Segment Summary for the East Plains and Kofa Zone

SEGMENT	SCENIC QUALITY	SENSITIVITY	DISTANCE ZONE	VRI CLASS	VRM CLASS
PROPOSED ACTION					
p-01	B	Moderate, Low, and High	Foreground-middleground	II / IV	III
p-02	N/A	N/A	N/A	N/A	N/A
p-03	C	Moderate	Foreground-middleground	IV	III
p-04	C	Moderate and High	Foreground-middleground	III, IV	III
p-05	A	High and Low	Foreground-middleground	II, III	III
p-06	C	Low	Foreground-middleground	III, IV	III
ALTERNATIVE SEGMENTS					
d-01	C	Moderate	Foreground-middleground	IV / IV	III
i-01	C	Moderate	Foreground-middleground	IV	III
i-02	C	Moderate	Foreground-middleground	IV	III
i-03	C & B	Moderate	Foreground-middleground	III, IV	III
i-04	B & C	High	Foreground-middleground, Seldom seen	II, III	III
in-01	C & B	High	Foreground-middleground	II, III	III
x-01	C	Moderate	Foreground-middleground	IV	II & III
x-02	C	Moderate	Foreground-middleground	IV	II & III
x-03	C	Moderate and High	Foreground-middleground	III, IV	III
x-04	C	Moderate and Low	Foreground-middleground	IV	III

Segment d-01 falls within the Yuma planning area and the Lower Sonoran planning area. Values for VRI and VRM classes are presented as follows: "Yuma class / Lower Sonoran class." Scenic quality and visual sensitivity values were only available for the Yuma planning area.

Scenic Quality categories: A = High, B = Medium, C = Low

VRI classes: I = areas where the current management situation requires maintaining a natural environment essentially unaltered by man, II/III/IV = based on combinations of scenic quality, sensitivity levels, and distance zones as displayed in Table 3.11-2.

VRM classes: I = Objective is to preserve the existing character of the landscape. Provides for natural ecological changes; but does not preclude very limited management activity. The level of change to the characteristic landscape should be very low and must not attract attention.

II = Objective is to retain the existing character of the landscape. Level of change to the characteristic landscape should be low. Management activities may be seen, but should not attract attention of the casual observer. Changes must repeat the basic elements found in the predominant natural features of the characteristic landscape.
III = Objective is to partially retain existing character of the landscape. Level of change to the characteristic landscape should be moderate. Management activities may attract attention, but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape.
IV = Objective is to provide for management activities which require major modification of the existing character of the landscape. The level of change to the characteristic landscape can be high. Management activities may dominate the view and be the major focus of viewer attention. Any action necessary to prevent unnecessary and undue degradation to the land is to be taken, such as, but not limited to, careful location, minimal disturbance, and repeating the basic elements.
Notes: If more than one value applies to a segment, both values are provided showing the value with the highest proportion of the segment first
N/A indicates that the segment does not lie on BLM land or that a value was not applied to that segment by the BLM.

Table 3.11-3 Segment Summary for the Quartzsite Zone

SEGMENT	SCENIC QUALITY	SENSITIVITY	DISTANCE ZONE	VRI CLASS	VRM CLASS
PROPOSED ACTION					
p-07	C	High	Foreground-middleground	III	III
p-08	C	High	Foreground-middleground	III	III
ALTERNATIVE SEGMENTS					
i-05	C	High	Foreground-middleground	III	III
qn-01	C	High	Foreground-middleground	III	III
qn-02	C and B	High	Foreground-middleground	III & II	III & IV
qs-01	C	High	Foreground-middleground	III	III
qs-02	B and C	High	Foreground-middleground	II & III	III & IV
x-05	C and B	High	Foreground-middleground	III	III & II
x-06	C	High	Foreground-middleground	III	III, IV, & II
x-07	C	High	Foreground-middleground	III	III

Scenic Quality categories: A = High, B = Medium, C = Low

VRI classes: I = areas where the current management situation requires maintaining a natural environment essentially unaltered by man, II/III/IV = based on combinations of scenic quality, sensitivity levels, and distance zones as displayed in Table 3.11-3.

VRM classes: I = Objective is to preserve the existing character of the landscape. Provides for natural ecological changes; but does not preclude very limited management activity. The level of change to the characteristic landscape should be very low and must not attract attention.

II = Objective is to retain the existing character of the landscape. Level of change to the characteristic landscape should be low. Management activities may be seen, but should not attract attention of the casual observer. Changes must repeat the basic elements found in the predominant natural features of the characteristic landscape.

III = Objective is to partially retain existing character of the landscape. Level of change to the characteristic landscape should be moderate. Management activities may attract attention, but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape.

IV = Objective is to provide for management activities which require major modification of the existing character of the landscape. The level of change to the characteristic landscape can be high. Management activities may dominate the view and be the major focus of viewer attention. Any action necessary to prevent unnecessary and undue degradation to the land is to be taken, such as, but not limited to, careful location, minimal disturbance, and repeating the basic elements.

Notes: If more than one value applies to a segment, both values are provided showing the value with the highest proportion of the segment first.

N/A indicates that the segment does not lie on BLM land or that a value was not applied to that segment by the BLM.

Table 3.11-4 Segment Summary for the Copper Bottom Zone

SEGMENT	SCENIC QUALITY	SENSITIVITY	DISTANCE ZONE	VRI CLASS	VRM CLASS
PROPOSED ACTION					
p-09	C & B	High	Foreground-middleground	II, III	III
p-10	B	High	Foreground-middleground	II	III
p-11	B	High	Foreground-middleground and Seldom Seen	II, III	III
p-12	C & B	Moderate and High	Foreground-middleground and Seldom Seen	II, III, IV	III
p-13	C	Moderate	Foreground-middleground and Seldom Seen	IV	III
p-14	C	Moderate	Foreground-middleground and Seldom Seen,	IV	III
ALTERNATIVE SEGMENTS					
cb-01	B	High	Foreground-middleground	II	II, III
cb-02	B	High	Foreground-middleground and Seldom Seen	II, III	II, III
cb-03	B	High	Foreground-middleground and Seldom Seen,	II	III
cb-04	B	High and Moderate	Foreground-middleground and Seldom Seen,	II, III, IV	II & III
cb-05	B & C	Moderate	Foreground-middleground and Seldom Seen,	III, IV	II & III
cb-06	C & B	Moderate	Foreground-middleground,	IV	III

SEGMENT	SCENIC QUALITY	SENSITIVITY	DISTANCE ZONE	VRI CLASS	VRM CLASS
i-06	B & C	High	Foreground-middleground,	II, III	III
i-07	N/A	N/A	N/A	IV	N/A
x-08	N/A	N/A	N/A	IV	N/A

Scenic Quality categories: A = High, B = Medium, C = Low

VRI classes: I = areas where the current management situation requires maintaining a natural environment essentially unaltered by man, II/III/IV = based on combinations of scenic quality, sensitivity levels, and distance zones as displayed in Table 3.11-4.

VRM classes: I = Objective is to preserve the existing character of the landscape. Provides for natural ecological changes; but does not preclude very limited management activity. The level of change to the characteristic landscape should be very low and must not attract attention.

II = Objective is to retain the existing character of the landscape. Level of change to the characteristic landscape should be low. Management activities may be seen, but should not attract attention of the casual observer. Changes must repeat the basic elements found in the predominant natural features of the characteristic landscape.

III = Objective is to partially retain existing character of the landscape. Level of change to the characteristic landscape should be moderate. Management activities may attract attention, but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape.

IV = Objective is to provide for management activities which require major modification of the existing character of the landscape. The level of change to the characteristic landscape can be high. Management activities may dominate the view and be the major focus of viewer attention. Any action necessary to prevent unnecessary and undue degradation to the land is to be taken, such as, but not limited to, careful location, minimal disturbance, and repeating the basic elements.

Notes: If more than one value applies to a segment, both values are provided showing the value with the highest proportion of the segment first.

N/A indicates that the segment does not lie on BLM land or that a value was not applied to that segment by the BLM.

Table 3.11-5 Segment Summary for the Colorado River and California Zone

SEGMENT	SCENIC QUALITY	SENSITIVITY	DISTANCE ZONE	VRI CLASS	VRM CLASS
PROPOSED ACTION					
p-15e	C and A	Moderate & High	Foreground-middleground	II, IV	III
p-15w	N/A	N/A	N/A	III	N/A
p-16	B	High	N/A	II	N/A
p-17	B	High	Foreground-middleground	II	III, IV
p-18	B	High	Foreground-middleground	II	IV
ALTERNATIVE SEGMENTS					
ca-01	N/A	N/A	N/A	III	N/A
ca-02	B	High	Foreground-middleground	II	IV
ca-04	N/A	N/A	N/A	II, III	N/A
ca-05	N/A	N/A	N/A	III	N/A
ca-06	B	High	Foreground-middleground	II	IV
ca-07	B	High	Foreground-middleground	II	IV
ca-09	B	High	Foreground-middleground	II	IV
cb-10	B	High	Foreground-middleground	II, IV	III
i-08s	N/A	N/A	N/A	II, III, IV	N/A
x-09	N/A	N/A	N/A	III	N/A
x-10	N/A	N/A	N/A	III	N/A
x-11	N/A	N/A	N/A	II, III	N/A
x-12	N/A	N/A	N/A	N/A	N/A
x-13	N/A	N/A	N/A	N/A	N/A
x-15	B	High	Foreground-middleground	II	IV
x-16	B	High	Foreground-middleground	II	IV
x-19	B	High	Foreground-middleground	II	IV

Scenic Quality categories: A = High, B = Medium, C = Low

VRI classes: I = areas where the current management situation requires maintaining a natural environment essentially unaltered by man, II/III/IV = based on combinations of scenic quality, sensitivity levels, and distance zones as displayed in Table 3.11-5.

VRM classes: I = Objective is to preserve the existing character of the landscape. Provides for natural ecological changes; but does not preclude very limited management activity. The level of change to the characteristic landscape should be very low and must not attract attention.

II = Objective is to retain the existing character of the landscape. Level of change to the characteristic landscape should be low. Management activities may be seen, but should not attract attention of the casual observer. Changes must repeat the basic elements found in the predominant natural features of the characteristic landscape.

III = Objective is to partially retain existing character of the landscape. Level of change to the characteristic landscape should be moderate. Management activities may attract attention, but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape.
IV = Objective is to provide for management activities which require major modification of the existing character of the landscape. The level of change to the characteristic landscape can be high. Management activities may dominate the view and be the major focus of viewer attention. Any action necessary to prevent unnecessary and undue degradation to the land is to be taken, such as, but not limited to, careful location, minimal disturbance, and repeating the basic elements.
Notes: If more than one value applies to a segment, the highest or most conservative value was applied.
N/A indicates that the segment does not lie on BLM land or that a value was not applied to that segment by the BLM.

3.2.10 Past, Present, and Reasonably Foreseeable Future Projects

Table 3.12-1 BLM Authorized and Other Known Projects

MAP ID # (FIG. 3.12-1) / ZONE	NAME	COUNTY	PROJECT STATUS	TYPE	DESCRIPTION	2-MILE CEA	5-MILE CEA	AQ OR SOCIO CEA
1 All zones	Devers-Palo Verde No. 1 and 2 Transmission Project	Maricopa, La Paz, and Riverside	active	transmission line	Facility Owner/Developer: Southern California Edison Acreage/Mileage and Land Ownership: approximately 230 miles through BLM, USFWS, state, and private lands Technology Type: two parallel 500kV transmission lines Expansion Construction Schedule and/or Permitting Milestones: n/a General Overview: two parallel existing 500kV transmission lines extending from the Palo Verde Nuclear Generating Station and Harquahala Generating Station in Maricopa County, Arizona to the Devers Substation in Riverside County, California; No. 1 was completed in 1982 and No. 2 was completed in 2013.	X	X	X
2 EP&K zone	Harquahala Power Plant	Maricopa	active	power plant	Facility Owner/Developer: Talen Energy Corporation Acreage/Mileage and Land Ownership: approximately 120 acres of private lands Technology Type: three-unit 1,092 MW combined cycle, natural gas–fired plant General Overview: three-unit 1,092 MW combined cycle, natural gas–fired plant built in 2004 and purchased from Mach Gen LLC by Talen Energy Corp. in 2015.	X	X	X
28 EP&K zone	Red hawk	Maricopa	active	power plant	Facility Owner/Developer: Arizona Public Service Co. Technology Type: 1,140 MW combined cycle, natural gas–fired plant			X

MAP ID # (FIG. 3.12-1) / ZONE	NAME	COUNTY	PROJECT STATUS	TYPE	DESCRIPTION	2-MILE CEA	5-MILE CEA	AQ OR SOCIO CEA
29 EP&K zone	Mesquite Generating Station Block 2	Maricopa	active	power plant	Facility Owner/Developer: CAMS Technology Type: 692 MW combined cycle, natural gas–fired plant			X
30 EP&K zone	Arlington Valley Energy Facility	Maricopa	active	power plant	Facility Owner/Developer: Arlington Valley LLC Technology Type: 580 MW combined cycle, natural gas–fired plant			X
31 EP&K zone	Palo Verde	Maricopa	active	power plant	Facility Owner/Developer: APS Technology Type: 3,937 MW nuclear plant			X
QTZ zone	WAPA	Yuma and La Paz	active	transmission line	Technology type: 161-kV transmission line General Overview: transmission line originating at the Parker Dam hydroelectric facility heading south past Quartzsite to the Kofa substation on the YPG.	X	X	X
4 All zones	El Paso Natural Gas Pipeline System	Maricopa and La Paz	active	interstate natural gas pipeline	Facility Owner/Developer: Kinder Morgan, Inc. Acreage and Land Ownership: 10,200 miles on unknown land Technology Type: 5.65 billion cubic feet per day capacity natural gas pipeline General Overview: approximately 10,200-mile El Paso Natural Gas Pipeline System transports natural gas from the San Juan, Permian and Anadarko basins to California, Arizona, Nevada, New Mexico, Oklahoma, Texas, and northern Mexico.	X	X	X

MAP ID # (FIG. 3.12-1) / ZONE	NAME	COUNTY	PROJECT STATUS	TYPE	DESCRIPTION	2-MILE CEA	5-MILE CEA	AQ OR SOCIO CEA
7 EP&K zone	Sonoran Pronghorn 10-J Release	La Paz	active	wildlife reintroduction program	Facility Owner/Developer: USFWS Acreage and Land Ownership: 0.5 square-mile (320 acres) captive breeding pen in King Valley of the USFWS Kofa NWR General Overview: this final rule sets in motion the reintroduction of Sonoran pronghorns to establish up to two new populations as envisioned by the recovery plan; the final rule includes provisions to construct a captive breeding and release facility in King Valley on the Kofa NWR in La Paz County, Arizona.	X	X	X
32 EP&K zone	Plomosa Mine Quarry	La Paz	active	mine	Facility Owner/Developer: Pioneer Landscaping Materials Acreage and Land Ownership: 28.7 acres of BLM-administered lands Technology Type: open pit mining via drilling and blasting. General Overview: Mined materials (quartz-based decorative rock) are crushed, screened, and stockpiled. Approximately 5 to 10, 25-ton truck loads of crushed rock per day transported off site (125-250 tons per day). On rare occasions, up to 30 trucks may be transporting material off site.	X	X	X

MAP ID # (FIG. 3.12-1) / ZONE	NAME	COUNTY	PROJECT STATUS	TYPE	DESCRIPTION	2-MILE CEA	5-MILE CEA	AQ OR SOCIO CEA
12 CB zone	Ehrenberg Wash Pit Expansion	La Paz	active	mine	Facility Owner/Developer: Mineral Aggregate Recycling Services, Inc. Acreage and Land Ownership: expansion of the existing BLM owned 40-acre open pit by 20 acres Technology Type: competitive sale of rock product from open pit mine General Overview: wash plant is currently operational. (C. Scott, Mineral Aggregate Recycling Services, Inc., personal communication August 31, 2016); the project can produce up to 30,000 tons of rock product per year for the duration of ten years; approximately five to ten 25-ton truck loads of rock product can be shipped per day, and up to 30 deliveries per day during peak demand.	X	X	X
13 CR&CA zone	Venable Solar 1	Riverside	active	solar facility	Facility Owner/Developer: Venable Solar LLC Technology Type: 1.5 MW solar photovoltaic facility General Overview: solar photovoltaic project near Blythe, south of I-10 near US 95; Commercial Operations Date: 4/13/2015.	X	X	X
14 CR&CA zone	Venable Solar 2	Riverside	active	solar facility	Facility Owner/Developer: Venable Solar LLC Technology Type: 1.5 MW solar photovoltaic facility General Overview: solar photovoltaic project near Blythe, south of I-10 near US 95; Commercial Operations Date: 4/14/2015.	X	X	X

MAP ID # (FIG. 3.12-1) / ZONE	NAME	COUNTY	PROJECT STATUS	TYPE	DESCRIPTION	2-MILE CEA	5-MILE CEA	AQ OR SOCIO CEA
15 CR&CA zone	Sempra – Southern California Gas Co. Gas Pipeline	Riverside	active	natural gas pipeline	Facility Owner/Developer: Sempra Energy Utility - Southern California Gas Co.	X	X	X
16 CR&CA zone	North Baja Pipeline	Riverside	active	interstate natural gas pipeline	Facility Owner/Developer: TransCanada - North Baja Pipelines LLC Acreage and Land Ownership: 86 miles in US Technology Type: 500-600 million cubic feet per day natural gas pipeline General Overview: The North Baja Pipeline system consists of 86 miles of pipeline receiving natural gas from an interconnection with the El Paso Natural Gas Pipeline at Ehrenberg, Arizona, that sources natural gas primarily from the West Texas and Southern Rocky Mountain supply regions. North Baja has a design capacity of 500 million cubic feet per day for southbound transportation and 600 million cubic feet per day for northbound transportation. Given the bidirectional capability modifications completed in 2008, North Baja is also able to transport natural gas northbound at Ogilby, California, and receive natural gas sourced from the Energia Costa Azul liquefied natural gas terminal in Mexico.	X	X	X

MAP ID # (FIG. 3.12-1) / ZONE	NAME	COUNTY	PROJECT STATUS	TYPE	DESCRIPTION	2-MILE CEA	5-MILE CEA	AQ OR SOCIO CEA
17 CR&CA zone	Blythe Energy Center	Riverside	active	power plant	Facility Owner/Developer: AltaGas Acreage and Land Ownership: privately-held 76-acre site Technology type: 507 MW combined cycle, natural gas-fired plant General Overview: The Blythe Energy Center was acquired by AltaGas in 2014 and is a 507 MW natural gas-fired combined cycle power plant in Blythe, California. The facility is secured by a 7-year power purchase agreement (PPA) with Southern California Edison, is directly connected to Southern California Gas, and interconnects to the power grid via a 67-mile transmission line.	X	X	X
34 CR&CA	Palo Verde College solar facility	Riverside	active	Solar facility	Facility Owner/Developer: SSA Solar of CA 2 LLC Technology Type: 1.2 MW photovoltaic	X	X	X
CR&CA	Blythe to Headgate Rock	Riverside and La Paz	active	transmission line	Facility Owner/Developer: WAPA Technology type: 161 kV transmission line General Overview: transmission line originating at the Headgate Rock hydroelectric power plant on CRIT lands. Heads south into Blythe.	X	X	X
EP&K	Harquahala to Hassayampa	Maricopa	active	transmission line	Facility Owner/Developer: APS Technology type: 500 kV transmission line General Overview: transmission line originating from the Harquahala Generating Project heading southeast to the Hassayampa substation near the Mesquite Generating Station.	X	X	X

MAP ID # (FIG. 3.12-1) / ZONE	NAME	COUNTY	PROJECT STATUS	TYPE	DESCRIPTION	2-MILE CEA	5-MILE CEA	AQ OR SOCIO CEA
CR&CA	Gold Mine to Blythe	Riverside	active	transmission line	Facility Owner/Developer: Imperial Irrigation District Technology type: 161 kV transmission line General Overview: transmission line originating at the Gold Mine heading to Blythe	X	X	X
CR&CA	Niland to Blythe	Riverside	active	transmission line	Facility Owner/Developer: AZUSA Light & Power Technology type: 161 kV transmission line General Overview: transmission line originating at the Niland Gas Turbine Plant heading northeast to Blythe.	X	X	X
CR&CA	Julian Hinds to Buck	Riverside	active	transmission line	Facility Owner/Developer: AZUSA Light & Power Technology type: 230 kV transmission line General Overview: transmission line originating from the Blythe Energy natural gas power plant. Continues west south of I-10 then crosses north into the Eagle Mountains.	X	X	X
CR&CA	Blythe to Eagle Mountain Transmission Line	Riverside	active	Transmission line	Facility Owner/Developer: Southern California Edison Technology type: 161 kV transmission line General Overview: transmission line originating from Blythe and continues west south of I-10 then crosses north into the Eagle Mountains.	X	X	X

MAP ID # (FIG. 3.12-1) / ZONE	NAME	COUNTY	PROJECT STATUS	TYPE	DESCRIPTION	2-MILE CEA	5-MILE CEA	AQ OR SOCIO CEA
20 CR&CA	Blythe Solar Power Project	Riverside	active	solar facility	Facility Owner/Developer: NextEra Energy Resources, LLC - NextEra Blythe Solar Acreage and Land Ownership: 4,138 BLM acres (BLM Right-of-Way Grant No. CACA–048811) Technology Type: 4 unit 485 MW solar photovoltaic facility Expansion Construction Schedule and/or Permitting Milestones: The construction of Units 3 and 4 is currently on hold General Overview: A Next Era Energy Resources, LLC, 485 MW solar project on 4,138 acres 2 miles north of I-10 and 8 miles west of Blythe in unincorporated Riverside County, California. The modified Blythe Solar Power Project was approved on August 1, 2014. NextEra Blythe Solar Energy Center, LLC (the current Project applicant), has proposed conversion of the previously approved project from thermal solar to photovoltaic solar technology. A 230kV generation tie-line will connect the solar energy generating facility with the Colorado River Substation, located 5 miles to the southwest. Units 1 and 2 are now operational (CEC 2017).		X	X
21 CR&CA zone	Blythe Solar Generating Facility	Riverside	active	solar facility	Facility Owner/Developer: NRG Energy, Inc. Technology Type: 21 MW solar photovoltaic facility General Overview: NRG Energy, Inc., through NRG Renew started commercial operation in December 2009 for the Blythe Solar Generating Facility, a 21 MW solar photovoltaic solar facility in Blythe, California. Project completed in 2009.	X	X	X

