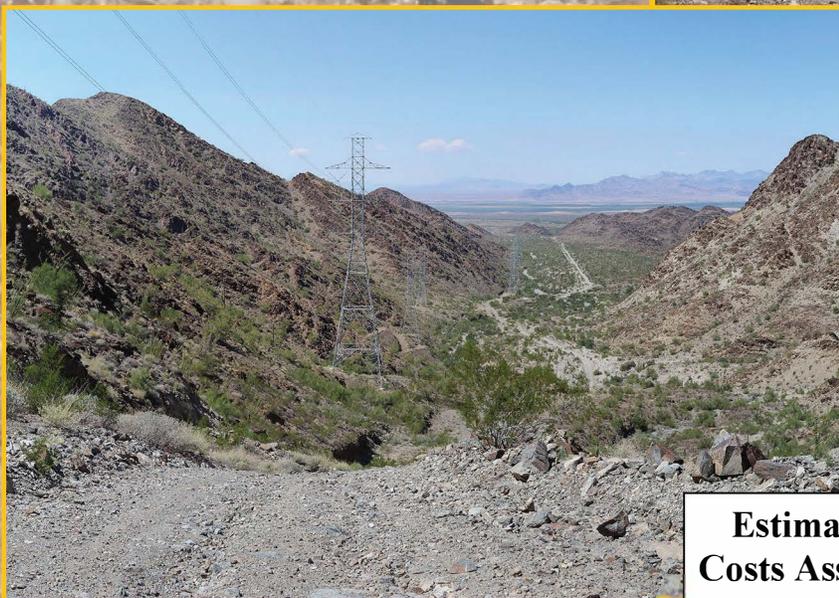
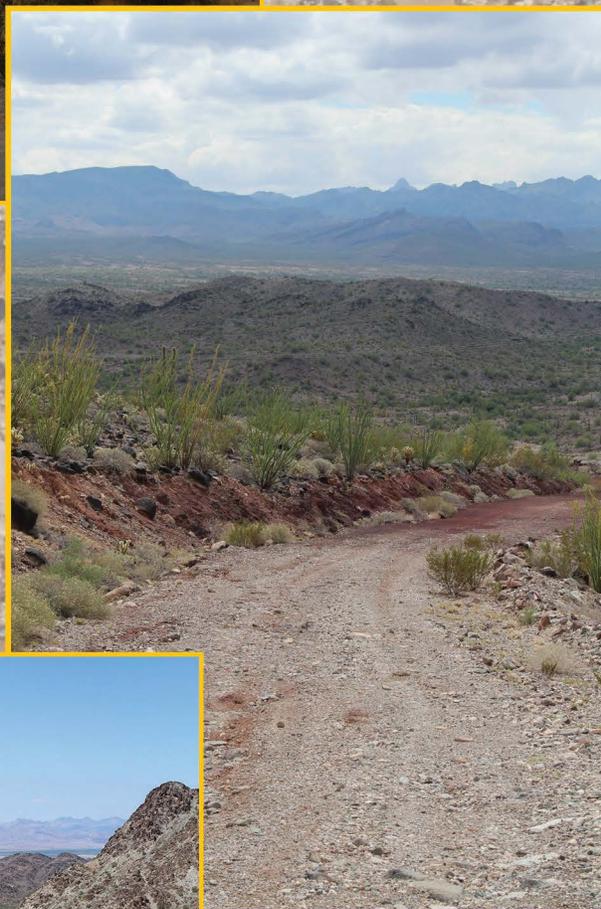


Final Environmental Impact Statement and Proposed Resource Management Plan Amendments for the Ten West Link Transmission Line Project



Estimated Lead Agency Total Costs Associated with Developing and Producing this EIS
\$5,014,050



TEN WEST LINK TRANSMISSION LINE PROJECT
FINAL ENVIRONMENTAL IMPACT STATEMENT AND
PROPOSED RESOURCE MANAGEMENT PLAN AMENDMENTS

Bureau of Land Management
Arizona State Office
California State Office

September 2019

BLM Estimated Total Cost of
Developing and Producing
this Document: \$5,014,050



United States Department of the Interior



BUREAU OF LAND MANAGEMENT
Colorado River District Office
1785 Kiowa Avenue
Lake Havasu City, Arizona 86403

September 2019

Dear Reader:

Enclosed is the Final Environmental Impact Statement (FEIS) and Proposed Resource Management Plan Amendment (RMPA) for the Ten West Link Transmission Line Project (Project). The FEIS/Proposed RMPA was prepared by the Bureau of Land Management (BLM) in consultation with various government agencies and organizations, taking into account public comments received during this planning effort.

The BLM is considering an application by DCR Transmission, LLC, for a right-of-way (ROW) on public lands to construct, operate, maintain, and decommission a 114 mile, 500 kilovolt transmission line between the Delaney Substation in Maricopa County, Arizona, and the Colorado River Substation in Riverside County, California. The FEIS/Proposed RMPA analyzes the potential impacts of authorizing the Project, including amending the BLM's Yuma Field Office RMP and California Desert Conservation Area (CDCA) Plan to allow for its construction.

The Proposed Action and alternatives presented in the FEIS are the same as those presented and analyzed in the Draft EIS released in August 2018. The FEIS addressed public comments on the Draft EIS released in August 2018. The FEIS also analyzes more refined Project engineering and design information provided by the Project proponent, specifically locations and types of transmission structures; and location, size and scope of access roads needed to build and maintain the Project. The discussion of the land use plan amendments considered by the BLM is also clarified in the FEIS.

Pursuant to BLM's planning regulations at 43 CFR 1610.5-2, any person who participated in the planning process for this Proposed RMPA and has an interest which is or may be adversely affected by the planning decisions may protest approval of the planning decisions contained therein. Specifically, the BLM's proposed RMPA decisions would amend the Yuma RMP to allow for consideration of rights of way outside of designated corridors on a case-by-case basis and amend the CDCA to allow for construction of the Project within 0.25 mile of occurrences of the Harwood's eriastrium, a BLM-sensitive plant species.

The FEIS/Proposed RMPA is open for a 30-day protest period beginning the date the U.S. Environmental Protection Agency publishes its Notice of Availability of the FEIS in the *Federal Register*.

The regulations specify the required elements of your protest. Take care to document all relevant facts. As much as possible, reference or cite the planning documents or available planning records (e.g. meeting minutes or summaries, correspondence, etc.).

Instructions for filing a protest with the Director of the BLM regarding the FEIS and Proposed RMPAs may be found online at <https://www.blm.gov/programs/planning-and-nepa/public-participation/filing-a-plan-protest> and at 43 CFR 1610.5-2. All protests must be in writing and mailed to the appropriate address, as set forth below, or submitted electronically through the BLM ePlanning project website. Protests submitted electronically by any means other than the ePlanning project website protest section will be invalid unless a protest is also submitted in hard copy. Protests submitted by fax will also be invalid unless also submitted either through ePlanning project website protest section or in hard copy.

All protests submitted in writing must be mailed to one of the following addresses:

Regular Mail:

Director (210)
Attn: Protest Coordinator
P.O. Box 71383 Washington,
D.C. 20024-1383

Overnight Delivery:

Director (210)
Attn: Protest Coordinator
20 M Street SE, Room
2134LM Washington, D.C.
20003

The BLM Director will render a written decision on each land use plan protest. The decision will be in writing and will be sent to the protesting party by certified mail, return receipt requested. The decision of the BLM Director shall be the final decision of the Department of the Interior on each land use plan protest. Responses to land use plan protest issues will be compiled and formalized in a Director's Protest Resolution Report made available following issuance of the decisions.

Upon resolution of all land use plan protests, the BLM will issue a Record of Decision, which will include information on any further opportunities for public involvement.

Sincerely,

WILLIAM MACK Digitally signed by WILLIAM MACK
Date: 2019.08.23 11:08:55 -07'00'

William Mack, Colorado River District Manager
Bureau of Land Management

Ten West Link Transmission Line Project Final Environmental Impact Statement and Proposed Resource Management Plan Amendments

U.S. Department of the Interior
Bureau of Land Management
Arizona State Office
Phoenix, Arizona
September 2019

Lead Agency: U.S. Department of the Interior, Bureau of Land Management

Type of Action: () Draft (X) Final

Cooperating Agencies: Bureau of Reclamation; California Public Utilities Commission; Environmental Protection Agency; Department of Defense, Yuma Proving Ground; U.S. Fish and Wildlife Service; U.S. Army Corps of Engineers; Western Area Power Administration; Arizona Game and Fish Department; Arizona State Land Department; Maricopa Association of Governments; La Paz County, Arizona; Town of Quartzsite, Arizona

Project Location: Maricopa and La Paz Counties, Arizona; Riverside County, California

Responsible Official: Raymond Suazo, BLM Arizona State Director

For Further Information Contact: Lane Cowger
Project Manager, BLM Arizona State Office
One North Central Avenue, Suite 800
Phoenix, AZ 85004
602-417-9612
TenWestLink@blm.gov

Comments must be received by: 30 days after publication in the Federal Register

Abstract

This Final Environmental Impact Statement (EIS) evaluates the anticipated environmental effects of the construction, operation, maintenance, and decommissioning of the Ten West Link Transmission Line Project (Project) proposed by DCR Transmission, LLC. The proposed Project includes construction of a 500-kilovolt electric transmission line and associated infrastructure, from the Delaney Substation near Tonopah, Arizona, to the Colorado River Substation near Blythe, California. The Final EIS analyzes the Proposed Action, four Action Alternative routes, the Agency Preferred Alternative, and a No Action Alternative; and addresses public comments received on the Draft EIS, which was published in August 2018. The Proposed Action is 114.3 miles long and generally follows the existing Devers to Palo Verde transmission line, including a 24.9-mile long crossing of the Kofa National Wildlife Refuge (NWR). The Agency Preferred Alternative is 125.0 miles long, utilizes BLM utility corridors, and does not cross the Kofa NWR. The Proposed Action and all Action Alternatives include proposed amendments to BLM land use plans, specifically the Yuma Field Office Resource Management Plan and the California Desert Conservation Area Plan, to accommodate the Project. Amendment of the Lake Havasu Field Office Resource Management Plan is also considered in some Action Alternatives. Under the No Action Alternative, the BLM would not approve the ROW grant on BLM-administered public lands and no BLM land use plans would be amended.

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 eleven 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); U.S. Army Corps of Engineers (USACE); 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 energy production including electricity.

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 the BLM RMPs, the Project would require RMP amendments before it could be approved. If the BLM selects an Action Alternative route, the BLM would decide whether to issue a ROW to APS to construct, operate, and maintain a 12kV distribution line to power an alternative Series Compensation Station (SCS) location.