MAP ID # (FIG. 3.12-1) / ZONE	NAME	COUNTY	PROJECT STATUS	TYPE	DESCRIPTION	2-MILE CEA	5-MILE CEA	AQ OR SOCIO CEA
23 CR&CA zone	McCoy Solar Energy Project	Riverside	active	solar facility	Facility Owner/Developer: NextEra Energy Resources, LLC - McCoy Solar, LLC Acreage and Land Ownership: 7,700 acres of BLM-administered land and 470 acres of private land Technology Type: 750 MW solar photovoltaic facility General Overview: A 750 MW photovoltaic solar project on 7,700 acres of BLM-administered land and 470 acres of private land 13 miles northwest of Blythe proposed by McCoy Solar, LLC, a subsidiary of Next Era Energy Resources. The project connects with the Colorado River Substation. The project is complete (G. Kline, BLM, personal communication September 19, 2016).			X

MAP ID # (FIG. 3.12-1) / ZONE	NAME	COUNTY	PROJECT STATUS	TYPE	DESCRIPTION	2-MILE CEA	5-MILE CEA	AQ OR SOCIO CEA
25 CR&CA zone	Genesis Solar Energy Project	Riverside	active	solar facility	Facility Owner/Developer: NextEra Energy Resources, LLC - Genesis Solar, LLC Acreage and Land Ownership: unknown acreage of BLM-administered land Technology Type: 2-unit concentrated solar electric generating facility General Overview: The Genesis Solar Energy Project is operated by Genesis Solar, LLC, a subsidiary of NextEra Energy Resources, LLC. The project is a concentrated solar electric generating facility located in Riverside County, California. The project consists of two independent solar electric generating facilities with a nominal net electrical output of 125 MW each, for a total net electrical output of 250 MW. The project is located approximately 25 miles west of Blythe, California, on lands managed by the BLM. Construction was completed in April 2014. The facility is in full operation. (BLM Palm Springs-South Coast Field Office 2016).		X	X
ASLD Various Parcels EP&K, QTZ, and CB zones	Grazing Leases	Mariposa and La Paz	current	Grazing Leases	Facility Owner/Developer: ASLD Acreage and Land Ownership: 43 leases of various acreage; parcels on state lands General Overview: 43 grazing leases along the project route on lands administered by the ASLD.	X	X	X

MAP ID # (FIG. 3.12-1) / ZONE	NAME	COUNTY	PROJECT STATUS	TYPE	DESCRIPTION	2-MILE CEA	5-MILE CEA	AQ OR SOCIO CEA
Yuma Proving Grounds CB zone	YPG	Yuma and La Paz	active	military installation	Facility Owner/Developer: US DOD - US Army Acreage and Land Ownership: 1,307.8 square miles of DOD land Technology Type: military testing site General Overview: The primary mission of the YPG is to ensure that the weapon systems and equipment issued to soldiers function safely and as intended. However, the land is not entirely restricted to these uses. In coordination with the AGFD, the YPG administers hunting in certain parts of the installation.	X	X	X
continuous along the Colorado River CR&CA zone	Colorado River Bankline Repairs	La Paz and Riverside	as needed basis	maintenance activity	Facility Owner/Developer: Reclamation Acreage and Land Ownership: unknown; continuous along the Colorado River Technology Type: n/a; maintenance activity General Overview: Under the Colorado River Front Work and Levee System Act of 1946 (as amended) Reclamation has responsibility along the lower Colorado River for flood control. The Act authorizes Reclamation to improve, stabilize, and maintain the river channel so that it can handle flows resulting from flood control operations and floods of local origin. In the Palo Verde Division (Blythe CA area), the following activities are continuous along the river: reinforcing bankline and levees by placing riprap material, removing (sediment) wash fans, maintaining river access roads, and conducting excavation activities to remove excess sediment along the river in critical areas in order to protect Reclamation facilities.	X	X	X

MAP ID # (FIG. 3.12-1) / ZONE	NAME	COUNTY	PROJECT STATUS	TYPE	DESCRIPTION	2-MILE CEA	5-MILE CEA	AQ OR SOCIO CEA
continuous along the Colorado River CR&CA zone	Palo Verde Backwaters Maintenance Activities	La Paz and Riverside	as needed basis	maintenance activity	Facility Owner/Developer: Reclamation Acreage and Land Ownership: unknown; continuous along the Colorado River Technology Type: n/a; maintenance activity General Overview: Reclamation monitors various backwaters along the lower Colorado River (Blythe CA area) located south of I-10, to address concerns related to the management of the backwaters and maintenance requirements. All work is conducted with previously impacted areas (i.e. replacing culverts and cleaning out the inlets and outlets of the backwaters).	X	X	X
27 EP&K	Catchment #726 Replacement	La Paz	active	Wildlife improvement	Facility Owner/Developer: AGFD Acreage and Land Ownership: BLM, Yuma FO General Overview: Arizona Game and Fish Department Region IV (AGFD) proposes to replace the #726 wildlife water above ground system with a new water system at the same location within the Eagletail Mountain Wilderness. This water is a grandfathered structure that predates the Eagletail Mountain Wilderness designation that occurred on November 29, 1990. It is also an important source of water for desert bighorn sheep in the Eagletail Mountains (Game Management Unit 41), as well as other game and nongame species. Currently, this water development is a rain apron and steel storage tank system. It uses slick rock as an apron to capture water.		X	X

EP&K – East Plains and Kofa; QTZ – Quartzsite; CB – Copper Bottom; CR&CA – Colorado River and California

Table 3.12-2 Reasonably Foreseeable Future Projects

MAP ID # (FIG. 3.12-1) / ZONE	NAME	COUNTY	PROJECT STATUS	TYPE	DESCRIPTION	CONSTRUCTION SCHEDULE	2-MILE CEA	5-MILE CEA	AQ OR SOCIO CEA
3 EP&K zone	Harquahala Solar Project	Maricopa	future	solar facility	Acreage and Land Ownership: approximately 3,514 acres of unknown land ownership Construction Schedule and/or Permitting Milestones: currently completely amended to change land use (Rural Development to Industrial); land is under contract.	unknown at this stage		X	X
5 EP&K zone	La Paz County land purchase for solar develop-ment	La Paz	future	solar facility	Facility Owner/Developer: La Paz County, Arizona Acreage and Land Ownership: 8,000 acres of BLM-administered land General Overview: Sale of Federal land to La Paz County to provide enough land to pursue utility-scale solar energy production with private developers.	Bill H.R. 2630 introduced to House May 24, 2017; no construction date set	X	X	X
6 EP&K zone	Fancher-Luxcor Mine	Yuma	existing/ future	mine	Construction Schedule and/or Permitting Milestones: pending on funding General Overview: Gold mine with access via Hovatter Road, south of the Proposed Action route; a revised plan of operations is approved but the project is pending funding. (F. Bergwall, BLM, personal communication September 20, 2016; BLM 2016s).	pending funding			X

MAP ID # (FIG. 3.12-1) / ZONE	NAME	COUNTY	PROJECT STATUS	TYPE	DESCRIPTION	CONSTRUCTION SCHEDULE	2-MILE CEA	5-MILE CEA	AQ OR SOCIO CEA
8 QTZ zone	Plomosa 9 Placer Claim	La Paz	future	mine	General Overview: Potential project would be located on a 20-acre mining claim within La Paz County in the Plomosa Mountains just southeast of Quartzsite and in proximity to Alternative Segments. The claim is owned by Jackpot Minerals LLC and overseen by the BLM's YFO under the serial number AMC396777. Status is pending as they have an incomplete application. (F.Bergwall, BLM, personal communication September 20, 2016).	unknown at this stage	X	X	X

MAP ID # (FIG. 3.12-1) / ZONE	NAME	COUNTY	PROJECT STATUS	TYPE	DESCRIPTION	CONSTRUCTION SCHEDULE	2-MILE CEA	5-MILE CEA	AQ OR SOCIO CEA
9 QTZ zone	Quartzsite Solar Energy Project	La Paz	future; pending on securing a PPA	solar facility	Facility Owner/Developer: Quartzsite Solar Energy, LLC Acreage and Land Ownership: 1,675 acres of BLM-administered land Technology Type: 100 MW concentrating solar power plant Construction Schedule and/or Permitting Milestones: pending on securing a PPA General Overview: 100 MW solar tower technology developed by Quartzsite Solar Energy on 1,675 acres of BLM-administered land located approximately 10 miles north of Quartzsite, near Arizona SR 95; currently focused on securing a PPA and lacking that makes it challenging to say exactly when they would commence construction (A. Wang, SolarReserve, personal communication August 25, 2016); from BLM's perspective, construction would start at least 2 years after PPA. (E. Arreola, BLM, personal communication August 25, 2016).	Construction start date is unknown and pending on securing a PPA			X
10					Canceled				

MAP ID # (FIG. 3.12-1) / ZONE	NAME	COUNTY	PROJECT STATUS	TYPE	DESCRIPTION	CONSTRUCTION SCHEDULE	2-MILE CEA	5-MILE CEA	AQ OR SOCIO CEA
11 CB zone	West Port Gold Project	La Paz	future	mine	Facility Owner/Developer: ITEC Solutions Acreage and Land Ownership: 40 acres of BLM-administered land Technology Type: open-pit mine Construction Schedule and/or Permitting Milestones: construction schedule is not publicly available, but could start at any time as environmental permits have been acquired General Overview: The project includes the development of a 500 ton per day aboveground, open pit operation that would produce between 5,000 and 10,000 ounces of gold per year for 10 to 15 years. The mine is located approximately 1 mile north of I-10 about 6 miles west of Quartzsite. (F. Bergwall, BLM, personal communication September 19, 2016).	Use and occupancy decision signed February 23, 2017	X	X	X

MAP ID # (FIG. 3.12-1) / ZONE	NAME	COUNTY	PROJECT STATUS	TYPE	DESCRIPTION	CONSTRUCTION SCHEDULE	2-MILE CEA	5-MILE CEA	AQ OR SOCIO CEA
18 CR&CA zone	Blythe Energy Power Plant and Sonoran Energy Project (Licensed as Blythe Energy Project Phase II)	Riverside	future	power plant	Facility Owner/Developer: AltaGas Sonoran Energy Inc. Acreage and Land Ownership: 76 acres of BLM-administered land Technology Type: 569 MW combined cycle, natural gas-fired plant Construction Schedule and/or Permitting Milestones: 2nd or 3rd quarter of 2018 General Overview: the Blythe Energy Project Phase II is a 569-megawatt combined-cycle project that was certified by the Energy Commission in December 2005, but has not been built yet; the Blythe II facility will be located approximately 5 miles west of the city of Blythe on approximately 76 acres immediately adjacent to the operational Blythe Energy Project.	the current estimated start of construction date is June 14, 2018	X	X	X

MAP ID # (FIG. 3.12-1) / ZONE	NAME	COUNTY	PROJECT STATUS	TYPE	DESCRIPTION	CONSTRUCTION SCHEDULE	2-MILE CEA	5-MILE CEA	AQ OR SOCIO CEA
19 CR&CA zone	Blythe Mesa Solar Project	Riverside	future	solar facility	Facility Owner/Developer: Renewable Resources Group Acreage and Land Ownership: 7,025 acres of BLM-administered land Technology Type: solar 485 MW photovoltaic facility General Overview: a proposed Renewable Resources Group 485 MW solar project on 3,587 acres near the Blythe airport. The project is located both north and south of I-10, spanning private agricultural land in both an unincorporated area of Riverside County, California, and a portion within the boundary of the city of Blythe, California; on August 18, 2015, the BLM issued a ROD approving issuance of a ROW grant in support of the Blythe Mesa Solar Project, owned by the Renewable Energy Group, Los Angeles, California. (BLM Palm Springs-South Coast Field Office 2016).	unknown; construction has not yet started	X	X	X

MAP ID # (FIG. 3.12-1) / ZONE	NAME	COUNTY	PROJECT STATUS	TYPE	DESCRIPTION	CONSTRUCTION SCHEDULE	2-MILE CEA	5-MILE CEA	AQ OR SOCIO CEA
22 CR&CA zone	Desert Quartzite Solar	Riverside	future	solar facility	Facility Owner/Developer: First Solar Inc. - Desert Quartzite LLC Acreage and Land Ownership: 4,800 acres of unknown land ownership Technology Type: 300MW solar photovoltaic facility Construction Schedule and/or Permitting Milestones: construction expected once approvals and permits are obtained General Overview: a 300 MW solar photovoltaic project located on 4,900 acres south of I-10 and 8 miles southwest of Blythe proposed by Desert Quartzite LLC, a subsidiary of First Solar Inc; the project would interconnect at the Colorado River Substation.	construction expected once approvals and permits are obtained	X	X	X

MAP ID # (FIG. 3.12-1) / ZONE	NAME	COUNTY	PROJECT STATUS	TYPE	DESCRIPTION	CONSTRUCTION SCHEDULE	2-MILE CEA	5-MILE CEA	AQ OR SOCIO CEA
24 CR&CA zone	Crimson Solar	Riverside	future	solar facility	Facility Owner/Developer: Recurrent Energy LLC - Sonoran West Holdings LLC Acreage and Land Ownership: 2,700 acres of BLM-administered land Technology Type: 350MW solar photovoltaic and energy storage facility General Overview: Proposal to construct and operate the RE Crimson Solar Project, a 350 MW solar photovoltaic and energy storage project that would be located on 2,700 acres of BLM administered land within the CDCA planning area; located in unincorporated eastern Riverside County, about 13 miles west of Blythe, just north of the Mule Mountains and south of I-10. Up to four substations that would transform voltage from the 34.5 kV electrical collection cables to 230 kV. The 350 MW of energy storage would be either flywheel or battery form.	NOI published March 9, 2018	X	X	X
33 QTZ zone	Quartzsite Waste Water Treatment Plant Renovations	Yuma	future	Infra-structure	Facility Owner/Developer: Quartzsite Acreage: 16.7 acres General Overview: Expansion of existing WWTP from 450,000 gpd to 900,000 gpd. Convert existing sequencing batch reactor (SBR) to two SBRs, add aeration and turbine blower building, new sludge drying beds, new headworks, and electrical efficiency upgrades	Unknown; in the planning, design, and funding stages	X	X	X

EP&K – East Plains and Kofa; QTZ – Quartzsite; CB – Copper Bottom; CR&CA – Colorado River and California

Appendix 4 Tabular and Other Data Associated with Chapter 4

Table of Contents

Appendix 4 Tabular and Other Data Associated with Chapter 4

List of Tables

4.1 INTRODUCTION

See Chapter 4.

4.2 NON-KEY RESOURCES

4.2.1 Air Quality and Climate Change

Table 4.2-1 Proposed Action Cumulative Emissions

ACTIVITY	PM_{10} (TPY)	$PM_{2.5}$ (TPY)	NO_X (TPY)	CO (TPY)	VOC (TPY)	SO_2 (TPY)
Proposed Action Emissions	26.9	4.8	34.3	22.0	3.6	0.1
Maricopa County	98,106	20,052	63,023	449,787	269,005	1,111
La Paz County	6,104	1,154	3,765	35,350	115,111	16
Riverside County	18,812	5,324	30,969	136,625	154,570	467
Blythe Area*	16.2	16.2	446.8	173.4	33.2	3.2
Cumulative Total	123,049	26,535	97,791	621,784	538,690	1,594
Contributed by Proposed Action	0.022%	0.018%	0.035%	0.004%	0.001%	0.006%

* The Blythe Area represents Southern California Gas and the Blythe Energy Project for 2015 Riverside County. https://www.arb.ca.gov/app/emsinv/facinfo/facinfo.php

Table 4.2-2 Alternative Action Cumulative Emissions

ACTIVITY	PM_{10} (TPY)	$PM_{2.5}$ (TPY)	NO_X (TPY)	CO (TPY)	VOC (TPY)	SO_2 (TPY)
Alternative 1	27.6	4.9	35.2	22.6	3.7	0.1
Alternative 2	30.4	5.4	38.7	24.8	4.0	0.1
Alternative 3	29.2	5.2	37.2	23.9	3.9	0.1
Alternative 4	29.7	5.3	37.9	24.3	3.9	0.1
Maricopa County	98,106	20,052	63,023	449,787	269,005	1,111
La Paz County	6,104	1,154	3,765	35,350	115,111	16
Riverside County	18,812	5,324	30,969	136,625	154,570	467
Blythe Area*	16.2	16.2	446.8	173.4	33.2	3.2
Maximum Cumulative Total	123,052	26,535	97,796	621,787	538,690	1,594
Contributed by Proposed Action	0.025%	0.020%	0.040%	0.004%	0.001%	0.006%

* The Blythe Area represents Southern California Gas and the Blythe Energy Project for 2015 Riverside County. https://www.arb.ca.gov/app/emsinv/facinfo/facinfo.php

Table 4.2-3 Proposed Action and Action Alternative GHG Cumulative Emissions

GHG SOURCE	MAXMIMUM $MTCO_2e$
Proposed Action	10,699
Alternative 1	10,990
Alternative 2	12,088
Alternative 3	11,610
Alternative 4	11,816

4.2.2 Geology and Minerals

See Chapter 4.

4.2.3 Paleontological Resources

See Chapter 4.

4.2.4 Grazing and Rangeland

See Chapter 4.

4.2.5 Special Designations

See Chapter 4.

4.2.6 Noise

See Chapter 4.

4.2.7 Hazards and Hazardous Materials

See Chapter 4.

4.2.8 Public Health and Safety

Table 4.2-4 Modeled Electric Field Levels at Edge of ROW for Existing and Proposed Configurations

LOCATION NO.	STATE	APPROXIMATE LOCATION (SEGMENT)	LEFT SIDE[1] OF ROW ELECTRIC FIELD (KV/M)			RIGHT SIDE[2] OF ROW ELECTRIC FIELD (KV/M)			ICNIRP GUIDELINES EXPOSURE (MORE/LESS)	
			EXISTING	PROPOSED	CHANGE[3]	EXISTING	PROPOSED	CHANGE[C]	OCCUPATIONAL 8.33 KV/M	GENERAL PUBLIC 4.16 KV/M
1	AZ	**p-01**: North of Delaney Substation	0.2	2.1	1.9	1.8	1.8	0.0	Less	Less
2	AZ	**d-01**: Alternative 1 west of Delaney Substation	0.8	0.9	0.1	0.3	2.1	1.8	Less	Less
3	AZ	**i-03**: I-10 Utility Corridor	0.0	2.1	2.1	0.0	2.1	2.1	Less	Less
4	AZ	**p-06**: Kofa National Wildlife Refuge	1.6	2.1	0.5	1.6	1.6	0.0	Less	Less
5	AZ	**qn-02**: North of I-10 and northeast of Quartzsite	0.4	2.1	1.7	0.5	0.6	0.1	Less	Less
6	AZ	**x-07**: South of I-10 and south of Quartzsite	0.8	2.1	1.3	0.8	1.0	0.2	Less	Less
7	AZ	**cb-04**: Copper Bottom Pass	0.5	2.2	1.7	0.2	0.2	0.0	Less	Less
8	CA	**p-15w**: farmland east of Blythe	1.9	2.0	0.1	1.9	1.9	0.0	Less	Less
9	CA	**x-16**: East of Colorado River Substation	0.8	2.1	1.3	0.8	0.8	0.0	Less	Less
10	CA	**p-17**: East of Colorado River Substation	1.6	2.1	0.5	0.8	0.8	0.0	Less	Less

[1] = Left side is the south side at all locations, but location 1 is on the west side.

[2] = Right side is the north side at all locations, but location 1 is on the east side

[3] = Positive value is an increase; negative value is a decrease.

Table 4.2-5 Modeled Average Magnetic Field Levels at Edge of ROW for Existing and Proposed Configurations

LOCATION NO.	STATE	APPROXIMATE LOCATION (SEGMENT)	LEFT SIDE[1] OF ROW MAGNETIC FIELD (MG)			RIGHT SIDE[2] OF ROW MAGNETIC FIELD (MG)			ICNIRP GUIDELINES EXPOSURE (MORE/LESS)	
			EXISTING	PROPOSED	CHANGE[3]	EXISTING	PROPOSED	CHANGE[C]	OCCUPATIONAL 10,000 MG	GENERAL PUBLIC 2,000 MG
1	AZ	**p-01**: North of Delaney Substation	16.8	67.6	50.8	28.0	14.6	-13.4	Less	Less
2	AZ	**d-01**: Alternative 1 west of Delaney Substation	19.5	21.8	2.3	9.9	64.8	54.9	Less	Less
3	AZ	**i-03**: I-10 Utility Corridor	0.0	63.2	63.2	0.0	63.2	63.2	Less	Less
4	AZ	**p-06**: Kofa National Wildlife Refuge	43.0	67.6	24.6	43.0	60.8	17.8	Less	Less
5	AZ	**qn-02**: North of I-10 and northeast of Quartzsite	28.2	63.4	35.2	22.4	18.2	-4.2	Less	Less
6	AZ	**x-07**: South of I-10 and south of Quartzsite	43.0	63.3	20.3	43.0	19.8	-23.2	Less	Less
7	AZ	**cb-04**: Copper Bottom Pass	49.8	65.1	15.3	23.3	34.5	11.2	Less	Less
8	CA	**p-15w**: farmland east of Blythe	50.2	61.5	11.3	50.2	64.7	14.5	Less	Less
9	CA	**x-16**: East of Colorado River Substation	48.5	62.7	14.2	53.7	50.0	-3.7	Less	Less
10	CA	**p-17**: East of Colorado River Substation	41.4	67.1	25.7	46.6	38.2	-8.4	Less	Less

[1] = Left side is the south side at all locations, but location 1 is on the west side.

[2] = Right side is the north side at all locations, but location 1 is on the east side.

[3] = Positive value is an increase, negative value is a decrease

4.2.9 Traffic and Transportation

See Chapter 4.

4.2.10 Water Resources

See Chapter 4.

4.3 SOIL RESOURCES

See Chapter 4.