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.

OTHER AGENCIES

Other agencies, including Department of Defense, Bureau of Reclamation, USFWS, USACE, WAPA, and the Arizona Corporation Commission will have permitting or regulatory decisions to make on the Project. This is further described in Chapter 1.

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; and postings on the BLM's ePlanning website for the Project (<https://go.usa.gov/xU6Be>).

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 April 12 - 14, 2016 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.

BLM sent notification of availability of the DEIS to people on the mailing list, publicized availability of the DEIS via news releases, and published a Notice of Availability in the *Federal Register* on August 31, 2018. Three public meetings to discuss the DEIS were held October 9 - 11, 2018 in Phoenix, Arizona, Quartzsite, Arizona, and Blythe, California. Comments were accepted throughout a 90-day comment period, ending November 29, 2018. A total of 50

comment letters and emails were received from the public. Comments and responses are provided in Appendix 8 of this FEIS.

Comments on the DEIS included such topics as use of BMPs and MMs, property values, wildlife, recreation, land use, and avoiding the Kofa NWR.

ES-5 CHANGES BETWEEN DRAFT AND FINAL EIS

In response to public comments on the DEIS, information related to impacts to Sonoran pronghorn and lands with wilderness characteristics were clarified. Also, Project specific plans were included in Appendix 2B. Additionally, the BLM removed the Visual Resource Management Class RMP amendments from the Agency Preferred Alternative to maintain manageability of the utility corridor and made various editorial changes to the EIS, such as fixing several figures, clarifying analyses, and making minor corrections.

Between the DEIS and FEIS, design and engineering of the Project were refined and presented in an updated POD (DCRT 2019); therefore, acreages of new surface disturbance and water required for construction was adjusted to reflect this information in the FEIS. Of note, the POD was revised by the applicant to reflect the Agency Preferred Alternative, rather than the Proposed Action.

ES-6 APPLICANT PROPOSED ROW ACTIONS AND PROPOSED 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 Devers Palo Verde #1 (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, maintenance, and decommissioning of the 500kV line and associated SCS; and a 20-foot-wide ROW for a 12kV distribution line servicing the SCS, should an alternative other than the Proposed Action be selected. ROWs have been designed to allow for the safe movement and operation of equipment during construction and maintenance¹, 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 (2017). DCRT has requested an initial 50-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.

¹ While most access roads would be located within the 200-foot ROW, other access roads would be outside of the transmission line ROW in order to optimize the use of existing roads and trails.

RMP AMENDMENTS

The Proposed Action and all Action Alternatives include amendments to the Yuma RMP and CDCA Plan. In addition, some alternatives include an amendment to the Lake Havasu RMP as further described in Chapter 2.

AMENDMENT OF THE YUMA RMP

The Yuma RMP designates visual resource management (VRM) classes for lands managed within the boundaries of the Yuma Field Office. Portions of the Proposed Action do not conform to the VRM classes on some segments; analysis of these segments includes an amendment to the RMP. In addition, the Yuma RMP would require an amendment to permit 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 BLM Focus and Special Status Species and their habitat.

ES-7 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 Agency 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. The Action Alternatives consider amendments to the Yuma RMP and CDCA Plan, similar to those identified for the Proposed Action, as further described in Chapter 2.

ALTERNATIVE 1: I-10 ROUTE

Alternative 1 would be 111.6 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 lands.

ALTERNATIVE 2: BLM UTILITY CORRIDOR ROUTE

Alternative 2 would be 125.8 miles long and would be primarily within designated 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 lands.

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 lands.

ALTERNATIVE 4: PUBLIC LANDS EMPHASIS ROUTE

Alternative 4 would be 120.3 miles long and generally is on public lands, minimizing Arizona state trust lands. This alternative route was developed to avoid the Kofa NWR, state trust 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 lands.

AGENCY PREFERRED ALTERNATIVE

The BLM has identified Alternative 2, the BLM Utility Corridor Route, utilizing Subalternative 4D (Segments x-05 and p-07), as the Agency Preferred Alternative for the Project, to include the alternative SCS located along Segment i-03 adjacent to I-10 (Figure ES-2); along with design features, applicant proposed measures (APMs), best management practices (BMPs), and mitigation measures, with modifications, as necessary. It is 125.0 miles long, with impacts similar to those identified for Alternative 2; and includes route modifications further minimizing impacts to recreation, tourism, towns, and other sensitive resources along the Project route. The Agency Preferred Alternative does not include amendments to the visual resource management classes in the Yuma RMP in order to maintain consistency in management along the entire length of the utility corridors used by the Project. Visual impacts are minimized through project design and implementation of BMPs.

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-8 PROPOSED FACILITIES AND INFRASTRUCTURE

Transmission structures are proposed to be comprised of steel lattices of various configurations. The structures would be between 72 and 195 feet in height, depending on the span length required and topography, with most being shorter than 142 feet. Span lengths between structures would vary from 400 to 2,300 feet, depending upon terrain conditions, current land use, structure type used, and to achieve site-specific mitigation objectives.

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, less than 75 feet apart, have also been identified located south of I-10 to the north of the New Water Mountains. 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.

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.

ES-9 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, distribution line 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 on BLM-managed lands would be reclaimed in accordance with a Decommissioning Plan approved by the BLM prior to issuance of the ROW grant. A performance and reclamation bond for BLM-managed lands, would also be required per BLM bonding policy. Access routes and other sites disturbed during decommissioning would be reclaimed and revegetated in accordance with the Decommissioning Plan.