4.4 BIOLOGICAL RESOURCES

4.4.1 Construction of Action Alternative Segments

4.4.1.1 Direct and Indirect Effects Common to All Action Alternatives

Table 4.4-1 Acres of Long-term Disturbance by Segment in the East Plains and Kofa Zone

SEGMENT	LINE MILES	ANTICIPATED NUMBER OF STRUCTURES[1]	LONG-TERM DISTURBANCE[2,3] (ACRES)
p-01	26.2	88	204.2
p-02	1.1	4	6.7
p-03	2.1	6	15.6
p-04	5.5	15	37.0
p-05	2.0	9	15.2
p-06	35.7	120 and SCS	311.7
d-01	25.3	83	187.1
i-01	8.3	15	52.1
i-02	3.2	10	20.6
i-03	20.1	65	154.8
i-04	10.4	38	71.8
in-01	13.9	53	106.4
x-01	4.7	25	36.9
x-02a	3.3	11	18.9
x-02b	3.5	11	22.94
x-03	5.6	18	34.2
x-04	22.6	73 and SCS	182.2

[1] For structure type see Appendix 2 Tables 2.2-11 and 2.2-12

[2] Long-term disturbance combines short-term and permanent disturbance reported in Chapter 2 less acres of structure foundation that was included with short-term disturbance

[3] Totals include temporary use areas, access roads, structure locations, wire stringing locations, and SCS

Table 4.4-2 Acres of Long-term Disturbance by Segment in the Quartzsite Zone

SEGMENT	LINE MILES	ANTICIPATED NUMBER OF STRUCTURES[1]	LONG-TERM DISTURBANCE[2,3] (ACRES)
p-07	2.1	7	14.6
p-08	0.7	2	3.7
i-05	2.8	9	17.3
qn-01	0.6	3	9.0
qn-02	10.8	37	114.3
qs-01	3.1	10	19.8
qs-02	4.8	17	66.0
x-05	10.3	35	62.1
x-06	9.3	32	57.9
x-07	7.7	26	49.4

[1] For structure type see Appendix 2 Tables 2.2-11 and 2.2-12

[2] Long-term disturbance combines short-term and permanent disturbance reported in Chapter 2 less acres of structure foundation that was included with short-term disturbance

[3] Totals include temporary use areas, access roads, structure locations, wire stringing locations, and SCS

Table 4.4-3 Acres of Long-term Disturbance by Segment in the Copper Bottom Zone

SEGMENT	LINE MILES	ANTICIPATED NUMBER OF STRUCTURES[1]	LONG-TERM DISTURBANCE[2,3] (ACRES)
p-09	6.9	23	53.6
p-10	1.2	4	8.3
p-11	4.0	13	30.0
p-12	2.7	8	21.3
p-13	3.5	10	23.3
p-14	0.9	3	5.8
cb-01	2.9	12	23.5
cb-02	2.0	8	16.1
cb-03	4.3	17	23.9
cb-04	1.8	6	15.0

SEGMENT	LINE MILES	ANTICIPATED NUMBER OF STRUCTURES[1]	LONG-TERM DISTURBANCE[2,3] (ACRES)
cb-05	4.4	16	35.8
cb-06	1.9	6	11.9
i-06	7.2	26	51.3
i-07	6.4	22	42.0
x-08	1.3	5	14.0

[1] For structure type see Appendix 2 Tables 2.2-11 and 2.2-12

[2] Long-term disturbance combines short-term and permanent disturbance reported in Chapter 2 less acres of structure foundation that was included with short-term disturbance

[3] Totals include temporary use areas, access roads, structure locations, wire stringing locations, and SCS

Table 4.4-4 Disturbance to Rare Vegetation Alliances on the Palo Verde Mesa

RARE VEGETATION ALLIANCE	SEGMENTS	TOTAL DISTURBANCE* (ACRES)	
		BLM	NON-BLM
Parkinsonia florida–Olneya tesota Alliance (blue paloverde-ironwood)	ca-07	1.1	<0.1
	ca-09	0.2	0
	p-17	1.2	0
	p-18	0	0
Pleuraphis rigida Alliance (big galleta)	ca-02	0.9	0
	ca-07	1.2	0
	x-15	2.7	0
	x-16	0	0
Pluchea sericea Alliance (arrowweed)	ca-06	<0.1	0
Prosopis glandulosa Alliance (honey mesquite)	ca-02	0.9	0
	ca-06	0	0.2
	p-16	0	<0.1
Suaeda moquinii Alliance (bush seepweed)	p-16	0	0

* Structures and access.

Table 4.4-5 Disturbance to Suitable Harwood's Eriastrum Habitat by Segment using the Presumed Habitat

SEGMENT	ANTICIPATED STRUCTURES PER SEGMENT IN SUITABLE HABITAT (NUMBER)	ANTICIPATED NEW ACCESS PER SEGMENT IN SUITABLE HABITAT (MILES)	ANTICIPATED TOTAL DISTURBANCE* (ACRES)	
			BLM	NON-BLM
p-16	0	0	0	0
p-17	0	0	0	0
p-18	2	0.6	<0.1	2.7
x-15	0	0	0	0
x-16	0	0	0	0
x-19	2	0.4	2.7	0.1
ca-02	0	0	0	0
ca-06	0	0	0	0
ca-07	4	0	4.3	0.1
ca-09	9	3.7	11.2	4.5

*Structures and access.

Table 4.4-6 Acres of Long-term Disturbance by Segment in the Colorado River and California Zone

SEGMENT	LINE MILES	ANTICIPATED NUMBER OF STRUCTURES[1]	LONG-TERM DISTURBANCE[2,3] (ACRES)
p-15e	2.8	11	19.6
p-15w	6.6	24	70.4
p-16	4.7	18	24.0
p-17	3.0	9	16.6
p-18	2.4	11	22.0
ca-01	6.7	26	69.3
ca-02	3.5	13	20.8
ca-04	0.3	4	6.6

SEGMENT	LINE MILES	ANTICIPATED NUMBER OF STRUCTURES[1]	LONG-TERM DISTURBANCE[2,3] (ACRES)
ca-05	6.6	26	70.4
ca-06	2.6	11	15.3
ca-07	3.1	13	17.8
ca-09	2.6	9	19.3
cb-10	2.0	8	12.0
i-08s	1.2	6	11.6
x-09	0.8	3	4.4
x-10	1.4	5	8.7
x-11	2.2	7	9.7
x-12	1.2	5	5.6
x-13	2.1	7	9.6
x-15	1.4	5	11.8
x-16	2.2	8	15.2
x-19	0.9	6	9.4

[1] For structure type see Appendix 2 Tables 2.2-11 and 2.2-12

[2] Long-term disturbance combines short-term and permanent disturbance reported in Chapter 2 less acres of structure foundation that was included with short-term disturbance

[3] Totals include temporary use areas, access roads, structure locations, wire stringing locations, and SCS

Table 4.4-7 Acres of long-term disturbance, distance of line, and number of structures associated with each Project Full-Route Alternative

ALTERNATIVE	LINE MILES	NUMBER OF STRUCTURES	LONG-TERM DISTURBANCE[1,2] (ACRES)
Proposed	114.1	385	903.6
Alternative 1	111.9	383	868.7
Alternative 2	144.6	494	1086.7
Alternative 3	122.3	423	896.8
Alternative 4	120.0	416	899.5

[1] Long-term disturbance combines short-term and permanent disturbance reported in Chapter 2 less acres of structure foundation that was included with short-term disturbance;

[2] Totals include temporary use areas, access roads, structure locations, wire stringing locations, and SCS

Table 4.4-8 Acres and Percent of Harwood's Eriastrum Impacted by Project Activities as Modeled by the DRECP and Acres of Suitable Habitat by Project Alternative

PROJECT ALTERNATIVE	PROJECT HABITAT MAPPING	DRECP DISTRIBUTION MODEL 288,303 ACRES RANGE-WIDE	
	SUITABLE ACRES IMPACTED*	PROJECT ACRES IMPACTED*	PERCENT OF TOTAL DRECP ACRES
Proposed Action	0.03	18.2	0.006
Alternative 1	18.2	29.1	0.010
Alternative 2	18.2	48.2	0.017
Alternative 3	18.2	29.1	0.010
Alternative 4	18.2	29.1	0.010

* Prior to micrositing to reduce impacts

4.5 CULTURAL RESOURCES

The following tables present known cultural resources data from a 200-foot analysis corridor defined as the "direct APE" for the purposes of this document. The extent of previous cultural resources survey, counts of known historic properties, counts of cultural resources for which NRHP eligibility is unknown, and projections of total numbers of historic properties and sites of undetermined eligibility is presented by zone, and further subdivided by segments within specific alternatives and subalternatives.

For the purposes of this discussion, total site density (regardless of NRHP eligibility status) for each individual segment within specific alternatives and subalternatives per 100 acres is presented. The formula for this calculation is as follows:

$$Site\ density\ per\ 100\ acres = \frac{\#\ \text{of known sites}}{\text{acres surveyed}} \times 100$$

For example, 20.7 acres of the 200-foot corridor of Segment i-01 has been previously surveyed. A total of two sites (regardless of NRHP eligibility status) were recorded within those 20.7 acres. The calculated site density per 100 acres for the 200-foot corridor of Segment i-01 is as follows:

$$9.7 = \frac{2}{20.7} \times 100$$

Additionally, projected numbers of sites per NRHP eligibility status category are calculated for each individual segment within specific alternatives and subalternatives. The formula for this calculation is as follows:

$$Projected\ \#\ of\ sites = \frac{\text{segment acres}}{100} \times \text{site (per NRHP eligibilty status) density per 100 acres}$$

For example, two sites were recorded within the 202.8 acres of the 200-foot corridor of Segment i-01, however, only one is NRHP-eligible. To project the site density of NRHP eligible sites within Segment i-01, the number 4.8 (representing the value of a single site, in this example) is used in the calculation below. The calculated projected number of NRHP-eligible sites for the 200-foot corridor of Segment i-01 is as follows:

$$10 = \frac{202.8}{100} \times 4.8$$

These same calculations are used to assess site density and projected site counts for the proposed action, alternative, and subalternative routes. These calculations use combined acres and combined surveyed acres from which to calculate percentage surveyed, site density, and projected sites.

For instance, in the example table below, we show that the segments of Subalternative 1A, combined, includes 241.5 acres. 7.5 percent of those 241.5 acres have been surveyed. The density of known sites per 100 acres of the entire 241.5-acre subalternative is 16.6 (because we have more acreage, but still only the known sites from segment p-02). The known sites are the combined known sites from each segment, and the resulting density and projected site count are based on the total site count and the combined acres or acres surveyed, using the formula above.

In another example below, we show that the segments of Subalternative 4P, combined, includes 250.2 acres. 60.4 percent of those 250.2 acres have been surveyed. The density of known sites per 100 acres of the entire 250.2 -acre subalternative is 31.1.

These two examples reveal how differently site count can be projected if the resulting projections from each segment are added together, rather than calculated based upon the combined acres and acres surveyed. Using the same calculation for individual segments as for complete routes allows for an apple-to-apple comparison or perspective.

For analysis purposes, minimum survey coverage of 25 percent or more is considered to be adequate to estimate the projected number of cultural resources by eligibility category for each Project segment. In cases where survey coverage of at least 25 percent can be demonstrated with negative findings, the projected sensitivity for cultural resources is considered to be low. However, this does not take into account potential environmental variations that may affect the distribution of cultural resources on the landscape per segment.

Example Table for Site Density Calculations:

SEGMENT NO.	ACRES (200-FT CORRIDOR)	PERCENTAGE OF SEGMENT SURVEYED (%)	DENSITY OF KNOWN SITES (PER 100 ACRES)[1]	COUNT OF KNOWN DETERMINED OR RECOMMENDED ELIGIBLE SITES	COUNT OF KNOWN UNEVALUATED/ UNKNOWN ELIGIBILITY SITES	DENSITY (PER 100 ACRES)/ PROJECTED COUNT OF NRHP-ELIGIBLE SITES[2]	DENSITY (PER 100 ACRES)/ PROJECTED COUNT OF SITES TO BE EVALUATED[2]
ALTERNATIVE 1, SUBALTERNATIVE 1A							
p-02	26.1	13.5	85.7	1	1	28.6/7	28.6/7
p-03	50.8	14.7	0.0	0	0	0.0/0	0.0/0
x-02a	80.4	0.0	0.0	0	0	0.0/0	0.0/0
x-02b	84.2	4.4	0.0	0	0	0.0/0	0.0/0
Total	241.5	7.5	16.6	1	1	5.5/13	5.5/13
ALTERNATIVE 4, SUBALTERNATIVE 4P							
p-16	116.1	14.6	47.3	0	5	0.0/0	29.6/34
p-17	71.2	100	35.1	2	7	2.8/2	9.8/7
p-18	62.9	100	22.3	1	7	1.6/1	11.1/7
Total	250.2	60.4	31.1	3	19	2.0/5	12.6/31

Table 4.5-1 Known Survey and Anticipated Cultural Resources in Segments by Alternative and Subalternative in the East Plains and Kofa Zone

SEGMENT NO.	ACRES (200-FT CORRIDOR)	PERCENTAGE OF SEGMENT SURVEYED (%)	DENSITY OF KNOWN SITES (PER 100 ACRES)[1]	COUNT OF KNOWN DETERMINED OR RECOMMENDED ELIGIBLE SITES	COUNT OF KNOWN UNEVALUATED/ UNKNOWN ELIGIBILITY SITES	DENSITY (PER 100 ACRES)/ PROJECTED COUNT OF NRHP-ELIGIBLE SITES[2]	DENSITY (PER 100 ACRES)/ PROJECTED COUNT OF SITES TO BE EVALUATED[2]
PROPOSED ACTION							
p-01	636.2	54.9	2.6	4	0	1.1/7	0.0/0
p-02	26.1	13.5	85.7	1	1	28.6/7	28.6/7
p-03	50.8	14.7	0.0	0	0	0.0/0	0.0/0
p-04	115.7	26.0	23.3	2	1	6.7/8	3.3/4
p-05	68.0	17.9	24.8	2	0	16.5/11	0.0/0
p-06	865.9	23.8	8.3	15	2	7.3/63	1.0/8
ALTERNATIVE 1							
p-01	636.2	54.9	2.6	4	0	1.13/7	0.0/0
i-01	202.8	10.2	9.7	1	1	4.8/10	4.8/10
i-02	77.5	0.0	0.0	0	0	0.0/0	0.0/0
i-03	488.1	4.2	19.4	1	3	4.9/24	14.6/71
i-04	253.0	2.1	18.5	0	0	0.0/0	0.0/0

SEGMENT NO.	ACRES (200-FT CORRIDOR)	PERCENTAGE OF SEGMENT SURVEYED (%)	DENSITY OF KNOWN SITES (PER 100 ACRES)[1]	COUNT OF KNOWN DETERMINED OR RECOMMENDED ELIGIBLE SITES	COUNT OF KNOWN UNEVALUATED/ UNKNOWN ELIGIBILITY SITES	DENSITY (PER 100 ACRES)/ PROJECTED COUNT OF NRHP-ELIGIBLE SITES[2]	DENSITY (PER 100 ACRES)/ PROJECTED COUNT OF SITES TO BE EVALUATED[2]
ALTERNATIVE 1, SUBALTERNATIVE 1A							
p-02	26.1	13.5	85.7	1	1	28.6/7	28.6/7
p-03	50.8	14.7	0.0	0	0	0.0/0	0.0/0
x-02a	80.4	0.0	0.0	0	0	0.0/0	0.0/0
x-02b	84.2	4.4	0.0	0	0	0.0/0	0.0/0
ALTERNATIVE 1, SUBALTERNATIVE 1B							
p-02	26.1	13.5	85.7	1	1	28.6/7	28.6/7
x-01	195.1	2.0	100.0	0	0	0.0/0	0.0/0
x-02a	80.4	0.0	0.0	0	0	0.0/0	0.0/0
ALTERNATIVE 1, SUBALTERNATIVE 1C							
in-01	337.5	2.0	30.3	2	0	30.3/102	0.0/0
ALTERNATIVE 2							
i-01	202.8	10.2	9.7	1	1	4.8/10	4.8/10
i-02	77.5	0.0	0.0	0	0	0.0/0	0/0
i-03	488.1	4.2	19.4	1	3	4.9/24	14.6/71
i-04	253.0	2.1	18.5	0	0	0.0/0	0.0/0
p-01	636.2	54.9	2.6	4	0	1.1/7	0.0/0

SEGMENT NO.	ACRES (200-FT CORRIDOR)	PERCENTAGE OF SEGMENT SURVEYED (%)	DENSITY OF KNOWN SITES (PER 100 ACRES)[1]	COUNT OF KNOWN DETERMINED OR RECOMMENDED ELIGIBLE SITES	COUNT OF KNOWN UNEVALUATED/ UNKNOWN ELIGIBILITY SITES	DENSITY (PER 100 ACRES)/ PROJECTED COUNT OF NRHP-ELIGIBLE SITES[2]	DENSITY (PER 100 ACRES)/ PROJECTED COUNT OF SITES TO BE EVALUATED[2]
ALTERNATIVE 2, SUBALTERNATIVE 2A							
d-01	612.8	5.7	5.7	0	2	0.0/0	5.7/35
x-02a	80.4	0.0	0.0	0	0	0.0/0	0.0/0
x-02b	84.3	4.4	0.0	0	0	0.0/0	0.0/0
ALTERNATIVE 2, SUBALTERNATIVE 2B							
p-02	26.1	13.5	85.7	1	1	28.6/7	28.6/7
p-03	50.8	14.7	0.0	0	0	0.0/0	0.0/0
p-04	115.7	26.0	23.3	2	1	6.7/8	3.3/4
x-03	137.3	1.7	0.0	0	0	0.0/0	0.0/0
ALTERNATIVE 3							
i-03	488.1	4.2	19.4	0	3	0.0/0	14.6/71
i-04	253.0	2.1	18.5	0	0	0.0/0	0.0/0
p-01	636.2	54.9	2.6	4	0	1.1/7	0.0/0
p-02	26.1	13.5	85.7	1	1	28.6/7	28.6/7
p-03	50.8	14.7	0.0	0	0	0.0/0	0.0/0
p-04	115.7	26.0	23.3	2	1	6.7/8	3.3/4
x-03	137.3	1.7	0.0	0	0	0.0/0	0.0/0

SEGMENT NO.	ACRES (200-FT CORRIDOR)	PERCENTAGE OF SEGMENT SURVEYED (%)	DENSITY OF KNOWN SITES (PER 100 ACRES)[1]	COUNT OF KNOWN DETERMINED OR RECOMMENDED ELIGIBLE SITES	COUNT OF KNOWN UNEVALUATED/ UNKNOWN ELIGIBILITY SITES	DENSITY (PER 100 ACRES)/ PROJECTED COUNT OF NRHP-ELIGIBLE SITES[2]	DENSITY (PER 100 ACRES)/ PROJECTED COUNT OF SITES TO BE EVALUATED[2]
ALTERNATIVE 3, SUBALTERNATIVE 3A							
d-01	612.8	5.7	5.7	0	2	0.0/0	5.7/35
x-02a	80.4	0.0	0.0	0	0	0.0/0	0.0/0
x-02b	84.3	4.4	0.0	0	0	0.0/0	0.0/0
i-02	77.5	0.0	0.0	0	0	0.0/0	0.0/0
ALTERNATIVE 3, SUBALTERNATIVE 3B							
i-01	337.5	2.0	30.3	1	1	4.8/16	4.8/16
i-02	77.5	0.0	0.0	0	0	0.0/0	0.0/0
ALTERNATIVE 3, SUBALTERNATIVE 3C							
p-05	68.0	17.9	24.8	1	0	8.3/6	0.0/0
x-04	549.7	4.4	14.1	0	1	0.0/0	4.1/23
ALTERNATIVE 3, SUBALTERNATIVE 3D							
in-01	337.5	2.0	30.3	2	0	30.3/102	0.0/0
ALTERNATIVE 4							
d-01	612.8	5.7	5.7	0	2	0.0/0	5.7/35
in-01	337.5	2.0	30.3	2	0	30.3/102	0.0/0
p-04	115.7	26.0	23.3	2	1	6.7/8	3.3/4
p-05	68.0	17.9	24.8	1	0	8.3/6	0.0/0
x-04	549.7	4.4	14.1	0	1	0.0/0	4.1/23

SEGMENT NO.	ACRES (200-FT CORRIDOR)	PERCENTAGE OF SEGMENT SURVEYED (%)	DENSITY OF KNOWN SITES (PER 100 ACRES)[1]	COUNT OF KNOWN DETERMINED OR RECOMMENDED ELIGIBLE SITES	COUNT OF KNOWN UNEVALUATED/ UNKNOWN ELIGIBILITY SITES	DENSITY (PER 100 ACRES)/ PROJECTED COUNT OF NRHP-ELIGIBLE SITES[2]	DENSITY (PER 100 ACRES)/ PROJECTED COUNT OF SITES TO BE EVALUATED[2]
ALTERNATIVE 4, SUBALTERNATIVE 4A							
p-01	636.2	54.9	2.6	4	0	1.13/7	0.0/0
p-02	26.1	13.5	85.7	1	1	28.6/7	28.6/7
p-03	50.8	14.7	0.0	0	0	0.0/0	0.0/0
ALTERNATIVE 4, SUBALTERNATIVE 4B							
x-03	137.3	1.7	0.0	0	0	0.0/0	0.0/0
i-03	488.1	4.2	19.4	1	3	4.9/24	14.56/71
ALTERNATIVE 4, SUBALTERNATIVE 4C							
i-04	253.0	2.1	18.5	0	0	0.0/0	0.0/0

[1]Density of known sites/100 acres includes sites that are previously recommended/determined ineligible for listing in the NRHP.