ES-10 MONITORING AND MITIGATION

In addition to the Project design features, DCRT's APMs, and BLM-required BMPs (which are included as part of the Applicant Proposed Action, Agency Preferred Alternative, and Action Alternatives), additional monitoring and mitigation measures (MMs) 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 if impacts were not addressed through implementation of BMPs, APMs, and MMs.

ES-11 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. [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 region has large tracts of Federally owned lands. The climate is

characterized by being the driest in the US. The topography is characterized by valley basins and mountain ranges that are roughly parallel.

The economy of the region has historically been based on irrigated agriculture, livestock grazing, and mining (Commission for Environmental Cooperation 1997). Federal and state trust 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, management allocations, and wilderness resources; 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.

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. 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). These potential impacts would be minimized through implementation of various APMs and BMPs.

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 MMs).

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.

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 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 Effects 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-foot wide corridor, 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 according to the Historic Properties Treatment Plan (HPTP) stipulated by 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 HPTP.

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 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 HPTP. 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. Measures to minimize the potential adverse effects of visual intrusions would be contained in the HPTP 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 concern 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 Agency's Preferred Alternative would not cross either the La Posa Long Term Visitor Area or the Dome Rock Camping Area.

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. La Paz County and the Town of Quartzsite have expressed support for the Agency Preferred Alternative.

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. 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.

Short-term unavoidable adverse effects to recreation would result from temporary closure of OHV use in portions of the Copper Bottom Pass area and in proximity to the long-term visitor area (LTVA) during construction, affecting OHV users on the proposed Arizona Peace Trail and

other OHV routes. In the long term, the main unavoidable adverse effect would be increased development in natural areas heavily used for recreation.

The cumulative impact of the Project on the recreation setting would be minor since recreation settings would be available in adjacent areas, 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; drive local purchasing 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, which is unlikely to occur due to the Project, 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

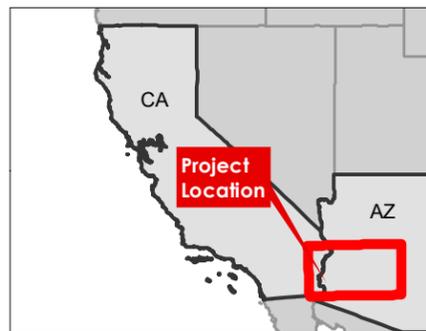
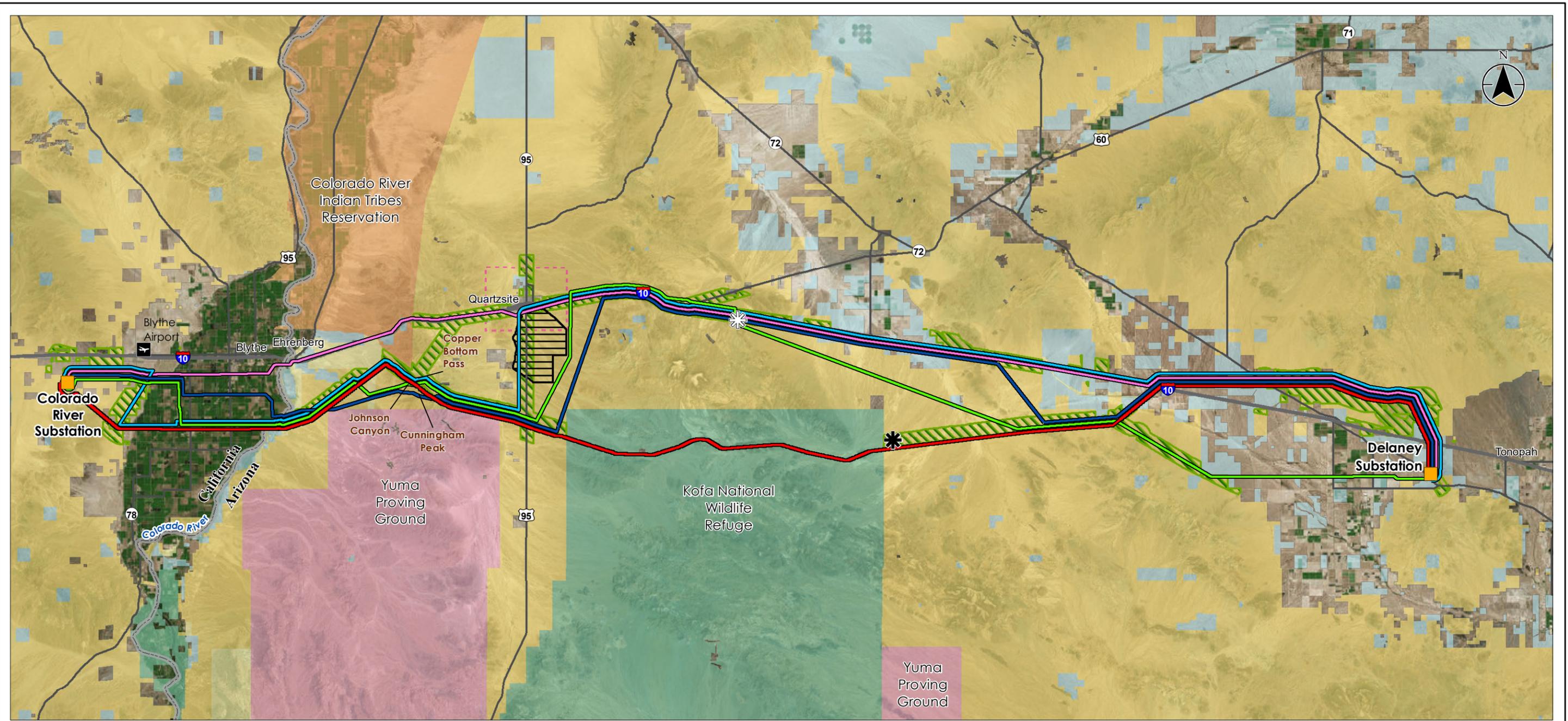
During construction, visual impacts would result from the introduction of construction vehicles, equipment, and construction materials within staging areas, access roads, and within the transmission line ROW. The presence of work crews, vehicles and other equipment, and dust generated by construction 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.