[2] (/) is used in this column to indicate the separation of data values

Table 4.5-2 Known Survey and Anticipated Cultural Resources in Segments by Alternative and Subalternative in the Quartzsite Zone

SEGMENT NO.	ACRES (200-FT CORRIDOR)	PERCENTAGE OF SEGMENT SURVEYED (%)	DENSITY OF KNOWN SITES (PER 100 ACRES)[1]	COUNT OF KNOWN DETERMINED OR RECOMMENDED ELIGIBLE SITES	COUNT OF KNOWN UNEVALUATED/ UNKNOWN ELIGIBILITY SITES	DENSITY (PER 100 ACRES)/ PROJECTED COUNT OF NRHP-ELIGIBLE SITES[2]	DENSITY (PER 100 ACRES)/ PROJECTED COUNT OF SITES TO BE EVALUATED[2]
PROPOSED ACTION							
p-07	50.2	15.4	32.5	1	1	6.3/3	6.5/3
p-08	16.6	5.6	17.9	0	0	0.0/0	0.0/0
ALTERNATIVE 1							
i-05	69.6	36.3	4.0	0	1	0.0/0	4.0/3
qs-01	75.1	94.1	0.0	0	0	0.0/0	0.0/0
qs-02	118.0	38.4	11.0	1	0	2.2/3	0.0/0
ALTERNATIVE 1, SUBALTERNATIVE 1D							
qn-01	15.1	89.6	22.2	1	1	7.4/1	7.4/1
ALTERNATIVE 2							
i-05	69.6	36.3	4.0	0	1	0.0/0	4.0/3
qs-01	75.1	94.1	0.0	0	0	0.0/0	0.0/0
x-07	188.2	3.1	0.8	0	6	0.0/0	105.3/198

SEGMENT NO.	ACRES (200-FT CORRIDOR)	PERCENTAGE OF SEGMENT SURVEYED (%)	DENSITY OF KNOWN SITES (PER 100 ACRES)[1]	COUNT OF KNOWN DETERMINED OR RECOMMENDED ELIGIBLE SITES	COUNT OF KNOWN UNEVALUATED/ UNKNOWN ELIGIBILITY SITES	DENSITY (PER 100 ACRES)/ PROJECTED COUNT OF NRHP-ELIGIBLE SITES[2]	DENSITY (PER 100 ACRES)/ PROJECTED COUNT OF SITES TO BE EVALUATED[2]
ALTERNATIVE 3							
p-07	50.2	15.4	32.5	1	1	6.5/3	6.5/3
p-08	16.6	5.6	17.9	0	0	0.0/0	0.0/0
x-05	251.4	1.1	87.0	1	1	37.0/93	37.0/93
ALTERNATIVE 3, SUBALTERNATIVE 3E							
qs-01	75.1	94.1	0.0	0	0	0.0/0	0.0/0
x-07	188.2	3.1	122.8	0	6	0.0/0	105.3/198
ALTERNATIVE 3, SUBALTERNATIVE 3F							
x-06	225.1	23.7	11.2	3	2	5.6/13	3.7/8
ALTERNATIVE 3, SUBALTERNATIVE 3G							
qn-01	15.1	89.6	22.2	1	1	7.4/1	7.4/1
ALTERNATIVE 3, SUBALTERNATIVE 3H							
qn-02	263.3	56.6	4.7	3	1	2.0/5	0.7/2
ALTERNATIVE 3, SUBALTERNATIVE 3J							
i-05	69.6	36.3	4	0	1	0.0/0	4.0/3

SEGMENT NO.	ACRES (200-FT CORRIDOR)	PERCENTAGE OF SEGMENT SURVEYED (%)	DENSITY OF KNOWN SITES (PER 100 ACRES)[1]	COUNT OF KNOWN DETERMINED OR RECOMMENDED ELIGIBLE SITES	COUNT OF KNOWN UNEVALUATED/ UNKNOWN ELIGIBILITY SITES	DENSITY (PER 100 ACRES)/ PROJECTED COUNT OF NRHP-ELIGIBLE SITES[2]	DENSITY (PER 100 ACRES)/ PROJECTED COUNT OF SITES TO BE EVALUATED[2]
ALTERNATIVE 4							
p-08	16.6	5.6	17.9	0	0	0.0/0	0.0/0
qn-01	15.1	89.6	22.2	1	1	7.4/1	7.4/1
x-06	225.1	23.7	11.2	3	2	5.6/13	3.7/8
ALTERNATIVE 4, SUBALTERNATIVE 4D							
x-05	251.4	1.1	87	1	1	37.0/93	37.0/93
p-07	50.2	15.4	32.5	0	1	6.3/3	6.5/3
ALTERNATIVE 4, SUBALTERNATIVE 4J							
i-05	69.6	36.3	4	0	1	0.0/0	4.0/3

[1]Density of known sites/100 acres includes sites that are previously recommended/determined ineligible for listing in the NRHP.

[2](/) is used in this column to indicate a separation of data values.

Table 4.5-3 Known Survey and Anticipated Cultural Resources in Segments by Alternative and Subalternative in the Copper Bottom Zone

SEGMENT NO.	ACRES (200-FT CORRIDOR)	PERCENTAGE OF SEGMENT SURVEYED (%)	DENSITY OF KNOWN SITES (PER 100 ACRES)[1]	COUNT OF KNOWN DETERMINED OR RECOMMENDED ELIGIBLE SITES	COUNT OF KNOWN UNEVALUATED/ UNKNOWN ELIGIBILITY SITES	DENSITY (PER 100 ACRES)/ PROJECTED COUNT OF NRHP-ELIGIBLE SITES[2]	DENSITY (PER 100 ACRES)/ PROJECTED COUNT OF SITES TO BE EVALUATED[2]
PROPOSED ACTION							
p-09	167.9	59.4	5.0	0	0	0.0/0	0.0/0
p-10	28.2	41.9	8.5	0	0	0.0/0	0.0/0
p-11	96.6	66.2	3.1	1	0	1.6/2	0.0/0
p-12	64.2	9.8	0.0	0	0	0.0/0	0.0/0
p-13	84.0	97.5	7.3	2	0	2.4/2	0.0/0
p-14	23.1	75.2	23.1	0	0	0.0/0	0.0/0
ALTERNATIVE 1							
i-06	176.2	37.7	1.5	0	0	0.0/0	0.0/0
i-07	154.7	33.3	7.8	0	3	0.0/0	5.8/9
ALTERNATIVE 2							
p-09	167.9	59.4	5.0	0	0	0.0/0	0.0/0
p-10	28.2	41.9	8.5	0	0	0.0/0	0.0/0
p-11	96.6	66.2	3.1	1	0	1.6/2	0.0/0
p-12	64.2	9.8	0.0	0	0	0.0/0	0.0/0
p-13	84.0	97.5	7.3	2	0	2.4/2	0.0/0
p-14	23.1	75.2	23.1	0	0	0.0/0	0.0/0
ALTERNATIVE 2, SUBALTERNATIVE 2C							
cb-02	81.6	38.5	3.2	0	0	0.0/0	0.0/0
cb-04	45.7	45.2	14.6	0	3	0.0/0	14.6/7
cb-06	46.9	0.3	0.0	0	0	0.0/0	0.0/0

SEGMENT NO.	ACRES (200-FT CORRIDOR)	PERCENTAGE OF SEGMENT SURVEYED (%)	DENSITY OF KNOWN SITES (PER 100 ACRES)[1]	COUNT OF KNOWN DETERMINED OR RECOMMENDED ELIGIBLE SITES	COUNT OF KNOWN UNEVALUATED/ UNKNOWN ELIGIBILITY SITES	DENSITY (PER 100 ACRES)/ PROJECTED COUNT OF NRHP-ELIGIBLE SITES[2]	DENSITY (PER 100 ACRES)/ PROJECTED COUNT OF SITES TO BE EVALUATED[2]
ALTERNATIVE 2, SUBALTERNATIVE 2D							
cb-03	106	15.6	12.0	1	0	6.0/6	0.0/0
ALTERNATIVE 3							
p-09	167.9	59.4	5.0	0	0	0.0/0	0.0/0
p-14	23.1	75.2	23.1	0	0	0.0/0	0.0/0
cb-01	77.9	4.8	0.0	0	0	0.0/0	0.0/0
cb-04	45.7	45.2	14.6	0	3	0.0/0	14.6/7
cb-05	107.9	8.7	0.0	0	0	0.0/0	0.0/0
ALTERNATIVE 3, SUBALTERNATIVE 3K							
p-10	28.2	41.9	8.5	0	0	0.0/0	0.0/0
cb-02	81.6	38.5	3.2	0	0	0.0/0	0.0/0
ALTERNATIVE 3, SUBALTERNATIVE 3L							
i-06	176.2	37.7	1.5	0	0	0.0/0	0.0/0
x-08	32.4	23.5	13.2	1	0	13.2/4	0.0/0
p-12	64.2	9.8	0.0	0	0	0.0/0	0.0/0
p-13	84	97.5	7.3	2	0	2.4/2	0.0/0
ALTERNATIVE 4							
p-09	167.9	59.4	5	0	0	0.0/0	0.0/0
p-10	28.2	41.9	8.5	0	0	0.0/0	0.0/0
p-13	84.0	97.5	7.3	2	0	2.4/2	0.0/0
p-14	23.1	75.2	23.1	0	0	0.0/0	0.0/0
cb-02	81.6	38.5	3.2	0	0	0.0/0	0.0/0
cb-04	45.7	45.2	14.6	0	3	0.0/0	14.6/7
cb-06	46.9	0.3	0.0	0	0	0.0/0	0.0/0

SEGMENT NO.	ACRES (200-FT CORRIDOR)	PERCENTAGE OF SEGMENT SURVEYED (%)	DENSITY OF KNOWN SITES (PER 100 ACRES)[1]	COUNT OF KNOWN DETERMINED OR RECOMMENDED ELIGIBLE SITES	COUNT OF KNOWN UNEVALUATED/ UNKNOWN ELIGIBILITY SITES	DENSITY (PER 100 ACRES)/ PROJECTED COUNT OF NRHP-ELIGIBLE SITES[2]	DENSITY (PER 100 ACRES)/ PROJECTED COUNT OF SITES TO BE EVALUATED[2]
ALTERNATIVE 4, SUBALTERNATIVE 4E							
cb-01	77.9	4.8	0	0	0	0.0/0	0.0/0
ALTERNATIVE 4, SUBALTERNATIVE 4F							
cb-05	107.9	8.7	0	0	0	0.0/0	0/0
ALTERNATIVE 4, SUBALTERNATIVE 4G							
p-11	96.6	66.2	3.1	1	0	1.6/2	0.0/0
p-12	64.2	9.8	0.0	0	0	0.0/0	0.0/0
ALTERNATIVE 4, SUBALTERNATIVE 4H							
x-08	32.4	23.5	13.2	1	0	13.2/4	0.0/0
i-07	154.7	33.3	7.8	0	3	0.0/0	5.8/9

[1]Density of known sites/100 acres includes sites that are previously recommended/determined ineligible for listing in the NRHP.

[2](/) is used in this column to indicate a separation of data values.

Table 4.5-4 Known Survey and Anticipated Cultural Resources in Segments by Alternative and Subalternative in the Colorado River/California Zone

SEGMENT NO.	ACRES (200-FT CORRIDOR)	PERCENTAGE OF SEGMENT SURVEYED (%)	DENSITY OF KNOWN SITES (PER 100 ACRES)[1]	COUNT OF KNOWN DETERMINED OR RECOMMENDED ELIGIBLE SITES	COUNT OF KNOWN UNEVALUATED/ UNKNOWN ELIGIBILITY SITES	DENSITY (PER 100 ACRES)/ PROJECTED COUNT OF NRHP-ELIGIBLE SITES[2]	DENSITY (PER 100 ACRES)/ PROJECTED COUNT OF SITES TO BE EVALUATED[2]
PROPOSED ACTION							
p-15e	66.4	42.9	17.5	0	4	0.0/0	14.0/9
p-15w	161.5	32.4	15.3	0	2	0.0/0	15.3/25
p-16	116.1	14.6	47.3	0	5	0.0/0	29.6/34
p-17	71.2	100	35.1	2	7	2.8/2	9.8/7
p-18	62.9	100	22.3	1	7	1.6/1	11.1/7
ALTERNATIVE 1							
i-08s	32.5	28.9	0.0	0	0	0.0/0	0.0/0
ca-04	9.4	21.3	0.0	0	0	0.0/0	0.0/0
ca-05	161.9	3.4	109.1	0	6	0.0/0	109.1/177
ca-06	64.1	33.1	4.7	0	1	0.0/0	4.7/3
ca-07	76.4	66.2	7.9	0	0	0.0/0	0.0/0
ca-09	63.1	100	3.2	0	0	0.0/0	0.0/0
x-09	19.8	30.3	0.0	0	0	0.0/0	0.0/0
x-19	24.2	100.0	16.5	0	3	0.0/0	12.4/3
ALTERNATIVE 1, SUBALTERNATIVE 1E							
ca-01	162.2	2.0	272.7	0	9	0.0/0	272.7/442
x-10	31.1	60.8	0.0	0	0	0.0/0	0.0/0
x-12	30.7	4.9	133.3	0	2	0.0/0	133.3/41

SEGMENT NO.	ACRES (200-FT CORRIDOR)	PERCENTAGE OF SEGMENT SURVEYED (%)	DENSITY OF KNOWN SITES (PER 100 ACRES)[1]	COUNT OF KNOWN DETERMINED OR RECOMMENDED ELIGIBLE SITES	COUNT OF KNOWN UNEVALUATED/ UNKNOWN ELIGIBILITY SITES	DENSITY (PER 100 ACRES)/ PROJECTED COUNT OF NRHP-ELIGIBLE SITES[2]	DENSITY (PER 100 ACRES)/ PROJECTED COUNT OF SITES TO BE EVALUATED[2]
ALTERNATIVE 2							
p-15e	66.4	42.9	17.5	0	4	0.0/0	14.0/9
p-15w	161.5	32.4	15.3	0	8	0.0/0	15.3/25
p-16	116.1	14.6	47.3	0	5	0.0/0	29.6/34
x-15	35.6	62.9	0.0	0	0	0.0/0	0.0/0
x-16	56.7	12.3	71.4	0	1	0.0/0	14.3/8
ca-07	76.4	66.2	7.9	0	0	0.0/0	0.0/0
ca-09	63.1	100	3.2	0	0	0.0/0	0.0/0
x-19	24.2	100.0	16.5	0	3	0.0/0	12.4/3
ALTERNATIVE 2, SUBALTERNATIVE 2E							
x-13	48.7	3.3	62.5	0	1	0.0/0	62.5/30
ca-02	82.8	10.1	35.7	0	3	0.0/0	35.7/30
ALTERNATIVE 3							
ca-01	162.2	2.0	272.7	0	9	0.0/0	272.7/442
ca-06	64.1	33.1	4.7	0	1	0.0/0	4.7/3
ca-07	76.4	66.2	7.9	0	0	0.0/0	0.0/0
ca-09	63.1	100	3.2	0	0	0.0/0	0.0/0
cb-10	46.8	14.1	0.0	0	0	0.0/0	0.0/0
x-11	51.7	1.5	125.0	0	1	0.0/0	125.0/65
x-12	30.7	4.9	133.3	0	2	0.0/0	133.3/41
x-19	24.2	100.0	16.5	0	3	0.0/0	12.4/3

SEGMENT NO.	ACRES (200-FT CORRIDOR)	PERCENTAGE OF SEGMENT SURVEYED (%)	DENSITY OF KNOWN SITES (PER 100 ACRES)[1]	COUNT OF KNOWN DETERMINED OR RECOMMENDED ELIGIBLE SITES	COUNT OF KNOWN UNEVALUATED/ UNKNOWN ELIGIBILITY SITES	DENSITY (PER 100 ACRES)/ PROJECTED COUNT OF NRHP-ELIGIBLE SITES[2]	DENSITY (PER 100 ACRES)/ PROJECTED COUNT OF SITES TO BE EVALUATED[2]
ALTERNATIVE 3, SUBALTERNATIVE 3M							
p-15e	66.4	42.9	17.5	0	4	0.0/0	14.0/9
p-15w	161.5	32.4	15.3	0	8	0.0/0	15.3/25
x-13	48.7	3.3	62.5	0	1	0.0/0	62.5/30
ALTERNATIVE 4							
p-15e	66.4	42.9	17.5	0	4	0.0/0	14.0/9
p-15w	161.5	32.4	15.3	0	8	0.0/0	15.3/25
ca-06	64.1	33.1	4.7	0	1	0.0/0	4.7/3
ca-07	76.4	66.2	7.9	0	0	0.0/0	0.0/0
ca-09	63.1	100	3.2	0	0	0.0/0	0.0/0
x-12	30.7	4.9	133.3	0	2	0.0/0	133.3/41
x-13	48.7	3.3	62.5	0	1	0.0/0	62.5/30
x-19	24.2	100.0	16.5	0	3	0.0/0	12.4/3
ALTERNATIVE 4, SUBALTERNATIVE 4K							
i-08s	32.5	28.9	0.0	0	0	0.0/0	0.0/0
ca-04	9.4	21.3	0.0	0	0	0.0/0	0.0/0
x-09	19.8	30.3	0.0	0	0	0.0/0	0.0/0
ALTERNATIVE 4, SUBALTERNATIVE 4L							
cb-10	46.8	14.1	0.0	0	0	0.0/0	0.0/0
x-11	51.7	1.5	125.0	0	1	0.0/0	125.0/65

SEGMENT NO.	ACRES (200-FT CORRIDOR)	PERCENTAGE OF SEGMENT SURVEYED (%)	DENSITY OF KNOWN SITES (PER 100 ACRES)[1]	COUNT OF KNOWN DETERMINED OR RECOMMENDED ELIGIBLE SITES	COUNT OF KNOWN UNEVALUATED/ UNKNOWN ELIGIBILITY SITES	DENSITY (PER 100 ACRES)/ PROJECTED COUNT OF NRHP-ELIGIBLE SITES[2]	DENSITY (PER 100 ACRES)/ PROJECTED COUNT OF SITES TO BE EVALUATED[2]
ALTERNATIVE 4, SUBALTERNATIVE 4M							
ca-01	162.2	2.0	272.7	0	9	0.0/0	272.7/442
ALTERNATIVE 4, SUBALTERNATIVE 4N							
x-10	31.1	60.8	0.0	0	0	0.0/0	0.0/0
ALTERNATIVE 4, SUBALTERNATIVE 4P							
p-16	116.1	14.6	47.3	0	5	0.0/0	29.6/34
p-17	71.2	100	35.1	2	7	2.8/2	9.8/7
p-18	62.9	100	22.3	1	7	1.6/1	11.1/7

[1]Density of known sites/100 acres includes sites that are previously recommended/determined ineligible for listing in the NRHP.

[2](/) is used in this column to indicate a separation of data values.

4.6 CONCERNS OF INDIAN TRIBES

See Chapter 4.

4.7 LAND USE

Table 4.7-1 Land Use Compliance with Relevant Land Use Plans

PLAN	GOALS/OBJECTIVES/POLICY	COMPLIANCE DETERMINATION
BLM Yuma RMP	The Yuma Field Office has identified eight utility corridors in its planning area. New major ROWs and utility facilities should be located in designated ROW corridors, unless an evaluation of the project demonstrates location outside of a designated corridor is the only practicable alternative. The BLM has stated that the Project ROW must be in designated corridors or would be out of compliance with the RMP.	Several segments would be out of compliance with the ROW requirements of the Yuma RMP and would require an RMP Amendment (Appendix 4, Section 4.7.4.2). Several segments would not conform with designated VRM classes (Section 4.11) and would require an RMP Amendment.
BLM Bradshaw-Harquahala RMP	The Hassayampa Field Office has identified utility corridors as a specific land use allocation and has listed the types of projects for which utility corridors may be designated. To minimize impacts on BLM-administered land, new infrastructure should be within these designated corridors. The BLM has the authority to designate new utility corridors for facilities that fall within one of three categories (including electric transmission); however, other land uses, such as avoiding sensitive or special resources, must be taken into consideration.	The Project would be consistent with the Bradshaw-Harquahala RMP.
BLM Lower Sonoran RMP	The Lower Sonoran Field Office has identified utility corridors as a specific land use allocation in which all compatible major linear utilities will be allowed. The RMP states that linear facilities may be authorized outside of the utility corridor if they are due and necessary and connecting a generating facility to the closest designated utility corridor.	The Project would be consistent with the Lower Sonoran RMP.
BLM Lake Havasu RMP	The Lake Havasu Field Office has identified utility corridors as a land use authorization pursuant to Title 5 of the FLPMA. Uses authorized by a ROW issued under Title 5 may include power lines. The Lake Havasu	One segment would not conform with designated VRM classes (Section 4.11) and would require an RMP Amendment (Section 4.7.4.2).

PLAN	GOALS/OBJECTIVES/POLICY	COMPLIANCE DETERMINATION
	Field Office has identified 12 utility corridors in its planning area that are either existing corridors or additional/revised corridors tying together existing corridors. To minimize impacts and the proliferation of separate ROWs on BLM-administered land, new infrastructure should be within these identified corridors.	
Kofa National Wildlife Refuge and Wilderness…Interagency Management Plan	Within the Interagency Management Plan, shared land uses are described, which include designated utility corridors. To grant use of a ROW, the USFWS would need to find the use appropriate for the refuge based on the conditions in chapter 603 FW 1 of the USFWS Fish and Wildlife Service Manual and would also need to conduct a compatibility determination if the use is found appropriate.	The Project was found to be not an appropriate use on the Kofa NWR (USFWS 2017).
CDCA Plan of 1980, as amended	The Project would fall within a DFA identified in the CDCA Plan. In addition to being pre-screened and allowed for development, projects in DFAs benefit from consistent and predictable mitigation requirements identified in the DRECP and can take advantage of the database of resource data collected as part of the DRECP. New projects must comply with applicable CMAs in the CDCA Plan.	The Project would be consistent with this plan and all CMAs that would apply to the Project, except for LUPA-BIO-PLANT-2 (Appendix 2C). An amendment to the CDCA Plan would be required for all California segments to be in compliance (Section 4.7.4.2).
Maricopa County Comprehensive Plan	The plan does not specifically discuss regulations or policies for transmission lines or other utilities; however, the plan includes a Land Use Policy that states, "Maricopa County supports land use buffers and compatible land use strategies near existing and future high voltage electric utility line corridors." This Land Use Policy points toward the use of corridors for transmission lines.	The Project would be consistent with this plan.
Tonopah/Arlington Area Plan	This area plan does not designate specific corridors for utility infrastructure or provide detail on how transmission line infrastructure should occur.	The Project would be consistent with this plan.
La Paz County Zoning Plan	Although the plan does not expressly identify utility corridors for transmission infrastructure, it states that "[a]ny new industrial development should be located along a major	The Proposed Action and Alternative Segments, where they occur along the DPV1 or I-10, would be consistent with

PLAN	GOALS/OBJECTIVES/POLICY	COMPLIANCE DETERMINATION
	arterial corridor, rail connection, [or] state highway, or in close proximity to the Interstate corridor."	this plan. Alternative segments outside of these areas would not be consistent with this plan.
Riverside County General Plan	The plan objectives include ensuring that development and conservation land uses do not infringe on existing essential public facilities and public utility corridors, taking into consideration utility easements and linear ROWs in land development and conservation proposal reviews, and avoiding crossing ridge tops to avoid bird collisions.	The Project would be consistent with this Plan.
Riverside County Palo Verde Area Plan	This area plan does not define land specifically for the use of utility infrastructure; however, it is intended to be consistent with the Riverside County General Plan, the City of Blythe General Plan, and the City of Blythe Colorado River Corridor Plan.	The Project would be consistent with this Plan.
Town of Quartzsite General Plan	One of the goals of this plan is to promote an efficient land use development pattern where utility infrastructure is available. Although the plan does not identify particular corridors for utilities, the strategy supporting this goal is to coordinate infrastructure improvement with existing and projected development activity and, therefore, place utilities in areas that are beneficial to the community and complement the plan.	The Alternative Segments that cross existing development, e.g., the La Posa LTVA, Dome Rock 14-Day Camping Area, or a Tier III growth area, would not be consistent with this plan. This plan does not apply to the Proposed Action segments because they are outside its planning boundary.
City of Blythe General Plan 2025	Although specific corridors are not identified for utility infrastructure in this plan, the guiding policies indicate the city's intent to protect existing uses (e.g., agriculture, recreation, sensitive habitats) and minimize conflicts between urban and open-space uses by requiring buffers and greenbelts.	The Project would be consistent with this Plan.
City of Blythe Colorado River Corridor Plan	Although this plan does not discuss transmission line corridors or utility ROWs, it is intended to be consistent with the City of Blythe General Plan, and the city would assess placement of these ROWs in the same manner.	The Project would be consistent with this Plan.

Table 4.7-2 Segments Requiring Yuma RMP Amendment for ROW Grant

SEGMENT	ZONE	LENGTH BLM	ACRES BLM
i-03	East Plains and Kofa	10.7	256.8
x-01	East Plains and Kofa	1.0	24
x-02b	East Plains and Kofa	0.1	2.4
x-03	East Plains and Kofa	5.6	134.4
x-04	East Plains and Kofa	21.6	518.4
qn-02	Quartzsite	9.8	235.2
qs-01[1]	Quartzsite	3.1	74.4
qs-02[1]	Quartzsite	4.8	115.2
x-05	Quartzsite	10.2	244.8
x-06	Quartzsite	9.2	220.8
cb-01	Copper Bottom	3.2	76.8
cb-02	Copper Bottom	2.2	52.8
cb-04	Copper Bottom	1.7	40.8
cb-05	Copper Bottom	3.9	93.6
cb-06	Copper Bottom	1.3	31.2
TOTAL		**88.4**	**2,121.6**

[1] Only a portion would be outside of a designated corridor; only this portion would require an RMP amendment. The total BLM acreage is included to be conservative.

Table 4.7-3 Reasonably Foreseeable Future Project Potential Disturbance in CEA

ZONE	PROJECT	TYPE	ACRES
EP&K	La Paz County Land Purchase	Solar Facility	8,000
QTZ	Plomosa 9 Placer Claim	Mine	20
QTZ	Quartzsite WWTP	Infrastructure	16.7*
CB	West Port Gold	Mine	40
CR&CA	Blythe Energy Power Plant/ Sonoran Energy Project	Power Plant	76
CR&CA	Blythe Mesa Solar Project	Solar Facility	7,025
CR&CA	Desert Quartzite Solar Project	Solar Facility	4,800
CR&CA	Crimson Solar	Solar Facility	2,700
Total			**22,661**

* Expansion would be within existing facility footprint; therefore, it is not included in total disturbance.

4.8 RECREATION

See Chapter 4.

4.9 SOCIOECONOMICS

4.9.1 Socioeconomic Methods for Analysis

4.9.1.1 Analysis Area

As noted in Section 3.9, some economic data are reliably available only at the county level while others are available at the census block group geographic level. Due to the dominance of Phoenix and Los Angeles at the county level for Maricopa County and Riverside County, respectively, in socioeconomic data areas, the Block Group study area will be the analysis area where possible. Otherwise the three-county Analysis Area will be used. The Block Group study area is comprised of the block groups that contain the area within 0.5-mile of the Proposed Action and Action Alternative segments. The block group study area is the area that would be most affected by the Project. The block groups do not coincide with the geographic zones used for analysis of most of the other resources in this EIS. Consequently, the zones will not be used in this section.

Economic effects from the Project were estimated using the RIMS II regional economic model, developed by the US Department of Commerce Bureau of Economic Analysis. RIMS II is an input/output modeling system that is widely used by both private-sector and public-sector economists throughout the United States to assess the potential economic impacts of proposed projects within a broad range of sizes and industries. The model is based on "interindustry relationships within regions" (BEA 1997) and uses multipliers determined through recent economic activity to estimate indirect and induced effects of any given project on the modeled area. One example of a potential indirect effect would include any "multiplier" effects on the economy resulting from the recirculation of money spent by construction workers or the purchase of construction goods and services within the analysis area. RIMS II multipliers used for this analysis are based on 2007 national benchmark input-output data and 2015 regional data.

4.9.1.2 Assumptions

The construction phase of the Project would have a greater impact on jobs, income, population, housing, and the economy, than the operations and maintenance phase. The decommissioning phase would be similar to the construction phase relative to anticipated socioeconomic impacts. Such impacts, however, would occur so much later in time that conducting a thorough analysis for decommissioning now would necessarily rely on unsupported assumptions. Construction of the Project would produce multiple types of revenue streams that would stimulate the local economy—procurement of locally sourced goods and services, wages paid to local construction workers, and the local expenditures of non-local construction workers during the period they reside in the analysis area. Each of these revenue streams was incorporated in the RIMS II analysis. Operation and maintenance of the transmission line would generate tax revenues for as long as the line is in use, as well as potential right-of-way lease fees.

Even though the majority of the construction workforce would be temporary workers who would not permanently reside in the analysis area, they would still contribute to the overall economic impacts of the Project. Given that the non-local labor force would reside in the local community for the duration of the Project, they would inevitably spend a portion of their income in the local economy. These local expenditures would likely primarily include housing, food, and entertainment. DCRT estimates that approximately 45 percent of Project construction workers would be hired from the local labor pool, which is typically defined as workers who reside within a 50-mile radius of the Project (DCRT 2017).

Given the short-term and migratory nature of this Project during construction activities, very few of these employees are expected to be accompanied by their families. Experience on similar projects has shown that the proportion of non-local construction workers accompanied by their families ranges from none to roughly 10 percent of the non-local work force (BLM 2013a; 2013d). To ensure this analysis does not inadvertently understate potential population-related impacts, the analysis assumes that 10 percent of the non-local construction workforce would be accompanied by a spouse and a school-aged child.

The local economic opportunities that result from construction-related payroll and construction expenditures for local goods and services could also lead to additional migration to the analysis area. The RIMS II model provides estimates of the number of indirect and induced jobs that would be created due to these expenditures. “Indirect effects,” as the term is used in economics, includes additional employment and wages resulting from spending by the construction companies, while “induced effects” are increased employment and wages resulting from the economic growth associated with increased spending by workers in the area. The extent to which indirect and induced jobs would be filled by existing residents in the analysis area, versus people drawn to the area by these new employment opportunities, is unknown. For purposes of estimating potential impacts on population, this analysis provides a range of potential population effects from the alternatives. At the low end, the indirect and induced jobs are assumed to be filled entirely by local residents and estimates of population effects include only the direct Project construction workers and families from outside the Project Area (55 percent). At the high end, half the indirect and induced jobs are assumed to be filled by workers who migrate to the analysis area. The composition of these workers’ households is assumed to mirror the current average of 2.19 persons per household within La Paz County, which is considered most representative of the Project Area (US Census Bureau 2017).

Non-local workers, direct or indirect, would require housing in the analysis area. For purposes of considering potential effects on housing conditions, the number of projected non-local workers is compared to the estimated availability of rental housing, motel/hotel rooms, and RV sites within the analysis area.

During the operations and maintenance phase of the Project, which is expected to last approximately 50 years, DCRT estimates a workforce of three, full-time equivalent local jobs at a cost of $195,000 per year (in 2020 dollars) (DCRT 2017).

Table 4.9-1 Impacts to Jobs and Employment

JOBS	DIRECT	INDIRECT	INDUCED	TOTAL
Transmission Line	120	54.1	85.5	259.6
Substation	40	9.0	14.3	43.3
Total	160	63.1	99.8	302.9

Table 4.9-2 Impacts to Earnings from Indirect and Induced Employment

EARNINGS	DIRECT	INDIRECT	INDUCED	TOTAL
Total ($ millions)	N/A*	13.3	17.7	31.0

*N/A – Not Available, at the request of the Applicant

Table 4.9-3 Impacts to Population

	DIRECT*	INDIRECT	INDUCED	NON-LOCAL HOUSEHOLD PERSONS**	POPULATION INCREASE (PERSONS) ***
Scenario One – All Indirect and Induced Hires Local					
Local	63	63	100	0	0
Non-Local	77	0	0	15.4	92.4
Scenario Two – Half of Indirect and Induced Hires Non-Local					
Local	63	31.5	50	0	0
Non-Local	77	31.5	50	31.7	190.2

* Construction Workers

** Non-Local Households = 10% of non-local workers times 2

*** Population Increase = non-local workers and their families

Table 4.9-4 Population Impacts as a Percent

AREA	2014 POPULATION (TABLE 3.15-1)	SCENARIO ONE		SCENARIO TWO	
		POPULATION INCREASE (PERSONS)	POPULATION INCREASE (%)	POPULATION INCREASE (PERSONS)	POPULATION INCREASE (%)
La Paz County	20,348	92	0.452 %	190	0.934%
Maricopa County	3,947,382	92	0.002%	190	0.005%
Riverside County	2,266,899	92	0.004%	190	0.008%
Three-County Study Area	6,234,629	92	0.001%	190	0.003%
Block Group Study Area	21,710	92	0.424%	190	0.875%

Table 4.9-5 Project Impacts on Existing Housing Units

AREA	2014 HOUSING UNITS	SCENARIO ONE		SCENARIO TWO	
		HOUSING UNITS INCREASE	HOUSING UNITS INCREASE (%)	HOUSING UNITS INCREASE	HOUSING UNITS INCREASE (%)
La Paz County	16,113	77	0.478%	158	0.981%
Maricopa County	1,657,753	77	0.005%	158	0.010%
Riverside County	810,426	77	0.010%	158	0.019%
Three-County Study Area	2,484,292	77	0.003%	158	0.006%
Block Group Study Area	13,750	77	0.560%	158	1.149%

4.10 ENVIRONMENTAL JUSTICE

See Chapter 4.

4.11 VISUAL RESOURCES

4.11.1 Introduction

See Chapter 4.

4.11.2 Methods for Analysis

4.11.2.6 Analysis of KOPs/Segments not Simulated

When viewers are proximal to the large structures (such as driving the road through Copper Bottom Pass, where existing structures are a few hundred feet away, adjacent to the road) and overall infrastructure of a transmission line is similar to the Project, the infrastructure has "presence" for the viewer. Viewers see and sense the largeness of the structures and other infrastructure in comparison to themselves, their vehicle, and the surrounding landscape. Apart of visibility, viewers can experience noise created by wind moving around the conductors or crackling. When the Project would have "presence" for the viewer it would be a major modification to and dominate the visual environment. Distance between the viewer and the Project was found to be the primary indicator of "presence," level of modification, and dominance.

The following examples of transmission structure visibility in the Project Area provide a gradient of viewer proximity, and demonstrate how these factors affect the visual impact that the Project would have, and how the factors can be applied to non-simulated KOPs/segments to make conformance determinations.

From KOP 1 (simulated; Figure 4.11-1, Appendix 7) viewers would be approximately 2 miles from the closest point of the Project along Segment d-01. At 2 miles distant where the Project infrastructure would be viewed against a background of somewhat scenic topography, the Project (and the existing monopole structures connecting the Delaney Substation to the Harquahala Power Plant) would essentially not be visible, understanding that time of day, atmospheric, and lighting conditions could somewhat affect visibility.

From KOP 7 (not simulated, Figure 4.11-2, Appendix 7) viewers are approximately 1 mile from the closest point of the DPV1 transmission line along Segment p-01. The self-supporting lattice structures are visible and barely noticeable where skylined, but difficult to discern against the mountainous backdrop. Where visible, the structures form is unclear and the conductors are not visible.

From KOP 19, (simulated, Figure 4.11-2, Appendix 7) viewers are approximately 1.25 miles from the closest point of the Project along Segment in-01. Similar to KOP 7, due to distance, the structures are very small in the landscape; and due to intervening topography, only tops would be visible, and form is indistinguishable. Due to intervening vertical vegetation (primarily saguaro

cactus), the structures would be barely distinguishable and not noticeable, and the conductors are not visible. Segment in-01 would be located within a BLM utility corridor and would meet VRM Class III objectives, as viewed from KOP 19.

From KOP 20, (simulated, Figure 4.11-3a, Appendix 7) viewers would be approximately 0.5-mile away from the Project along Segment in-01. Where skylined, structures are visible and somewhat noticeable, but are not detectible with a backdrop of rugged mountains. Structure form is distinguishable, but conductors are not visible. Segment in-01 would be located within a BLM utility corridor and would meet VRM Class III objectives, as viewed from KOP 20.

From KOP 20, (simulated, Figure 4.11-3b, Appendix 7) viewers would be approximately 0.2-mile away from the Project along Segment i-04. In this view, because of proximity to the structures, they begin to be larger than some of the surrounding landforms. Where skylined, structures, conductors, and guy wires are clearly visible and attract attention. With a backdrop of low rugged hills, structures would be visible but not noticeable, and conductors and guy wires would not be visible. Structure form is distinctive. While Segment i-04 would be located within a BLM utility corridor and would meet VRM Class III objectives, as viewed from KOP 20, this area is used for OHV recreation, and viewers would be expected to be traveling in closer proximity to the Project, in which case, the Project would dominate the surrounding landscape and would not conform to VRM Class III objectives.

From KOP 17, (simulated, Figure 4.11-4, Appendix 7) viewers would be approximately 0.3-mile away from the Project along Segment i-03. Structures would be partially skylined and partially visible against a backdrop of distant mountains with hazy atmospheric conditions. The structures and their form are noticeable. The portion of Segment i-03 located within a BLM utility corridor would meet VRM Class III objectives, as viewed from KOP 17.

From KOP 37, (simulated, Figure 4.11-5a, Appendix 7) viewers would be less than 0.2-mile away from the Project along Segment p-13. Because of the proximity of the viewer to the structures and the distance between the structures and the backdrop of rugged mountains, the structures are much larger than the surrounding scenery, the conductors and guy wires are clearly visible, and the contrast between the form of the guyed V structures and the self-supporting lattice structures of the DPV1 transmission line is evident. As structures recede in the distance, the conductors and guy wires quickly become invisible and the form contrast transitions to less noticeable, to undetectable with greater distance. However, this area is heavily used for OHV recreation, with routes essentially paralleling and winding around the existing DPV1 structures; therefore, a portion of the structures would similarly appear to recreationists as the closest structures appear in the simulation, as recreationists move through the landscape. The Project, in conjunction with the DPV1 transmission line would be a major modification and would dominate the surrounding landscape, and therefore would not conform to VRM Class III objectives.

Further, as previously described, the BLM has determined that in heavily recreated areas, guy wires could pose an unacceptable risk to OHV recreationists. Therefore, in situations such as the one simulated in KOP 37, the structures would be replaced with self-supporting lattice structures to eliminate guy wires, which would also repeat the form and lines of the existing DPV1

infrastructure (Figure 4.11-5b, Appendix 7). However, despite the replacement of structure type and application of other MMs, such as dulling or coloring of structure surfaces, the Project would continue to not meet VRM Class objectives, and an RMP amendment would be required.

Generally speaking, in the Project Area environment, when the viewer is less than 0.3-mile away from the Project, the structures begin to appear larger than the surrounding landforms; the conductors and guy wires would be clearly visible; and the infrastructure would become a major modification and dominate views, and would not conform to VRM Class III objectives. When the DPV1 infrastructure would be viewed in conjunction with the Project and when there is form contrast between the two, the contrast would contribute to VRM non-conformance.

Table 4.11-1 Visual Impact Analysis and Mitigation Summary for the East Plains and Kofa Zone

KOP	KOP NAME	SEGMENTS VIEWED	SCENIC QUALITY	SENSITIVITY	VRI	VRM	CONFORM?	MITIGATION[1]	RMPA?[2]
1	Saddle Mountain Trailhead	p-01	N/A					None	No
		d-01	N/A					None	No
2	Salome Road South	p-01	N//A					None	No
		d-01	N/A					Recommend matching monopoles from Delaney Substation across agricultural area – as viewed from KOPs 1 & 2 to reduce contrast between the structure types and sense of visual clutter; however, the portions viewed by KOPs are not on BLM-administered land.*	No
3	I-10 Crossing East	p-01	N/A					Recommend using self-supporting lattice structures with matching color and span lengths to match the existing DPV1 structures to reduce contrast between the structure types and sense of visual clutter; however, the portions viewed by KOPs are not on BLM-administered land.*	No
4	Not Assigned								No
5	Private Residence	d-01	N/A					None	No

KOP	KOP NAME	SEGMENTS VIEWED	SCENIC QUALITY	SENSITIVITY	VRI	VRM	CONFORM?	MITIGATION[1]	RMPA?[2]
6	Salome Road North	p-01	N/A					Recommend using self-supporting lattice structures with matching color and span lengths to match the existing DPV1 structures to reduce contrast between the structure types and sense of visual clutter; however, the portions viewed by KOPs are not on BLM-administered land.*	No
7	Snowbird West RV Park	p-01	N/A					Recommend using self-supporting lattice structures with matching color and span lengths to match the existing DPV1 structures to reduce contrast between the structure types and sense of visual clutter; however, the portions viewed by KOPs are not on BLM-administered land.*	No

KOP	KOP NAME	SEGMENTS VIEWED	SCENIC QUALITY	SENSITIVITY	VRI	VRM	CONFORM?	MITIGATION[1]	RMPA?[2]
8	I-10 Crossing West	p-01, p-02	N/A					In the vicinity of the crossing, recommend using self-supporting lattice structures with matching color and span lengths to match the existing DPV1 structures to reduce contrast between the structure types and sense of visual clutter; however, the portions viewed by KOPs are not on BLM-administered land.*	No
		p-03	C	Moderate	No	III	Yes	None	No
		i-01	C	Moderate	No	III	Yes*	Recommend using self-supporting lattice structures with matching color and span lengths to match the existing DPV1 structures to reduce contrast between the structure types and sense of visual clutter; however, the portions viewed by KOPs are not on BLM-administered land.*	No
		x-01	C	Moderate	No	II & III	Yes	None	No
		x-02b	C	Moderate	No	II & III	Yes	None	No
9	Eagletail Mountains (Courthouse Rock)	d-01	C	Moderate	No	III	Yes	None	No

KOP	KOP NAME	SEGMENTS VIEWED	SCENIC QUALITY	SENSITIVITY	VRI	VRM	CONFORM?	MITIGATION[1]	RMPA?[2]
10	Palomas – Harquahala Road	p-04, p-05	C	Moderate, High, and Low	II, III, IV	III	Yes	None	No
		x-03	C	Moderate & High	III & IV	III	Yes	None	No
11	Intersection of AT&T and Connector Road	i-02	C	Moderate	IV	III	Yes	None	No
		x-03	C	Moderate & High	III & IV	III	Yes	None	No
12	Hovatter Road	x-04	C	Moderate & Low	IV	III	Yes	None	No
13	Kofa Wayside/Vicksburg Road	p-06	C	Low	III, IV	III	Yes	None	No
14	Kofa #1	p-06	N/A					The USFWS has stated they will not issue a ROW through the Kofa NWR; therefore, the need for any mitigation is moot.	No
15a	Kofa #2 – Wilbanks Road	p-06	N/A						No
15b	Kofa East Pinch Point	p-06	N/A						No
16	Kofa #3	p-06	N/A						No
17	I-10 Rest Area East	i-03	C & B	Moderate	III, IV	III	Yes	None	No
		x-04	C	Moderate and Low	IV	III	Yes	None	No
18	I-10 Westbound	i-03	C & B	Moderate	III, IV	III	Yes	None	No
		x-04	C	Moderate and Low	IV	III	Yes	None	No
19	Brenda RV Park	in-01	C & B	High	II, III	III	Yes	None	No

KOP	KOP NAME	SEGMENTS VIEWED	SCENIC QUALITY	SENSITIVITY	VRI	VRM	CONFORM?	MITIGATION[1]	RMPA?[2]
20	Gold Nugget Road	i-04	B & C	High	II, III	III	No	Recreation impact analysis determined that an unacceptable level of impacts to OHV rider safety could occur from guys extending from the guyed V structures in areas of heavy OHV use, and mitigation specifies that structures in these areas not contain guy wires. Structures along Segment i-04 would be replaced by either self-supporting lattice or monopoles, as specified by the BLM.	Yes
		in-01	B & C	High	II, III	III	No	Because of proximity of infrastructure to I-10 viewers and mountainous background, color treat the structures to better blend with the background. Minimize disturbance at bases and access-related disturbance.	Yes
59	I-10 West Crossing Eastbound	in-01	B & C - YFO	High - YFO	Unk	III	No	Disturbance at the bases of structures and along access routes should be minimized. Newly disturbed rock areas should be surface treated to match surrounding rock to minimize color contrast.	Yes
			Unknown – Lake Havasu	Unknown – Lake Havasu	IV	II & III	Yes		No

KOP	KOP NAME	SEGMENTS VIEWED	SCENIC QUALITY	SENSITIVITY	VRI	VRM	CONFORM?	MITIGATION[1]	RMPA?[2]
60	I-10 Eastbound On-ramp at Hovatter Road	i-01, i-02, i-03	C & B	Moderate	III & IV	III	Yes	None	No[3]
		x-03, i-03	C	Moderate & High	III, IV	II & III	Yes	None	No[3]
62	I-10 Westbound South of Brenda	Alt SCS	B	High	III	III	Yes	None	No
63	I-10 Eastbound South of Brenda	Alt SCS	B	High	III	III	Yes	None	No

N/A – Not Applicable; not located on BLM-administered land.