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- 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



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**Figure ES-1
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

[^] = 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.



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

- Proposed Action*
- Agency 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
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 1. Coordinate System: World Mercator
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[^] = 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
 Agency 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 trust, 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) is needed.

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 facilities¹, primarily within designated utility corridors.

As proposed, 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 series compensation station (SCS) and overhead 12kV electric distribution line located approximately in the middle of the route. The applicant-proposed SCS would be placed parallel to an existing SCS for DPV1 south of Vicksburg, Arizona (Figure 1-1).

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).

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 for the Project to be approved.

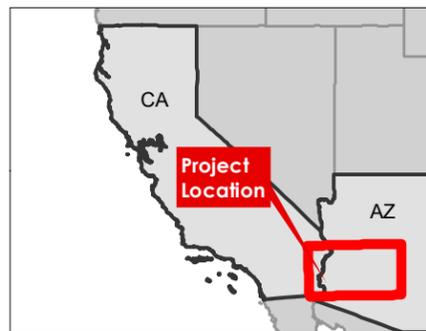
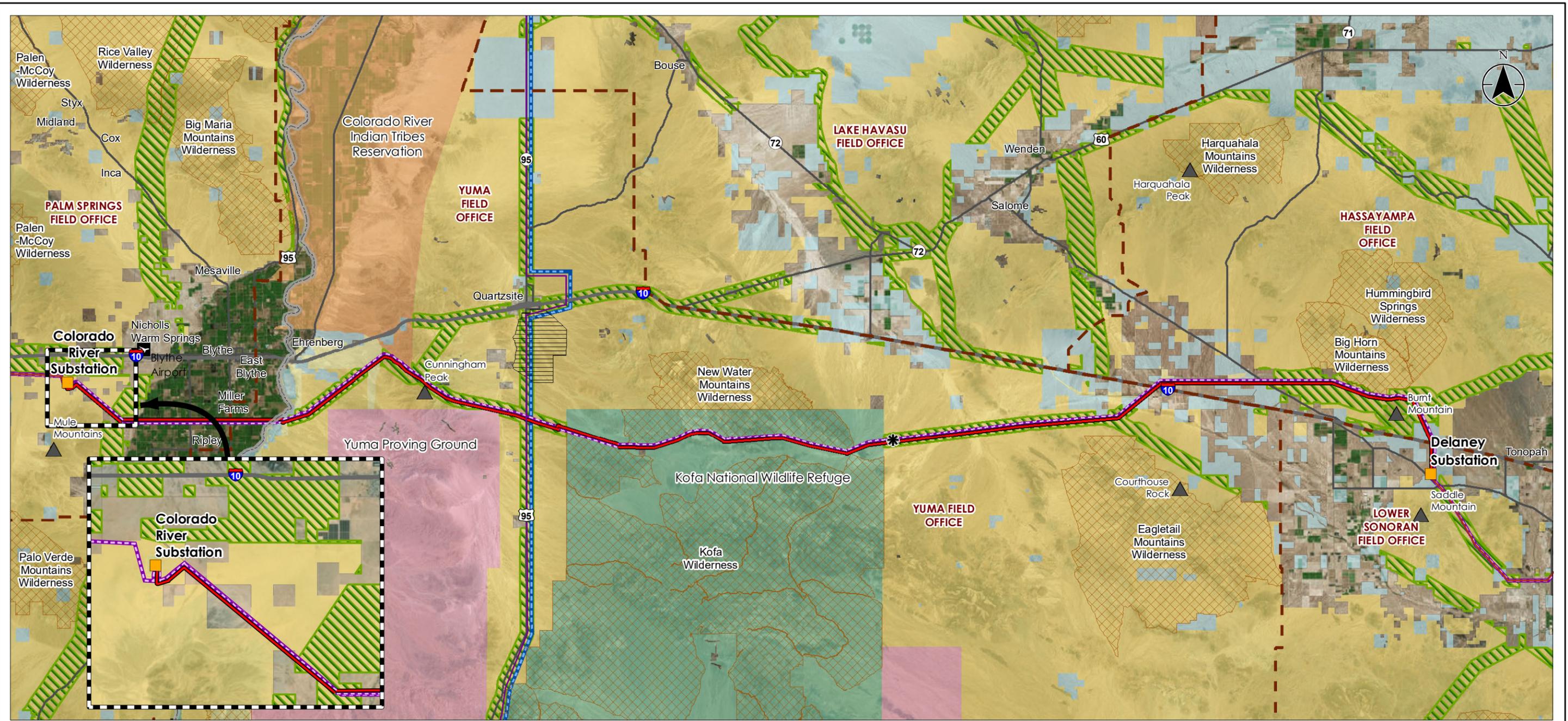
A ROW term of 50 years is requested to construct, operate, maintain, and decommission the transmission line and associated infrastructure.

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. 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.



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



**Figure 1-1
 Ten West Link
 Proposed Action
 Overview**

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.

- 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 the Federal Land Policy and Management Act (FLPMA) of 1976 and the Energy Policy Act of 2005 to respond to applications that promote energy production including electricity, 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 U.S.C. 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) | • Reclamation |
| • Department of Defense (DOD), Yuma Proving Ground (YPG) | • United States Army Corps of Engineers (USACE) |
| • USFWS | • 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 ROWs to DCRT on land administered by the BLM, and if so, what terms and conditions should be applied.

Should an Action Alternative route be selected, a 12kV distribution line would be required to power the alternative SCS location. The BLM would decide whether to issue a ROW to APS to construct, operate, maintain, and decommission this 12kV distribution line.

If any alternative other than the No Action is selected, the Project would require an RMP amendment before it could be approved.

1.5.2 DOD

The DOD will decide whether to grant an aerial ROW (to include coordination of airspace and land space, as required by the DOD) to DCRT to construct, operate, maintain, and decommission the Project on the YPG.

1.5.3 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.

1.5.4 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). USFWS is the responsible agency for issuing a Biological Opinion for the action.

1.5.5 USACE

The USACE will decide whether to authorize the Project under Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act of 1899.

1.5.6 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.

1.5.7 ACC

The Arizona Corporation Commission (ACC), which governs electrical transmission line siting and issues permits for large transmission and other power facilities in the state regardless of land ownership, requires environmental analysis to be performed for new transmission lines. The Arizona Power Plant and Transmission Line Siting Committee, part of the ACC, is responsible for the environmental review on state trust 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.

DCRT has filed an application for a Certificate of Environmental Compatibility (CEC) to site the Project’s transmission infrastructure in Arizona. The ACC approval or denial of DCRT’s CEC application is a discretionary decision.

1.5.8 CPUC

The CPUC regulates privately owned electric, natural gas, telecommunications, water, railroad, rail transit, and passenger transportation companies in California. The CPUC regulates utility services, stimulates innovation, and promotes competitive markets, where possible (CPUC 2017), and therefore regulates CAISO-requested projects (Section 1.2.2).

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 are not discussed in the body of this document.

1.5.9 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 design features such as Applicant Proposed Measures (APMs) and BLM-required Best Management Practices (BMPs) that have been incorporated into the Proposed Action and Action Alternatives, as well as suggested mitigation measures (MMs) identified to avoid and/or reduce environmental impacts 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 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 Proposed Action or 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 (BLM 2002, 2016a)

1.7.1.3 Kofa NWR 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 2006) and compatibility (USFWS 2000) when processing ROW applications.

1.7.1.4 YPG Integrated Natural Resources Management Plan

The YPG 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 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 are 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.

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 2017)
- Riverside County Palo Verde Area Plan (Riverside County 2014)
- 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 is consulting with Indian tribes with jurisdiction or interest in the Project (Section 5.3). NHPA Section 106 consultation and coordination is summarized in Chapter 5 (Section 5.5 and Appendix 5).

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 (BLM 2016b; 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.

1.10 SUMMARY OF CHANGES BETWEEN DRAFT AND FINAL

Comments on the Draft EIS (DEIS) (Appendix 8) included such topics as use of BMPs and MMs, property values, wildlife, recreation, land use, and avoiding the Kofa NWR. In response to public comments on the DEIS, information related to impacts to Sonoran pronghorn and lands with wilderness characteristics were clarified. Also, Project specific plans were included in Appendix 2B. Additionally, the BLM removed the Visual Resource Management Class RMP amendments from the Agency Preferred Alternative to maintain manageability of the utility corridor and made various editorial changes to the EIS, such as fixing several figures, clarifying analyses, and making minor corrections.

Between the DEIS and Final EIS (FEIS), design and engineering of the Project was refined and presented in an updated Plan of Development (POD) (DCRT 2019); therefore, acreages of new surface disturbance and the amount of water required for construction was adjusted to reflect this updated information in the FEIS. Of note, the POD was revised by the applicant to reflect the BLM Preferred Alternative, rather than the Proposed Action.

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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.

Detailed information specifically referenced in the sections below is located in Appendix 2. Additional detailed Project information is provided in the Technical Environmental Study (TES), available on the BLM’s ePlanning website.

2.2 PROPOSED ACTION AND ALTERNATIVES

2.2.1 ROW Actions

DCRT proposes to acquire a 200-foot-wide ROW for construction, operation, maintenance, and decommissioning of the 500kV line and associated Series Compensation Station (SCS); access roads; and a 20-foot-wide ROW for a 12kV distribution line servicing the SCS. DCRT has estimated a centerline and infrastructure requirements for the Proposed Action and Action Alternatives, taking into account topography, existing development, and other identified design challenges. The proposed Project ROW for the transmission line would include 100 feet on either side of the centerline, for a total width of 200 feet. In some areas the ROW may need to be wider or narrower to accommodate terrain, slope, and/or other facilities. The proposed ROW would likely be adjusted further as a result of final engineering by the Proponent. These potential variations in the ROW are within the scope of the EIS analysis. Duration of the Project disturbance has been described in terms of short term (generally, during construction, projected to be approximately 2 years, and up to 10 years) and long term (generally for the life of the Project anticipated to be up to 50 years, and could be renewed). As proposed, the Project would result in approximately 709 acres of short-term disturbance and 410 acres of long-term disturbance (Appendix 2).