If more than one value applies to a segment, both values are provided showing the value with the highest proportion of the segment first.

[1]Structure changes would be required as mitigation for unacceptable impacts for other resources, with ramifications for visual resources impacts analysis.

[2]If yes, see Table 4.11-5, YFO RMP Amendment Summary by Segment, which contains descriptions of mitigative RMP amendments.

[3] An RMPA would be necessary if the existing corridor is not widened to include the portion of i-03 not in the corridor.

*Segment not located on BLM-administered land, therefore structure type to be determined by DCRT in conjunction with landowner; BLM recommendations only.

Table 4.11-2 Visual Impact Analysis and Mitigation Summary for the Quartzsite Zone

KOP	KOP NAME	SEGMENTS VIEWED	SCENIC QUALITY	SENSI-TIVITY	VRI	VRM	COMPLY?	MITIGATION[1]	RMPA?[2]
21	Mitchell Mine Road Residence	x-05	C & B	High	III	III & II	Yes	None	No
22	BLM Long Term Visitor Area (LTVA) #1	x-05	C & B	High	III	III & II	Yes	None	No
		x-06	C & B	High	III	III, IV, & II	No	Recreation impact analysis determined that an unacceptable level of impacts to OHV rider safety could occur from guys extending from the guyed V structures in areas of heavy OHV use, and mitigation specifies that structures in these areas not contain guy wires. Structures along Segment x-06 would be replaced by either self-supporting lattice or monopoles, as specified by the BLM.	Yes
23	BLM LTVA #2	x-06	C & B	High	III	III, IV, & II	Yes	None	No
		x-07	C	High	III	III	Yes	No, but KOP 28 for Segment x-07 does not meet and recommends matching structures to reduce contrast	No
24	RV Park Quartzsite	qs-01	C	High	III	III	Yes	Recommend matching monopole structures and surface treatment.	Yes
25	Not Assigned								
26	Quartzsite Civic Event Parcel	qs-02	B & C	High	II & III	III & IV	Yes	None	Yes[3]
27	Boyer Road – Quartzsite North Side	qn-02	B & C	High	II & III	III & IV	Yes	None	Yes
28	SR 95 LTVA	x-07	C	High	III	III	No	Analysis of impacts to recreation found that guyed V structures pose an unacceptable human health and safety	Yes

KOP	KOP NAME	SEGMENTS VIEWED	SCENIC QUALITY	SENSI-TIVITY	VRI	VRM	COMPLY?	MITIGATION[1]	RMPA?[2]
								risk to OHV recreationists in heavily used recreation areas, such as the LTVA. Recommend using lattice H-frame structures to eliminate guys and more closely match the WAPA 161kV H-frame structures, which would reduce structure contrast and visual clutter.	
29	SR 95 Crossing	p-07 and p-08	B & C	High	II & III	III	No	Analysis of impacts to recreation found that guyed V structures pose an unacceptable human health and safety risk to OHV recreationists in heavily used recreation areas. Recommend using self supporting lattice structures with matching color and span lengths to match the existing DPV1 structures to reduce contrast between the structure types, sense of visual clutter, and eliminate guy wires.	Yes
61	I-10 Eastbound West of Quartzsite	qs-02, i-06	B & C	High	II, III, & IV	III & IV	No	Analysis of impacts to recreation found that guyed-V structures pose an unacceptable human health and safety risk to OHV recreationists in heavily used recreation areas. Recommend using self supporting lattice structures or monopoles to eliminate guy wires.	Yes
		qn-02/i-06	B & C	High	II & III	III & IV	No		Yes

N/A – Not Applicable; not located on BLM-administered land.

If more than one value applies to a segment, both values are provided showing the value with the highest proportion of the segment first.

[1]Structure changes would be required as mitigation for unacceptable impacts for other resources, with ramifications for visual resources impacts analysis.

[2]If yes, see Table 4.11-6, YFO RMP Amendment Summary by Segment, which contains descriptions of mitigative RMP amendments.

[3]An RMPA would be required to change to VRM Class IV the portion of Segment qs-02 west of the area of VRM Class IV and east of Segment i-06.

*Segment not located on BLM-administered land, therefore structure type to be determined by DCRT in conjunction with landowner; BLM recommendations only.

Table 4.11-3 Visual Impact Analysis and Mitigation Summary for the Copper Bottom Zone

KOP	KOP NAME	SEGMENTS VIEWED	SCENIC QUALITY	SENSI-TIVITY	VRI	VRM	COMPLY?	MITIGATION[1]	RMPA?[2]
30	Copper Bottom Pass Road #1	p-09, p-10	C & B	High	II, III	III	No	The surface of the structures should be dulled to match or be better than surface conditions of the DPV1 structures. Surface disturbance should be minimized. Newly disturbed rock areas should be surface treated to match surrounding rock to minimize color contrast.	Yes
31	Not Assigned								
32	Copper Canyon	p-10	B	High	II	III	No	The surface of the structures should be dulled to match or be better than surface conditions of the DPV1 structures. Surface disturbance should be minimized; therefore, structure sites should be accessed via helicopter. Newly disturbed rock areas should be surface treated to match surrounding rock to minimize color contrast.	Yes
33	Johnson Canyon	cb-02	B	High	II, III	II, III	No	Recommend no access routes be constructed to structure sites, and thus structure sites be accessed by foot or helicopter. Recommend that disturbance at structure bases be minimized. Consider applying surface treatments to newly exposed rock and gravel to blend with surrounding rock face and minimize visual impact of attention-attracting disturbance. Recommend height of structures be limited to that absolutely necessary for safety and operation in order to	Yes

KOP	KOP NAME	SEGMENTS VIEWED	SCENIC QUALITY	SENSI-TIVITY	VRI	VRM	COMPLY?	MITIGATION[1]	RMPA?[2]
								minimize skylining. Consider shortening span lengths and designing the route to follow the canyon route to minimize elements (conductors in particular) that would be overhead of viewers and skylined. At a minimum, the surface of the structures should be dulled to eliminate potential for reflection, if not treated to color blend with the canyon, which could help reduce color contrast.	
34	Copper Bottom Alternatives Intersection	cb-01/cb-04	B	High	II, III, IV	II & III	No	At a minimum, the surface of the structures should be dulled to eliminate potential for reflection, if not treated to color blend with the mountainous backdrop, which could help reduce contrast. Disturbance at the bases of structures and along access routes should be minimized. Limit height of structures to that absolutely necessary for safety and operation in order to minimize skylining. Shorten span lengths and design the route to follow canyon routes to minimize elements (conductors in particular) that would be overhead of viewers and skylined.	Yes
		cb-02/cb-04	B	High and Moderate	II, III	II, III	No	At a minimum, the surface of the structures should be dulled to eliminate potential for reflection, if not treated to color blend with the mountainous backdrop, which could help reduce contrast. Disturbance at the bases of structures and along access routes	Yes

KOP	KOP NAME	SEGMENTS VIEWED	SCENIC QUALITY	SENSI-TIVITY	VRI	VRM	COMPLY?	MITIGATION[1]	RMPA?[2]
								should be minimized. Limit height of structures to that absolutely necessary for safety and operation in order to minimize skylining. Shorten span lengths and design the route to follow canyon routes to minimize elements (conductors in particular) that would be overhead of viewers and skylined.	
35	Copper Bottom Pass Road #2	p-11	B	High	II, III	III	No	The surface of the structures should be dulled to match or be better than surface conditions of the DPV1 structures. Surface disturbance should be minimized; therefore, structure sites should be accessed via helicopter. Newly disturbed rock areas should be surface treated to match surrounding rock to minimize color contrast.	Yes
		cb-03	N/A – CRIT Lands					Similar to recommendations for BLM-administered land, on CRIT lands the surface of the structures should be dulled to match or be better than surface conditions of the DPV1 structures. Surface disturbance should be minimized; therefore, structure sites should be accessed via helicopter. Newly disturbed rock areas should be surface treated to match surrounding rock to minimize color contrast.*	N/A and Yes

KOP	KOP NAME	SEGMENTS VIEWED	SCENIC QUALITY	SENSI-TIVITY	VRI	VRM	COMPLY?	MITIGATION[1]	RMPA?[2]
36	Dome Rock Mountains	cb-04/cb-05	B	Moderate & High	II, III, IV	II & III	No	Analysis of impacts to recreation found that guyed V structures pose an unacceptable human health and safety risk to OHV recreationists in heavily used recreation areas. Recommend using self supporting lattice structures to match the existing DPV1 structures in the vicinity of Segments cb-04 and 05.	Yes
		cb-04/06	B	Moderate & High	II, III, IV	II & III	No		Yes
37	Ehrenberg-Cibola Road	p-13	C	Moderate	IV	III	No	Analysis of impacts to recreation found that guyed V structures pose an unacceptable human health and safety risk to OHV recreationists in heavily used recreation areas. Recommend using self supporting lattice structures with matching color and span lengths to match the existing DPV1 structures to reduce contrast between the structure types, sense of visual clutter, and eliminate guy wires.	Yes
		cb-05	B & C	Moderate	III, IV	II & III	No	Analysis of impacts to recreation found that guyed V structures pose an unacceptable human health and safety risk to OHV recreationists in heavily used recreation areas. Recommend using self-supporting lattice structures to match the existing DPV1 structures to reduce contrast between the structure types, sense of visual clutter, and eliminate guy wires.	Yes

KOP	KOP NAME	SEGMENTS VIEWED	SCENIC QUALITY	SENSI-TIVITY	VRI	VRM	COMPLY?	MITIGATION[1]	RMPA?[2]
38	Ehrenberg Wash	p-12	C & B	Moderate and High	II, III, IV	III	No	Analysis of impacts to recreation found that guyed V structures pose an unacceptable human health and safety risk to OHV recreationists in heavily used recreation areas. Recommend using self supporting lattice structures to match the existing DPV1 structures to reduce contrast between the structure types, sense of visual clutter, and eliminate guy wires.	Yes
		cb-06	C & B	Moderate	IV	III	No		Yes
39	I-10 Hilltop I-10 Rest Area West	i-06	N/A					None	N/A
40	I-10 Rest Area West	i-07	N/A					None	N/A

N/A – Not Applicable; not located on BLM-administered land.

If more than one value applies to a segment, both values are provided showing the value with the highest proportion of the segment first.

[1]Structure changes would be required as mitigation for unacceptable impacts for other resources, with ramifications for visual resources impacts analysis.

[2]If yes, see Table 4.11-5, YFO RMP Amendment Summary by Segment, which contains descriptions of mitigative RMP amendments.

*Segment not located on BLM-administered land, therefore structure type to be determined by DCRT in conjunction with landowner; BLM recommendations only.

Table 4.11-4 Visual Impact Analysis and Mitigation Summary for the Colorado River and California Zone

KOP	KOP NAME	SEGMENTS VIEWED	SCENIC QUALITY	SENSI-TIVITY	VRI	VRM	COMPLY?	MITIGATION[1]	RMPA?[2]
41	Colorado River Crossing	i-08s/ca-04	N/A					None	N/A
42	Colorado River Corridor	ca-04/x-10	N/A					None	N/A
43	Riviera Drive, West Side of Colorado River	x-10, ca-01	N/A					None	N/A
44	Oxbow Road Colorado River Crossing	p-15e/w	NA					None	NA
		cb-10, x-11	N/A					None	N/A
45	McIntyre County Park	p-15e/w	N/A					None	N/A
46	Confidential – See Confidential **Appendix 3C**								
47	Appleby Elementary School	ca-05, ca-01	N/A					None	N/A
48	Miller Park	ca-05, ca-01	N/A					None	N/A
49	Intersection of Seeley and Lovekin	ca-05/ca-06	N/A					None	N/A
		p-15w	N/A					None	N/A
50	18th Avenue Houses	p-15w, ca-01, ca-05	N/A					None	N/A
51	Lovekin Private Residence	p-15w, ca-01	N/A					None	N/A
52	Intersection of I-10 and Neighbours Boulevard	ca-05, ca-06, ca-01, ca-02 p-15	N/A					None	N/A
		p-16	N/A					None	N/A
53	Ripley	p-15w, p-16, x-12, x-13	N/A					None	N/A
54	Mesa Verde Community	ca-07	B	High	II	IV	Yes		No

KOP	KOP NAME	SEGMENTS VIEWED	SCENIC QUALITY	SENSI-TIVITY	VRI	VRM	COMPLY?	MITIGATION[1]	RMPA?[2]
55	I-10 Communication Site	ca-09	B	High	II	IV	Yes		No
		p-17	B	High	II	IV	Yes		No
56	I-10 North of Colorado River Substation	ca-09	B	High	II	IV	Yes		No
		p-18	B	High	II	IV	Yes		No
57	Confidential – See Confidential Appendix 3C								
58	Not Assigned								

N/A – Not Applicable; not located on BLM-administered land.

If more than one value applies to a segment, both values are provided showing the value with the highest proportion of the segment first.

[1]Structure changes would be required as mitigation for unacceptable impacts for other resources, with ramifications for visual resources impacts analysis.

[2]If yes, see Table 4.11-5, YFO RMP Amendment Summary by Segment, which contains descriptions of mitigative RMP amendments.

*Segment not located on BLM-administered land, therefore structure type to be determined by DCRT in conjunction with landowner; BLM recommendations only.

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Table 4.11-5 Summary of Visual Resource-related RMP Amendments to the Yuma RMP

SEGMENT	LENGTH	STATE AND COUNTY	PROJECT AREA ZONE	VRM CLASS	UTILITY CORRIDOR?	RMPA	RMPA ANALYSIS DRIVERS	VISUAL RMPA SUMMARY
PROPOSED ACTION SEGMENTS								
p-06	35.8	Arizona, La Paz	East Plains and Kofa	III	Yes - BLM Portion	Yes (only west of Kofa NWR)	VRM Class for p-06, p-07, and p-08 (KOP 29) should match for effective management of visual resources of lands west of the Kofa NWR. Travelers along the DPV1 access road would be experiencing the Project in conjunction with the. DPV1 transmission line within 0.1- to 0.25-mile, resulting in major modification and dominance	Change to VRM Class IV west of the Kofa NWR
p-07	2.1	Arizona, La Paz	Quartzsite	III	Yes	Yes		Change to VRM Class IV
p-08	0.7	Arizona, La Paz	Quartzsite	III	Yes	Yes		Change to VRM Class IV
p-09	6.9	Arizona, La Paz	Copper Bottom	III	Yes	Yes	Travelers along Copper Bottom Pass Road would be experiencing the Project in conjunction with the DPV1 transmission line within 0.1- to 0.25-mile (KOPs 30, 32, 35, 37, and 38), resulting in major modification and dominance.	Change to VRM Class IV
p-10	1.2	Arizona, La Paz	Copper Bottom	III	Yes	Yes		Change to VRM Class IV limited to the viewshed where both the Project and DPV1 would be visible (bounded by the adjacent ridgetops), while the rest of the utility corridor would remain VRM Class III.
p-11	3.9	Arizona, La Paz	Copper Bottom	III	Yes	Yes		Change to VRM Class IV
p-12	2.6	Arizona, La Paz	Copper Bottom	III	Yes	Yes		Change to VRM Class IV
p-13	3.5	Arizona, La Paz	Copper Bottom	III	Yes	Yes		Change to VRM Class IV
ALTERNATIVE SEGMENTS								
cb-01	3.2	Arizona, La Paz	Copper Bottom	II & III	Yes - Partial	Yes	Implementation of recommended MMs would not reduce contrast to the point that the segment would conform to VRM Class II and III standards (KOP 34).	Change to VRM Class III for conformance outside utility corridor within 0.3-mile either side of the centerline of segments, or in an area bounded by the viewshed where the segment would be within canyons.
cb-02	2.2	Arizona, La Paz	Copper Bottom	II & III	Yes - Partial	Yes	Implementation of recommended MMs would not reduce contrast to the point that the segment would conform to VRM Class II and III standards (KOP 33).	Change to VRM Class IV in conjunction with ROW within 0.3-mile either side of the centerline of segments, or in an area bounded by the viewshed where the segment would be within canyons, for conformance outside utility corridor; or expand existing utility corridor to contain this segment, and in conjunction with other corridor changes, change VRM to Class IV.
cb-03	4.3	Arizona, La Paz	Copper Bottom	III	Yes - Partial	Yes	Implementation of recommended MMs would not reduce contrast to the point that the segment would conform to VRM Class III standards (KOP 35).	Located partially on CRIT Reservation Change to VRM Class IV on portion on BLM-administered land within the utility corridor within the viewshed of the canyon.

SEGMENT	LENGTH	STATE AND COUNTY	PROJECT AREA ZONE	VRM CLASS	UTILITY CORRIDOR?	RMPA	RMPA ANALYSIS DRIVERS	VISUAL RMPA SUMMARY
cb-04	1.9	Arizona, La Paz	Copper Bottom	II & III	No	Yes	Implementation of recommended MMs would not reduce contrast to the point that the segment would conform to VRM Class III standards (KOP 34).	Change to VRM Class IV for the area within 0.3-mile either side of the centerline of the segment, or in an area bounded by the viewshed where the segment would be within canyons.
cb-05	4.4	Arizona, La Paz	Copper Bottom	II & III	Yes - Partial	Yes	Implementation of recommended MMs would not reduce contrast to the point that the segment would conform to VRM Class III standards (KOP 36).	Change to VRM Class IV for the area within 0.3-mile either side of the centerline of the segment.
cb-06	1.9	Arizona, La Paz	Copper Bottom	III	Yes - Partial	Yes	Implementation of recommended MMs would not reduce contrast to the point that the segment would conform to VRM Class II and III standards (KOP 36).	Change to VRM Class IV for the area within 0.3-mile either side of the centerline of the segment.
i-03	20.0	Arizona, La Paz	East Plains and Kofa	III	Yes - partial	Optional for ROW	Viewers at the KOP would be 0.4-mile from the closest point along the segment (KOPs 17 & 60). Viewers in closer proximity to the segment would be few if any, as access near/along the segment is extremely limited. An RMPA would be necessary if the existing corridor is not widened to include the portion of i-03 not in the corridor.	None
i-04	10.4	Arizona, La Paz	East Plains and Kofa	III	Yes	Yes	VRM Class III objectives would not be met because viewers would only be 0.1-mile away from the Project in certain areas (KOP 20), MMs would not reduce impacts to allow for conformance, resulting in major modification and dominance.	Change the VRM to Class IV within the BLM utility corridor.
i-05	2.9	Arizona, La Paz	East Plains and Kofa	III	Yes	Yes	Viewers along I-10 would be 0.3-mile from the closest point along the segment. Viewers in closer proximity to the segment would be few, as access near/along the segment is limited. However, Segment i-05 would be changed to Class IV to conform.	Change the VRM to Class IV within the BLM utility corridor.
i-06	7.1	Arizona, La Paz	Copper Bottom	III	Yes	Yes	Viewers along I-10 would be 0.2-mile from the closest point along the segment (KOP 61).	Change the VRM to Class IV within the BLM utility corridor.
qn-02	10.8	Arizona, La Paz	Quartzsite	III & IV	Yes - partial	ROW	Viewers at KOP 27 would be 0.3-mile from the closest point of BLM-administered land along the segment. Viewers in closer proximity to the segment would be few if any, as access near/along the segment is limited.	Change to VRM Class IV 0.3-mile either side of centerline within a single-use ROW
qs-01	3.1	Arizona, La Paz	Quartzsite	III	Yes - partial	Yes	Viewers at KOP 24 would be approximately 0.2-mile from the closest point of the segment, with structures expected out outsize nearby landforms and dominate the view.	Change to VRM Class IV 0.3-mile either side of centerline within a ROW

SEGMENT	LENGTH	STATE AND COUNTY	PROJECT AREA ZONE	VRM CLASS	UTILITY CORRIDOR?	RMPA	RMPA ANALYSIS DRIVERS	VISUAL RMPA SUMMARY
qs-02	4.8	Arizona, La Paz	Quartzsite	III & IV	Yes - partial	Yes	Viewers of Segment qs-02 would be viewing the Project in the context of other development and vertical elements that the Project would blend with.	Change to VRM Class IV within the BLM utility corridor.
x-06	9.2	Arizona, La Paz	Quartzsite	III, IV, II	Yes - partial	Yes	Viewers from KOP 22 would be about 700 feet from the segment, where the Project would be viewed as a major modification and dominating; MMs would not allow conformance and VRM Class III objectives would not be met.	Change to VRM Class IV 0.3-mile either side of segment centerline. Class II portions not visible from KOP 22 or 28.
x-07	7.7	Arizona, La Paz	Quartzsite	III	Yes	Yes	Implementation of MMs would not reduce contrast to the point that the segment would conform to VRM Class III standards.	Change to VRM Class IV within the BLM utility corridor.

N/A – Not Applicable; not located on BLM-administered land.

*Structure changes would be required as mitigation for unacceptable impacts for other resources, with ramifications for visual resources impacts analysis.

**Segment not located on BLM-administered land, therefore structure type to be determined by DCRT in conjunction with landowner; BLM recommendations only

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Table 4.11-6 Summary of Visual Resource-related RMP Amendments to the Lake Havasu RMP

SEGMENT	LENGTH	STATE AND COUNTY	PROJECT AREA ZONE	VRM CLASS	UTILITY CORRIDOR?	RMPA	RMPA ANALYSIS DRIVERS	VISUAL RMPA SUMMARY
ALTERNATIVE SEGMENTS								
in-01	13.8	Arizona, La Paz	East Plains and Kofa	II & III	Yes	Yes	Viewers of the segment would range in distance of 0.4-mile to 1.3 miles from the closest point along the segment (KOPs 19 and 20). Viewers in closer proximity to the segment would be few if any, as access near/along the segment is extremely limited.	Within the BLM utility corridor, change the VRM from Class II to Class IV in the Lake Havasu RMP; change the VRM Class from III to IV in the Yuma FO.

Appendix 5 Tabular Data Associated with Chapter 5

There is no tabular data for Chapter 5.