The 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) (2017). While some access roads would be located within the 200-foot corridor, other access roads would be outside of it, however, with the intent to optimize the use of existing roads and trails. DCRT has requested a 50-year ROW grant from the BLM for the purposes of constructing, operating, maintaining, and decommissioning the Project. In addition to the BLM ROW, ROWs and easements would need to be acquired from other Federal, state, and local entities (Section 1.5), 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 2.2.5.

Table 2-1 Land Jurisdictions Crossed by the Project in Arizona and California

JURISDICTION	MILES	% OF TOTAL ROUTE DISTANCE
BLM	56.5	49.4
USFWS	24.9	21.8
DOD	0.2	0.2
Reclamation	1.5	1.3
Arizona State Trust	8.1	7.1
Private	23.1	20.2
TOTAL	114.3	100.0

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 would not conform to the Visual Resource Management (VRM) classes for lands designated by the Yuma RMP, would include an amendment of the RMP. These potential RMP amendments are detailed in Table 2-2 and Figure 2-2.

Table 2-2 Proposed Action Yuma RMP VRM Class Amendments

SEGMENT*	LENGTH	VRM CLASS	AMENDED VRM CLASS	LENGTH AMENDED (MILES)
p-06	35.7	III	IV	0.6**
p-07	2.1	III	IV	2.1
p-08	0.6	III	IV	0.6
p-09	6.9	III	IV	6.9
p-10	1.1	III	IV	1.1
p-11	4.1	III	IV	3.9
p-12	2.5	III	IV	1.1
p-13	3.5	III	IV	3.5

*Segments only listed if an RMP amendment is included 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 conservation management action (CMA), a requirement of the CDCA Plan, 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 [BLM 2015a], or the most recent data and modeling)" (BLM 1980).

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 Harwood'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 (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, is 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 [Desert Renewable Energy Conservation Plan] 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 (to be completed before the Notice to Proceed [NTP] is issued) prior to ground or vegetation disturbing activities commencing on public lands in California.

2.2.3 Alternatives and Subalternatives

Four Action Alternatives (which includes the Preferred Alternative described below) 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.

2.2.3.1 RMP Amendments

Some of the segments comprising the Alternative and Subalternatives would not be in compliance with the applicable BLM land use plan and would include an RMP amendment for the alternative.

The Yuma RMP (BLM 2010a) would include an amendment to establish a ROW for any segment outside designated BLM utility corridors. The Yuma RMP decision LR-031 would be changed as follows:

To the extent possible, locate new ROWs within or parallel to existing ROWs or ROW Corridors to minimize resource impacts. Consider ROWs outside of corridors on a case-by-case basis through project-specific analysis.

Any amendments would also be included 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. Several alternatives or subalternatives would include an amendment to the Lake Havasu RMP to include a segment that crosses VRM Class II designated lands in the Lake Havasu FO; such amendment to this RMP would not be necessary under the Proposed Action.

Table 2-3 Proposed RMP Amendments by Action Alternative Segment in Arizona

SEGMENT*	LENGTH (MILES)	VRM CLASS	WITHIN UTILITY CORRIDOR?	RMPA REQUIRING AMENDMENT	RMP AMENDMENT DESCRIPTION
cb-01	3.2	II	No	Yuma RMP	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	Yuma RMP	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.

SEGMENT*	LENGTH (MILES)	VRM CLASS	WITHIN UTILITY CORRIDOR?	RMPA REQUIRING AMENDMENT	RMP AMENDMENT DESCRIPTION
cb-03	4.3	II	Yes - Partial	Yuma RMP	Change to VRM Class IV on portion of BLM-administered public lands within the utility corridor within the viewshed of the canyon.
cb-04	1.9	II & III	No	Yuma RMP	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	Yuma RMP	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	Yuma RMP	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	19.9	III	Yes - Partial	Yuma RMP	Establish ROW in areas outside the BLM utility corridor to encompass the i-03 route.
i-04	10.5	III	Yes	Yuma RMP	Change the VRM from Class III to Class IV within the BLM utility corridor.
i-05	2.8	III	Yes	Yuma RMP	Change the VRM to Class IV within the BLM utility corridor.
i-06	7.2	III	Yes	Yuma RMP	Change the VRM from Class III to Class IV within the BLM utility corridor.
qn-02	10.8	III & IV	Yes - Partial	Yuma RMP	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	Yuma RMP	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	Yuma RMP	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.