Appendix 6 References, Acronyms, Abbreviations, Glossary, and Index

Table of Contents

Appendix 6 References, Acronyms, Abbreviations, Glossary, and Index

6.1 REFERENCES

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6.2 ACRONYMS AND ABBREVIATIONS

Acronym/Abbreviation	Definition
AAC	Arizona Administrative Code
AC	alternating current
ACC	Arizona Corporation Commission
ACEC	Area of Critical Environmental Concern
ACHP	Advisory Council on Historic Preservation
ACSR	Aluminum conductor steel-reinforced
ADA	Arizona Department of Agriculture
ADEQ	Arizona Department of Environmental Quality
ADOT	Arizona Department of Transportation
AGFD	Arizona Game and Fish Department
APDES	Arizona Pollutant Discharge Elimination System
APE	Area of Potential Effect
APM	Applicant proposed measure
APS	Arizona Public Service
ARHP	Arizona Register of Historic Places
ARPA	Archaeological Resources Protection Act
ARS	Arizona Revised Statutes
asl	Above sea level
ASLD	Arizona State Land Department
ASM	Arizona State Museum
ATC	Authority to Construct
BEA	Bureau of Economic Analysis
BGEPA	Bald and Golden Eagle Protection Act
BIA	Bureau of Indian Affairs
BLM	Bureau of Land Management
BMP	best management practice
CAA	Clean Air Act
CAISO	California Independent System Operator
Caltrans	California Department of Transportation
CAP	Central Arizona Project

Acronym/Abbreviation	Definition
CARB	California Air Resources Board
CCD	Census county division
CCR	California Code of Regulations
CDCA	California Desert Conservation Area
CDFW	California Department of Fish and Wildlife
CDP	Census designated place
CEA	Cumulative Effects Area
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CFGC	California Fish and Game Commission
CFR	Code of Federal Regulations
CIC	Compliance Inspection Contractor
CMA	Conservation and Management Action
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CO	carbon monoxide
CO_{2e}	carbon dioxide equivalent
CPCN	Certificate of Public Convenience and Necessity
CPUC	California Public Utilities Commission
CREZ	Competitive Renewable Energy Zones
CRHR	California Register of Historic Resources
CRIT	Colorado River Indian Tribes
CWA	Clean Water Act
CY	Cubic yard
DCRT	DCR Transmission, LLC
DFA	development focus area
DOD	Department of Defense
DOE	Department of Energy
DOI	Department of the Interior
DPV1	Devers to Palo Verde 500kV No. 1
DRECP	Desert Renewable Energy Conservation Plan

Acronym/Abbreviation	Definition
EIS	Environmental Impact Statement
EJ	Environmental Justice
EMF	electromagnetic field
EO	Executive Order
EPA	Environmental Protection Agency
ESA	Endangered Species Act
ESW	Economic Strategies Workshop
°F	degrees fahrenheit
FAA	Federal Aviation Administration
FCC	Federal Communications Commission
FLPMA	Federal Land Policy and Management Act
FO	Field Office
FPS	Federally Protected Species
FUDS	Formerly Used Defense Site
GHG	greenhouse gas
GMU	Game management unit
HAPs	hazardous air pollutants
HMA	herd management area
HPTP	Historic Properties Treatment Plan
I	Interstate
KOP	Key Observation Point
km	kilometers
kV	kilovolt
LR2000	Legacy Rehost 2000 System
LTVA	long term visitor area
LUPA	Land Use Plan Amendment
LWC	lands with wilderness characteristics
MAG	Maricopa Association of Governments
MBTA	Migratory Bird Treaty Act
MDAQMD	Mojave Desert Air Quality Management District
MM	mitigation measure

Acronym/Abbreviation	Definition
MOA	Memorandum of Agreement
MOU	Memorandum of Understanding
mph	miles per our
MT	metric ton
MTR	military training route
MVAR	megavolt-ampere reactive
MVCD	minimum vegetation clearance distance
MW	megawatt
n.d.	no date
NAAQS	National Ambient Air Quality Standards
NAGPRA	Native American Graves Protection and Repatriation Act
NEPA	National Environmental Policy Act
NERC	North American Electric Reliability Corporation
NESC	National Electrical Safety Code
NGO	non-governmental organization
NHL	National Historic Landmark
NHPA	National Historic Preservation Act
NOA	Notice of Availability
NO_x	nitrogen dioxide
NPDES	National Pollutant Discharge Elimination System
NPS	National Park Service
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NWP	Nationwide Permit
NWR	National Wildlife Refuge
OHV	off-highway vehicle
OPGW	optical ground wire
PA	Programmatic Agreement
PEIS	Programmatic Environmental Impact Statement
PFYC	Potential Fossil Yield Classification
PILT	Payments in Lieu of Taxes

Acronym/Abbreviation	Definition
PM_{10}	particulate matter smaller than 10 microns in aerodynamic diameter
$PM_{2.5}$	particulate matter smaller than 2.5 microns in aerodynamic diameter
POD	Plan of Development
PRPA	Paleontological Resources Preservation Act
PTC	Permit to Construct
PTO	Permit to Operate
PUP	pesticide use proposal
PWA	Philip Williams & Associates
Reclamation	U.S. Bureau of Reclamation
RECS	rolled erosion control systems
RETI	Renewable Energy Transmission Initiative
RMP	Resource Management Plan
ROD	Record of Decision
ROS	Recreation Opportunity Spectrum
ROW	right-of-way
RV	recreational vehicle
RWQCB	Regional Water Quality Control Board
SCADA	supervisory control and data acquisition
SCE	Southern California Edison Company
SCS	series compensation station
SF_6	sulfur hexafluoride
SGCN	Species of Greatest Conservation Need
SHPA	State Historic Preservation Act (Arizona)
SHPO	State Historic Preservation Office
SLC	State Lands Commission
SO_2	sulfur dioxide
SQRU	Scenic Quality Rating Unit
SR	State Route #
SRMA	Special Recreation Management Area
SRP	Special Recreation Permit

Acronym/Abbreviation	Definition
SCS	Series Compensation Station
SSURGO	Soil Survey Geographic Data Base
STATSGO	State Soil Geographic Data Base
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TCP	Traditional Cultural Property
THPO	Tribal Historic Preservation Officer
US	United States
USACE	U.S. Army Corps of Engineers
USC	United States Code
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
UXO	unexploded ordnance
VOC	volatile organic compound
VRI	Visual Resource Inventory
VRM	Visual Resource Management
WA	Wilderness Area
WAPA	Western Area Power Administration
WECC	Western Electricity Coordinating Council
WHA	Wildlife Habitat Area
WHMA	Wildlife Habitat Management Area
WWEC	West-wide Energy Corridor
YFO	Yuma Field Office
YPG	Yuma Proving Ground
yr	year

6.3 GLOSSARY

Activity Footprint. The area of long- and short-term ground disturbance associated with the pre-construction, construction, operation, implementation, maintenance, and decommissioning of an activity, including associated linear and non-linear components, such as staging areas, access routes and roads, gen-ties, other utility lines, borrow pits, disposal areas, etc. May also be considered synonymous with project/activity site.

Administrative Route. A designated road, primitive road, or trail on BLM-managed public lands that is limited to BLM-authorized official use. Official use is defined in 43 CFR 8340 as, "Use by an employee, agent, or designated representative of the Federal Government or one of its contractors, in the course of his employment, agency, or representation."

Adverse visual impact. Any modification of landforms, water bodies, or vegetation, or any introduction of structures, which negatively interrupts the visual character of the landscape and disrupts the harmony of the basic elements (that is, form, line, color, and texture).

Aeolian. Pertaining to material or processes associated with transportation or deposition of soil by action of the wind.

Air Quality. A measure of the health-related and visual characteristics of the air, often derived from quantitative measurements of the concentrations of specific injurious or contaminating substances.

Alluvial. Pertaining to material or processes associated with transportation or deposition of soil and rock by flowing water (e.g., streams and rivers).

Alluvium. Soil and rock deposited by flowing water (e.g., streams and rivers); consists of unconsolidated deposits of sediment, such as silt, sand, and gravel.

Alternative. Any one of a number of options for a project.

Ambient. Surrounding, existing, background conditions.

Animal unit month (AUM). The amount of forage necessary to sustain one cow and one calf (e.g., a 1,000-pound cow and calf) for a period of one month.

Annual (ecology). A plant that completes its development in one year or one season and then dies.

Anthropogenic (climate change/global warming). Resulting from or produced by human beings.

Aquatic. Growing or living in or near the water.

Aquifer. A water-bearing rock unit (unconsolidated or bedrock) that will yield water in a usable quantity to a well or spring.

Archaeological site. A discrete location that provides physical evidence of past human use.

Archaeology. The scientific study of the life and culture of past, especially ancient, peoples, as by excavation of ancient cities, relics, artifacts, etc.

Area of Critical Environmental Concern (ACEC). A BLM designation pertaining to areas where specific management attention is needed to protect and prevent irreparable damage to important historical, cultural, and scenic values, fish or wildlife resources, or other natural systems or processes, or to protect human life and safety from natural hazards.

Arroyo. A dry gully, or a stream in a dry region.

Artifact. Any object showing human workmanship or modification, especially from a prehistoric or historic culture.

Avoid to the Maximum Extent Practicable. A standard identified in the DRECP LUPA CMAs and applied to implementation of activities. Under this standard, impacts to identified resources are not allowed unless there is no reasonable or practicable means of avoidance that is consistent with the basic objectives of the activity. Compensation for unavoidable impacts would be required as specified in the CMAs. The term "maximum extent practicable" as used here in the DRECP LUPA is applicable only to its use in the CMAs; it does not apply to the term as it is used in the Endangered Species Act of 1973.

Backfill. The excavated material (soil and/or rock) used to refill a hole/trench created during construction activities (i.e., drilling foundation holes). The excavated material used to fill a hole/trench in the groundbed (i.e., structure foundations). The composition of the backfill varies based on the soil type at the excavation site and the component being covered.

Background (visual). That portion of the visual landscape lying from the outer limit of the middleground to infinity. Color and texture are subdued in this area, and visual sensitivity analysis here is primarily concerned with the two-dimensional shape of landforms against the sky.

Background distance zone. The visible area of a landscape that lies beyond the foreground-middleground. Visibility from 5 miles to a maximum distance of approximately 15 miles from a travel route, use area, or other observer platform. Atmospheric conditions in some areas may limit the maximum distance to approximately 8 miles or less.

Basic Elements (visual). The four major elements (form, line, color, and texture) that determine how the character of a landscape is perceived.

Baseline. The existing conditions against which impacts of the proposed action and its alternatives can be compared.

Basin. A depressed area having no surface outlet (topographic basin); a physiographic feature or subsurface structure that is capable of collecting, storing, or discharging water by reason of its shape and the characteristics of its confining material (water); a depression in the earth's surface, the lowest part often filled by a lake or pond (lake basin); a part of a river or canal widened (drainage, river, stream basin).

Best Management Practices (BMPs). Vegetative and structural methods to control erosion and sedimentation.

Big Game. Large species of wildlife that are hunted (such as elk, mule deer, and pronghorn antelope).

Biological monitoring. Visual survey of an area conducted by a designated biologist to determine if a biological resource is present. Biological monitoring is commonly conducted on the sites of proposed projects. Biological monitoring conducted during the implementation of activities is used to implement DRECP BLM LUPA CMAs that require construction setbacks or that require the designated biologist to move a biological resource out of harm's way.

Butte. A steep hill standing alone in a plain.

California Ambient Air Quality Standards (CAAQS). The allowable concentrations of air pollutants in the air specified by the State of California and established by the California Clean Air Act. The standards include the same pollutants regulated under the NAAQS and some additional pollutants, including hydrogen sulfide, sulfates, and vinyl chloride. Air quality standard setting in California commences with a critical review of all relevant peer reviewed scientific literature. The Office of Environmental Health Hazard Assessment (OEHHA) uses the review of health literature to develop a recommendation for the standard. The recommendation can be for no change, or can recommend a new standard. The review, including the OEHHA recommendation, is summarized in a document called the draft Initial Statement of Reasons (ISOR), which is released for comment by the public, and also for public peer review by the Air Quality Advisory Committee (AQAC). AQAC members are appointed by the President of the University of California for their expertise in the range of subjects covered in the ISOR, including health, exposure, air quality monitoring, atmospheric chemistry and physics, and effects on plants, trees, materials, and ecosystems.

Candidate Species. A plant or animal species not yet officially listed as threatened or endangered under the Endangered Species Act, but which is undergoing status review by the U.S. Fish and Wildlife Service.

C**haracteristic landscape.** The established landscape in an area being viewed. This does not necessarily mean a naturalistic character. It could refer to an agricultural setting, an urban landscape, a primarily natural environment, or a combination of these types.

Clean Air Act of 1990. Federal legislation governing air pollution. The Clean Air Act established National Ambient Air Quality Standards for carbon monoxide, nitrogen oxide, ozone, particulate matter, sulfur dioxide, and lead. Prevention of Significant Deterioration classifications define the allowable increased levels of air quality deterioration above legally established levels and include the following:

Class I – minimal additional deterioration in air quality (certain national parks and wilderness areas)

Class II – moderate additional deterioration in air quality (most lands)

Class III – greater deterioration for planned maximum growth (industrial areas)

Clean Water Act of 1987. National environmental law enforced by the U.S. Environmental Protection Agency that regulates water pollution.

Clearance Survey. Survey for Focus and BLM Special-Status Species conducted immediately prior to vegetation and/or ground disturbance from activities, as per the CMAs. Clearance surveys must be conducted throughout the DRECP BLM LUPA Decision Area and in accordance with applicable species-specific CMAs and protocols, as approved by BLM and the applicable Wildlife Agencies, to detect and clear (i.e., remove, translocate) out of harm's way individuals of a species prior to disturbance.

Contrast (visual). Opposition or unlikeness of different forms, lines, colors, or textures in a landscape.

Contrast rating. A method of analyzing the potential visual impacts of proposed management activities.

Consulting Party under NPHA Section 106. A consulting party under Section 106 of NHPA assists the federal agency in identifying historic properties potentially affected by an undertaking, assessment of the undertaking's effects, and identifying ways to avoid, minimize, or mitigate any adverse effects to historic properties. Consultation is the process of seeking, discussing, and considering the views of other participants, and, where feasible, seeking agreement with them regarding matters arising in the Section 106 process. The following parties are entitled to participate as consulting parties during Section 106 review: Advisory Council on Historic Preservation; State Historic Preservation Officers; Federally recognized Indian tribes/THPOs; Native Hawaiian organizations; local governments; and applicants for Federal assistance, permits, licenses, and other approvals.

Cooperating Agency. Assists the lead Federal agency in developing an environmental assessment or environmental impact statement. The Council on Environmental Quality regulations implementing NEPA define a cooperating agency as any agency that has jurisdiction by law or special expertise for proposals covered by NEPA (40 CFR 1501.6). Any Federal, state, or local government jurisdiction with such qualification may become a cooperating agency by agreement with the lead agency.

Council on Environmental Quality (CEQ). An advisory council to the President established by the National Environmental Policy Act of 1969. It reviews Federal programs for their effort on environmental studies and advises the President on environmental matters.

Creosote Bush Rings. Rings of creosote bush (*Larrea tridentata*) that form over long periods of time. As a single creosote bush produces new branches at the periphery of its crown, the branches in the center of the crown begin to die. Eventually a sterile area of bare ground occupies the center of the original shrub, and as the ring becomes larger the original shrub segments into several shrubs (satellites), forming a ring around the point where the original shrub originated. As more time goes by these rings become elliptical rather than circular. The satellite shrubs in a ring are the same genetically, attesting to the fact that they form a single clone originating from one original shrub. Vasek (1980) showed that some of these clones are several thousand years old. The largest known creosote ring is 20.5 feet in diameter and may be 11,700 years old.

Cubic feet per second (CFS). Unit of discharge, or volume rate of flow, equal to 0.0283 cubic meters per second. As a rate of streamflow, a cubic foot of water passing a referenced section in one second. A measure of a moving volume of water.

Cultural Resources. Remains of human activity, occupation, or endeavor as reflected in districts, sites, buildings, objects, artifacts, ruins, works of art, architecture, and natural features important in human events.

Cumulative effect (or impact). As defined in the CEQ Regulations at §1508.7, the cumulative impact is the impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. These impacts may result from individually minor but collectively significant actions taking place over a period of time.

dBA. The sound pressure levels in decibels measured with a frequency weighing network corresponding to the A-scale on a standard sound level meter. The A-scale tends to suppress lower frequencies (e.g., below 1,000 Hz).

Decibel (dB). One-tenth of a Bel is a measure on a logarithmic scale that indicates the ratio between two sound powers. A ratio of 2 in power corresponds to a difference of 3 decibels between two sounds. The decibel is the basic unit of sound measure.

Designated Biologist. A biologist who is approved as qualified by BLM, and U.S. Fish and Wildlife Service (USFWS) and CDFW, as appropriate. A designated biologist is the person responsible for overseeing compliance with specific applicable DRECP BLM LUPA biological CMAs.

Developed land. For purposes of this analysis, the term "developed land" is defined to mean property that has been developed for residential, commercial, recreation, or other uses and contains the required infrastructures for those uses. This definition also includes all the required infrastructure needed for lots to be home sites and are marketed as such, including things such as roads and utilities.

Direct effect. See effect.

Discharge. Outflow of surface water in a stream or canal (water). Discharge from an industrial facility that may contain pollutants harmful to fish or animals if it is released into nearby water bodies usually requires a permit issued by the U.S. Environmental Protection Agency and is monitored.

Displacement. When one or more wildlife individual abandons a habitat because the habitat is no longer suitable, and must seek out alternative habitat, which may or may not be adjacent. If the abandonment of habitat is caused by a disturbance, wildlife individuals may or may not return to the habitat after the disturbance is no longer present.

Distance zones. A subdivision of the landscape as viewed from an observer position. The subdivision (zones) includes foreground, middleground, and background, and is seldom seen.

Drainage. The natural or artificial removal of surface water and groundwater from a given area. Many agricultural soils need drainage to improve production or to manage water supplies.

Easement. A right afforded to a person, agency, or organization to make limited use of another's real property for access or other purposes.

Effect (impact). A modification of the existing environment as it presently exists, caused by an action (such as construction or operation of facilities). An effect may be direct, indirect, or cumulative. The terms effect and impact are synonymous under the NEPA.

A direct effect is caused by an action and occurs at the same time and same place (40 CFR 1508.8(a)).

An indirect effect is caused by the action later in time or farther removed in distance, but is still reasonably foreseeable (40 CFR 1508.8(b)). Indirect effects may include growth-inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water or other natural systems including ecosystems.

Electromagnetic field (EMF). Also called electric and magnetic fields. An electric field is the region around a conductor where a force will be experienced by an electric current or charge. A magnetic field is the region around a current where a moving charge will experience a force.

Emission. Effluent discharged into the atmosphere, usually specified by mass per unit time, and considered when analyzing air quality.

Endangered Species. Species in danger of extinction throughout all or a significant portion of its range. Endangered species are rarely identified by the Secretary of the Interior in accordance with the Endangered Species Act of 1973.

Endangered Species Act (ESA) of 1973. Provides a means whereby the ecosystems upon which threatened and endangered species depend may be conserved and to provide a program for the conservation of such threatened and endangered species. The ESA requires all Federal agencies to seek to conserve threatened and endangered species, use applicable authorities in furtherance of the purposes of the ESA, and avoid jeopardizing the continued existence of any species that is listed or proposed for listing as threatened and endangered or destroying or adversely modifying its designated or proposed critical habitat. The U.S. Fish and Wildlife Service is responsible for administration of this act.

Environmental Impact Statement (EIS). A document prepared to analyze the impacts on the environment of a proposed action and released to the public for review and comment. An EIS must meet the requirements of NEPA, CEQ, and the directives of the agency responsible for the proposed action.

Environmental Justice. The fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Fair treatment means that no group of people including racial, ethnic, or socioeconomic group should bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial

operations or the execution of Federal, state, local, and tribal programs and policies (see Executive Order 12898).

Ephemeral stream (wash, creek, waterbody). A stream or portion of a stream which flows briefly in direct response to precipitation in the immediate vicinity, and whose channel is at all times above the water table.

Erosion. The wearing away of the land surface by running water, wind, ice, or other geological agents and by such processes as "gravitation creep."

Extremely low frequency (ELF). Invisible lines of force that you cannot feel that surround electrical equipment, power cords, wires that carry electricity, and outdoor power lines.

Federal Land Policy and Management Act of 1976 (FLPMA). Public Law 94-579 signed by the President on October 21, 1976. Established public land policy for management of lands administered by the Bureau of Land Management (BLM). FLPMA specifies several key directions for the BLM, notably: (1) management on the basis of multiple use and sustained yield; (2) land use plans prepared to guide management actions; (3) public lands for the protection, development, and enhancement of resources; (4) public lands retained in Federal ownership; and (5) public participation used in reaching management decisions.

Federal Register. Published by the Office of the Federal Register, National Archives, and Records Administration, the *Federal Register* is the official daily publication for rules, proposed rules, and notices of Federal agencies and organizations, as well as executive orders and other presidential documents.

Floodplain. The low and relatively flat areas adjacent to rivers and streams. A 100-year floodplain is that area subject to a 1 percent or greater chance of flooding in any given year.

Forage. Vegetation used for food by wildlife, particularly big game wildlife and domestic livestock.

Foreground (visual). The visible area from a viewpoint or use area out to a distance of 0.5 mile. The ability to perceive detail in a landscape is greatest in this zone.

Foreground-middleground distance zone. The area visible from a travel route, use area, or other observation platform to a minimum distance of 0 to 5 miles. The outer boundary of this zone is defined as the point where the texture and form of individual plants are no longer apparent in the landscape. Vegetation is apparent only in patterns or outline.

Forbs. Any herbaceous plant other than a grass.

Form. The mass or shape of an object or objects that appears unified, such as a vegetative opening in a forest, a cliff or mountain formation, a water tank, or a highway overpass.

Fossil. Any remains, trace, or imprint of a plant or animal that has been preserved by natural process in the earth's crust since some past geologic time.

Game Species. Animals commonly hunted for food or sport.

Gauss (G). A unit used for measuring magnetic flux density fields. Since gauss is a large measure, milligauss (mG) is more commonly used for environmental measurements. One gauss equals 1,000 milligauss, 10,000 gauss equal 1 tesla.

Geographic Information System (GIS). A system of computer hardware, software, data, people, and applications that capture, store, edit, analyze, and graphically display a potentially wide array of geospatial information.

Geology. The science that relates to the earth, the rocks of which it is composed, and the changes that the earth has undergone or is undergoing.

Geothermal Resource. Heat found in rocks and fluids at various depths within the earth's crust that can be extracted by drilling or pumping for use as an energy source. This heat may be residual heat, friction heat, or a result of radioactive decay.

Global Warming. An increase in the average temperature of the earth's atmosphere and oceans. The term is also used to describe the theory that increasing temperatures are the result of a strengthening greenhouse effect caused primarily by manmade increases in carbon dioxide and other greenhouse gases.

Greenhouse Gases (GHGs). The warming of the earth and its atmosphere through the trapping of heat from the sun by gases, known as greenhouse gases, in the earth's atmosphere.

Groundwater. Subsurface water that fills available openings in rock or soil materials to the extent that they are considered water saturated.

Habitat. A specific set of physical conditions in a geographic area(s) that surrounds a single species, group of species, or large community. In wildlife management, the major components of habitat are food, water, cover, and living space.

Habitat assessment. As required in LUPA-BIO CMAs. Use of the DRECP land cover mapping and/or species model(s), as well as reconnaissance-level site visits and available aerial photography for confirmation of site conditions and mapping of vegetation types and species' suitable habitat. For all activities, a habitat assessment will be required to assess site-specific vegetation types and Focus and BLM Special-Status Species.

Historic Property. Any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization and that meet the National Register criteria.

Hydrology. The study of the movement, distribution, and quality of water throughout the earth, addresses both the hydrologic cycle and water resources.

Hydrographic basin (area, region, unit). A geographic area drained by a single major stream or an area consisting of a drainage system comprised of streams and often natural or man-made lakes. See also basin.

Impact. See effect.

Indian Tribe. An Indian tribe, band, nation, or other organized group or community, including a native village, regional corporation, or village corporation, as those terms are defined in section 3 of the Alaska Native Claims Settlement Act (43 U.S.C. 1602), which is recognized as eligible for the special programs and services provided by the United States to Indians because of their status as Indians.

Indirect effect. See effect.

Infrastructure. The facilities, services, and equipment needed for a community or facility to function, such as and including roads, sewers, water lines, and electric lines.

Intermittent. A river or stream that flows for a period of time, usually seasonally during rainy periods, and stops during dry periods. In arid regions, dry periods may be interrupted by occasional flash floods from brief but intense rain storms.

Invasive Species. Describes a large number of non-native plant species whose introduction causes or is likely to cause economic or environmental harm or harm to human health.

Joshua Tree Woodlands. Evenly distributed with Joshua trees at ≥1% and *Juniperus* and/or *Pinus* spp <1% absolute cover in the tree canopy (Thomas et al. 2004).

Key Observation Point (KOP). One or a series of points on a travel route or at a use area or potential use area, where the view of a management activity would be most revealing.

Kilovolt (kV). A unit of power equivalent to 1,000 volts. A volt is a measure of electrical potential difference that would cause a current of 1 ampere to flow through a conductor whose resistance is 1 ohm.

Labor Force. All persons 16 years of age or over who are either employed or unemployed and actively looking for a job.

Landform. A term used to describe the many land surfaces that exist as a result of geologic activity and weathering (e.g., plateaus, mountains, plains, and valleys).

Land Use Plan. The organized direction or management of the use of lands and their resources to best meet human needs over time, according to the land's capabilities.

Laydown Area. An area where construction material and equipment are staged during a construction operation.

Lease. An authorization or contract by which one party (lessor) conveys the use of property to another (lessee) in return for rental payments. In cases of resource production, lessees pay royalties to the lessor in addition to rental payments.

Long-term Impacts. Ground and/or vegetation disturbance that results in impacts lasting greater than 2 years.

Long-term visitor area (LTVA)

LTVAs are specially designated areas on BLM lands in California and Arizona. LTVAs provide places for visitors to stay for up to 180 days between September and April.

Megawatt (MW). A unit for measuring power equal to one million watts. The productive capacity of electrical generators is measured in megawatts.

Mesa. An isolated, nearly level land mass, formed on nearly horizontal rocks, standing above the surrounding country, and bounded with steep sides.

Microphyll Woodlands. Consist of drought-deciduous, small-leaved (*microphyllus*), mostly leguminous trees. Occurs in bajadas and washes where water availability is somewhat higher than the plains occupied by creosote bush and has been called the "riparian phase" of desertscrub (Webster and Bahre 2001). Composed of the following alliances: desert willow, mesquite, smoke tree, and the blue palo verde-ironwood.

Minor Incursion. Small-scale allowable impacts to sensitive resources, as per specific CMAs, that do not individually or cumulatively compromise the conservation objectives of that resource or rise to a level of significance that warrants development and application of more rigorous CMAs or a LUPA amendment. Minor incursions may be allowed to prevent or minimize greater resource impacts from an alternative approach to the activity. Not all minor incursions are considered unavoidable impacts.

Mitigation. Actions to avoid, minimize, reduce, eliminate, replace, or rectify the impact of a management practice.

National Ambient Air Quality Standards (NAAQS). The allowable concentrations of air pollutants in the air specified by the Federal government and established by the Clean Air Act. The air quality standards are divided into primary standards (based on the air quality criteria and allowing an adequate margin of safety and requisite to protect the public health) and secondary standards (based on the air quality criteria and allowing an adequate margin of safety and requisite to protect the public welfare) from any unknown or expected adverse effects of air pollutants.

National Environmental Policy Act (NEPA) of 1969. Our nation's basic charter for protection of the environment. It establishes policy, sets goals, and provides means for carrying out the policy. In accordance with NEPA, all Federal agencies must prepare a written statement on the environmental impacts of a proposed action. The provisions to ensure that Federal agencies act according to the letter and spirit of NEPA are the CEQ regulations for implementing NEPA 943 CFR 1500-1508).

National Register of Historic Places. A listing, maintained by the Secretary of the Interior, of districts, sites, buildings, structures, and objects worthy of preservation. To be eligible a property must normally be at least 50 years old, unless it has exceptional significance, and have national, state, or local significance in American history, architecture, archaeology, engineering, or culture; and possess integrity of location, design, setting, material, workmanship, feeling, and association; and (a) be associated with events that have made a significant contribution to the broad pattern of history, (b) be associated with the lives of persons significant to our past, (c) embody the distinctive characteristics of a type, period, or method of construction; represent the work of a master; possess high artistic values; or represent a significant and distinguishable entity whose components may lack individual distinction; or (d) have yielded, or may be likely to yield, information important to prehistory or history.

National Wildlife Refuge (NWR).NWR is a designation for certain protected areas managed by the U.S. Fish and Wildlife Service. NWRs are public.

Negligible (impact). Unless otherwise specified, "negligible" indicates impacts of such a small scale such as to be non-measureable.

Non-attainment Area. An air quality control region (or portion thereof) in which the U.S. Environmental Protection Agency has determined that ambient air concentrations exceed national ambient air quality standards for one or more criteria pollutants.

Noxious Weed. Nonnative plant species that negatively impact crops, native plant communities, and/or management of natural or agricultural systems. Noxious weeds are officially designated by a number of states and Federal agencies.

Off-highway vehicle. A vehicle specifically designed for off-highway use.

Perennial (vegetation). A plant whose root remains alive more than two years.

Perennial Stream. A stream that flows throughout the year and from source to mouth.

Physiographic province. An extensive portion of the landscape normally encompassing many hundreds of square miles, which portrays similar qualities of soil, rock, slope, and vegetation of the same geomorphic origin such as the Basin and Range province where this Project is situated.

$PM_{2.5}$. Particulate matter less than 2.5 microns in aerodynamic diameter.

PM_{10}. Particulate matter less than 10 microns in aerodynamic diameter.

Prime Farmland. A special category of highly productive cropland that is recognized and described by the U.S. Department of Agriculture's Soil Conservation Service and receives special protection under the Surface Mining Law of 1977.

Programmatic Agreement. A document that records the terms and conditions agreed upon to resolve the potential adverse effects of a Federal agency program, complex undertaking, or other situations in accordance with § 800.14(b) of the NHPA.

Project Area. The area of land which the project would encompass.

Protocol survey. Species-specific surveys that are conducted under a protocol that has been adopted by the Wildlife Agency(ies) or is otherwise scientifically accepted for determining the occupancy or presence and absence of Covered Species. These surveys would be required as specified in the species-specific CMAs in the DRECP BLM LUPA.

Public Land. Land or interest in land owned by the United States and administered through agencies such as the BLM and USBR without regard to how the United States acquired ownership, except lands on the Outer Continental Shelf, and land held in trust for the benefit of American Indians, Aleuts, and Eskimos.

Radio frequency. Electromagnetic energy in the approximate frequency range of 3,000 Hz (3 kHz) to 1 billion Hz (l gHz).

Range. A large, open area of land over which livestock can wander and graze.

Raptor. A bird of prey (e.g., eagles, hawks, falcons, and owls).

Reclamation. Restoration of land disturbed by natural or human activity (e.g., mining, pipeline construction) to original contour, use, or condition. Also describes the return of land to alternative uses that may, under certain circumstance, be different from those prior to disturbance.

Recontouring. Return a land surface to or near to its original form through earth-moving equipment such as front-end loaders, backhoes, hand rakes, hoes, shovels, etc.

Record of Decision. A document separate from, but associated with an EIS that publicly and officially discloses the responsible official's decision on a proposed action.

Revegetation. The reestablishment and development of self-sustaining plant cover. On disturbed sites, this normally requires human assistance such as reseeding.

Right-of-way. Land authorized to be used or occupied for the construction, operation, maintenance, and termination of a project, such as a road or utility.

Riparian. Situated on or pertaining to the bank of a river, stream, or other body of water. Riparian is normally used to refer to plants of all types that grow along streams, rivers, or at spring and seep sites.

Resource Management Plan. Document that establishes direction for the use of resources to best meet the needs of humans over time, according to the resource potential or capability.

Resource setback. A minimal horizontal distance required for construction activities from a particular biological resource.

Scoping. Procedures by which agencies determine the extent of analysis necessary for a proposed action (i.e., the range of actions, alternatives, and impacts to be addressed; identification of

significant issues related to a proposed action; and the depth of environmental analysis, data, and task assignments needed).

Sediment. Solid fragmental material, either mineral or organic, that is transported or deposited by air, water, gravity, or ice.

Sedimentation. The result when soil or mineral is transported by moving water, wind, gravity, or glaciers and deposited in streams or other bodies of water, or on land. Also, letting solids settle out of wastewater by gravity during treatment.

Sensitive Species. Those plant or animal species that are susceptible or vulnerable to activity impacts or habitat alterations.

Setback. A defined distance, usually expressed in feet or miles, from a resource feature (such as the edge of a vegetation type or an occupied nest) within which an activity would not occur; otherwise often referred to as a buffer. The purpose of the setback is to maintain the function and value of the biological resource features identified in the DRECP BLM LUPA CMAs. See Section II.3.4.2.1 for a summary of setbacks incorporated in the CMAs.

Scenic quality. Scenic quality is a measure of the visual appeal of a tract of land. In the visual resource inventory process, public lands are given an A, B, or C rating based on the apparent scenic quality that is determined using seven key factors: landform, vegetation, water, color, adjacent scenery, scarcity, and cultural modifications.

Sensitivity level. Sensitivity levels are a measure of public concern for scenic quality. Public lands are assigned high, medium, or low sensitivity levels by analyzing the various indicators of public concern including type of use, amount of use, public interest, adjacent land uses, special areas, and other factors.

Short-term Impacts. Ground and/or vegetation impacts that result in effects lasting 2 years or less.

Significant Impact Level (SIL). The SIL is a de minimis threshold applied to individual facilities that apply for a permit to emit a regulated pollutant in an area that meets the NAAQS. The state and EPA must determine if emissions from that facility will cause the air quality to worsen. The SIL is a measure of whether a source may cause or contribute to a violation of PSD increment or the NAAQS, i.e. a significant deterioration of air quality.

Simulation. A realistic visual portrayal that demonstrates the perceivable changes in landscape features caused by a proposed management activity. This is done using photography, artwork, computer graphics, and other such techniques.

Special Recreation Management Area (SRMA). SRMAs are areas officially designated by statute or Secretarial order, including components of the National Trails System, the National Wild and Scenic Rivers System, the National Wilderness System, National Conservation Areas, National Monuments or National Recreation Areas, an area covered by joint agreement between the BLM and a state government, or any area where the authorized officer determines that the

resources require special management and control measures for their protection, and where a permit system for individual use would achieve management objectives.

Special Status Species. Wildlife and plant species either Federally listed or proposed for listing as endangered or threatened; state-listed; or priority species of concern to Federal agencies or tribes.

Substation. A facility where electrical voltage is either increased or decreased through the use of transformers; electric lines are interconnected at one or more voltage; and electric power is metered and regulated to provide safe and stable voltage for end-use customers.

Suitable habitat. In general, Focus and BLM Special-Status Species habitat consisting of land within a species range that has—in the case of wildlife, breeding and foraging habitat characteristics required by the species, or in the case of plants, vegetation and microhabitat characteristics—consistent with known or likely occurrences, as determined by the habitat assessment. In the California Desert Conservation Framework modeled habitat as determined by species distribution models and confirmed or refined (i.e., expanded or reduced) by activity- level habitat assessment and that require site-specific protocol or presence/absence surveys as specified in the species-specific DRECP BLM LUPA CMAs.

Texture. The visual manifestations of the interplay of light and shadow created by the variations in the surface of an object or landscape.

Threatened Species. Any species of plant or animal which is likely to become endangered within the foreseeable future throughout all or a significant portion of its range.

Traditional Cultural Property. A Traditional Cultural Property (TCP), as defined in the NHPA, is a property that is eligible for inclusion on the NRHP because of its association with cultural practices or beliefs of a living community that (a) are rooted in that community's history, and (b) are important in maintaining the continuing cultural identity of the community. Stated another way, a significant TCP is defined as a property with significance derived from the role the property plays in a community's historically rooted beliefs, customs, and practices.

Transportation Corridor. A BLM- designated corridor that would reduce resource impacts while allowing for linear ROWs for development of new transportation routes or expansion of existing roads within the designated corridor. However, corridor designation does not automatically result in authorization of requested ROWs within the corridor. Each requested ROW would require environmental analysis and evaluation of compatibility of the proposed ROW with any existing ROWs within the corridor.

Tribal Land. All lands within the exterior boundaries of any Indian reservation and all dependent Indian communities.

Unavoidable impacts to resources. Small-scale impacts to sensitive resources, as allowed per specific CMAs, that may occur even after such impacts have been avoided to the maximum extent practicable (see definition). Unavoidable impacts are limited to minor incursions (see definition), such as a necessary road or pipeline extension across a sensitive resource required to serve an activity.

Undertaking. A project, activity, or program funded in whole or in part under the direct or indirect jurisdiction of a Federal agency, including those carried out by or on behalf of a Federal agency; those carried out with Federal financial assistance; those requiring a Federal permit, license, or approval; and those subject to state or local regulation administered pursuant to a delegation or approval of a Federal agency.

Undeveloped Land. For purposes of this analysis, the term "undeveloped land" is defined to mean land that does not have existing residential or commercial buildings, facilities, or uses. Undeveloped land may be private lands that are part of a master planned community that is not yet fully developed to include residential or commercial facilities or uses, and may be in varying stages of planning or preparation for development.

Utility Corridor. Designated through land use planning to promote compatible, systematic, and predictable development on Federal lands to expedite permitting and reduce impacts to natural, economic and cultural resources from linear ROWs. However, corridor designation does not automatically result in authorization of requested ROWs within the corridor. Each requested ROW would require environmental analysis and evaluation of compatibility of the proposed ROW with any existing ROWs within the corridor.

Vegetation communities. Species of plants that commonly live together in the same region or ecotone.

Viewing platform. A point such as a scenic overlook, or route such as a highway or trail where observers would be viewing the surrounding landscape.

Viewshed. Visible portion of the specific landscape seen from a specific viewpoint, normally limited by landform, vegetation, distance, and existing cultural modifications.

Visibility. The distance to which an observer can distinguish objects from their background. The determinants of visibility include the characteristics of the target object (shape, size, color, pattern), the angle and intensity of sunlight, the observer's eyesight, and any screening present between the viewer and the object (i.e., vegetation, landform, even pollution such as regional haze).

Visual quality. The relative worth of a landscape from a visual perception point of view.

Visual resource. The visible physical features on a landscape (for example, land, water, vegetation, animals, structures, and other features).

Visual resource inventory. A BLM inventory tool that portrays the relative value of the existing visual resources of an area.

Visual resource management classes. Four management categories assigned to public lands based on scenic quality, sensitivity level, and distance zones. Each class has an objective that prescribes the amount of change allowed in the characteristic landscape.

VRM Class I Objective - The objective of this class is to preserve the existing character of the landscape. This class provides for natural ecological changes; however, it does not preclude very

limited management activity. The level of change to the characteristic landscape should be very low and must not attract attention.

VRM Class II Objective - The objective to this class is to retain the existing character of the landscape. The level of change to the characteristic landscape should be low. Management activities may be seen, but should not attract the attention of the casual observer. Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape.

VRM Class III Objective - The objective of this class is to partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate. Management activities may attract attention, but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape.

VRM Class IV Objective - The objective of this class is to provide for management activities that require major modification of the existing character of the landscape. The level of change to the characteristic landscape can be high. These management activities may dominate the view and be the major focus of viewer attention. However, every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance, and repeating the basic elements.

Waters of the United States (WOUS). All waters that are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce including adjacent wetlands and tributaries to water of the United States; and all waters by which the use, degradation, or destruction of which would affect or could affect interstate or foreign commerce.

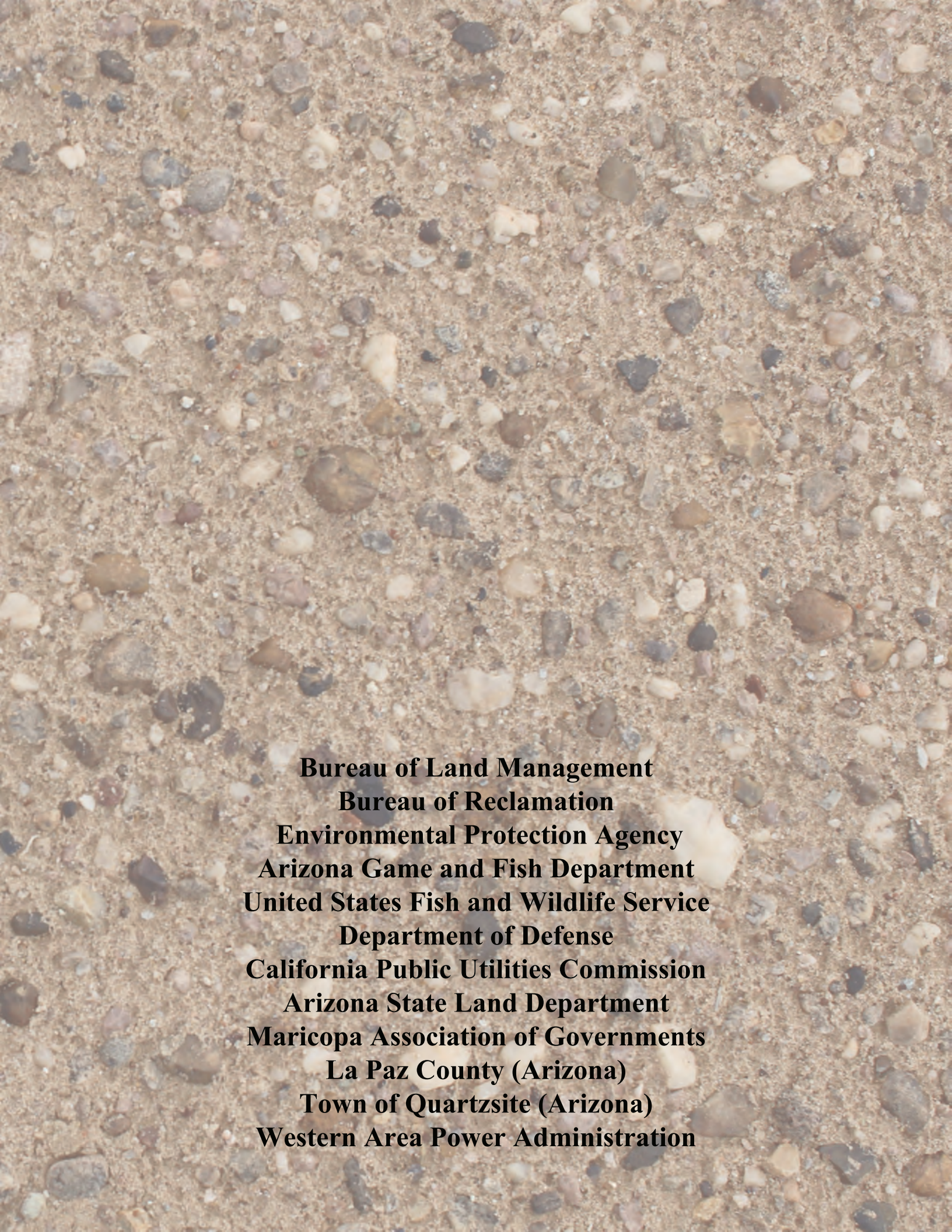
Watershed. Drainage basin for which surface water flows to a single point.

Wetlands. Areas inundated by surface water or groundwater with a frequency sufficient to support vegetation or aquatic life that requires saturated or seasonally saturated soil conditions for growth and reproduction.

Wilderness. An area formally designated by Congress as part of the National Wilderness Preservation System.

Wilderness Area (WA). WAs are designated under the Wilderness Act. They generally do not allow motorized equipment, motor vehicles, mechanical transport, temporary roads, or permanent structures or installations (with exceptions in Alaska). WAs are to be primarily affected by the forces of nature, although the Act does acknowledge the need to provide for human health and safety, protect private property, control insect infestations, and fight fires in the area.

6.4 INDEX



Bureau of Land Management
Bureau of Reclamation
Environmental Protection Agency
Arizona Game and Fish Department
United States Fish and Wildlife Service
Department of Defense
California Public Utilities Commission
Arizona State Land Department
Maricopa Association of Governments
La Paz County (Arizona)
Town of Quartzsite (Arizona)
Western Area Power Administration