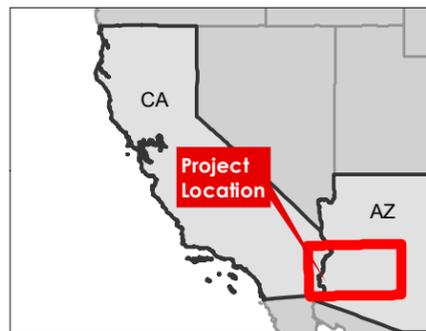
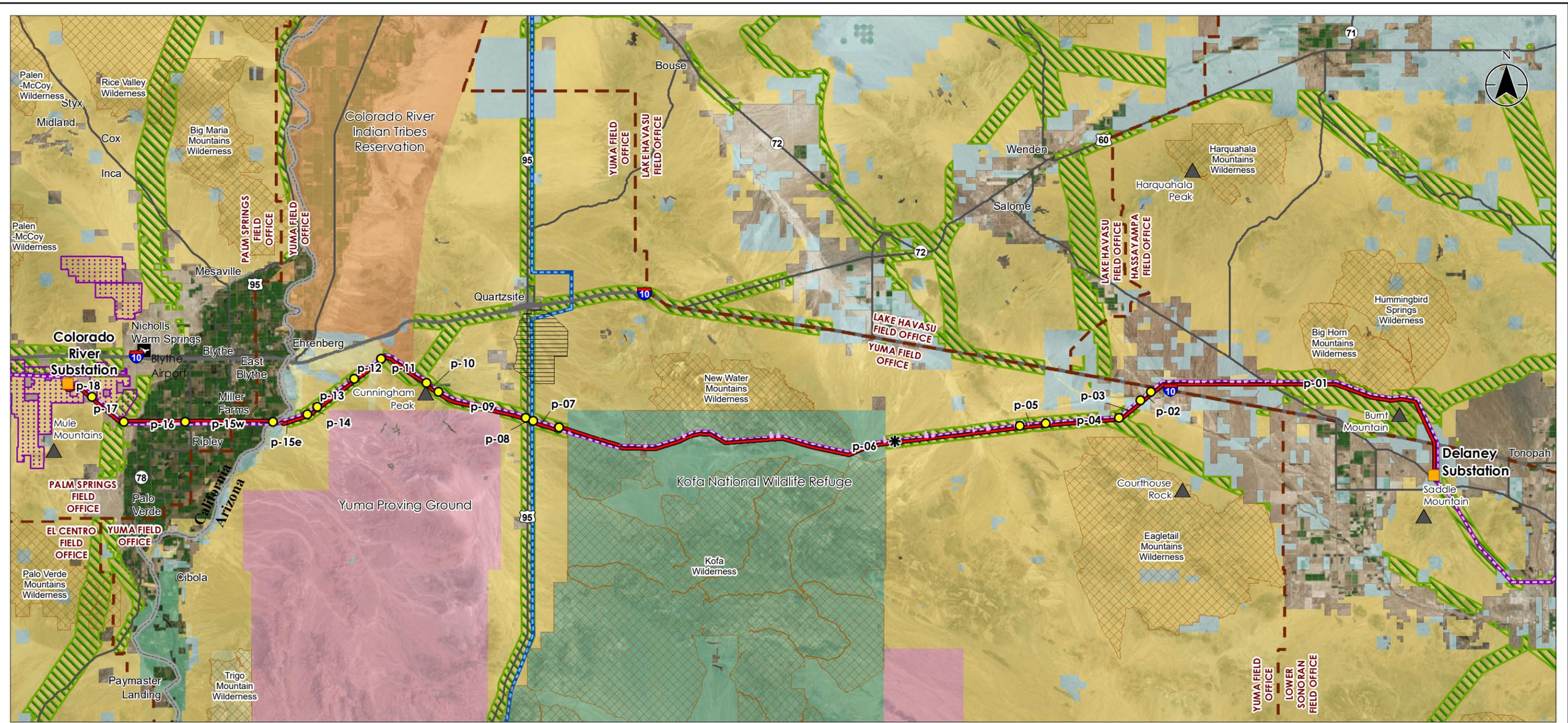
SEGMENT*	LENGTH (MILES)	VRM CLASS	WITHIN UTILITY CORRIDOR?	RMPA REQUIRING AMENDMENT	RMP AMENDMENT DESCRIPTION
x-01	4.7	II	No	Yuma RMP	Establish ROW outside of utility corridor.
x-02b	3.4	II	Yes - Partial	Yuma RMP	Establish ROW outside of utility corridor.
x-03	5.6	III	Yes - Partial	Yuma RMP	Establish ROW outside of utility corridor.
x-04	22.7	III	Yes - Partial	Yuma RMP	Establish ROW outside of utility corridor.
x-05	10.2	III	Yes - Partial	Yuma RMP	Establish ROW outside of utility corridor.
x-06	9.2	III	Yes - Partial	Yuma RMP	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	Yuma RMP	Change the VRM in areas of Class III to Class IV within the BLM utility corridor.
in-01	13.9	II and IV	Yes	Lake Havasu RMP	Change the VRM in areas of Class II to Class IV within the BLM utility corridor.

2.2.3.2 Alternative 1: I-10 Route

Alternative 1 would be 111.6 miles long and would generally follow Interstate 10 (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	58.8	52.7
USFWS	0	0
Reclamation	6.4	5.7
DOD	0	0
State Trust	19.4	17.4
Private	25.6	22.9
Indian Lands	1.4	1.3
Total length of route:	111.6	100.0



- 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

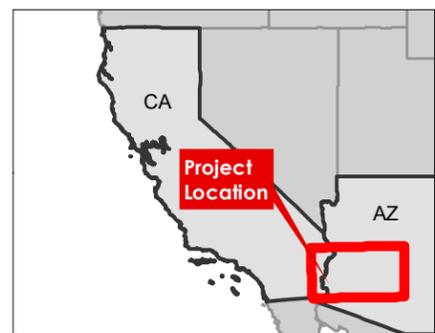
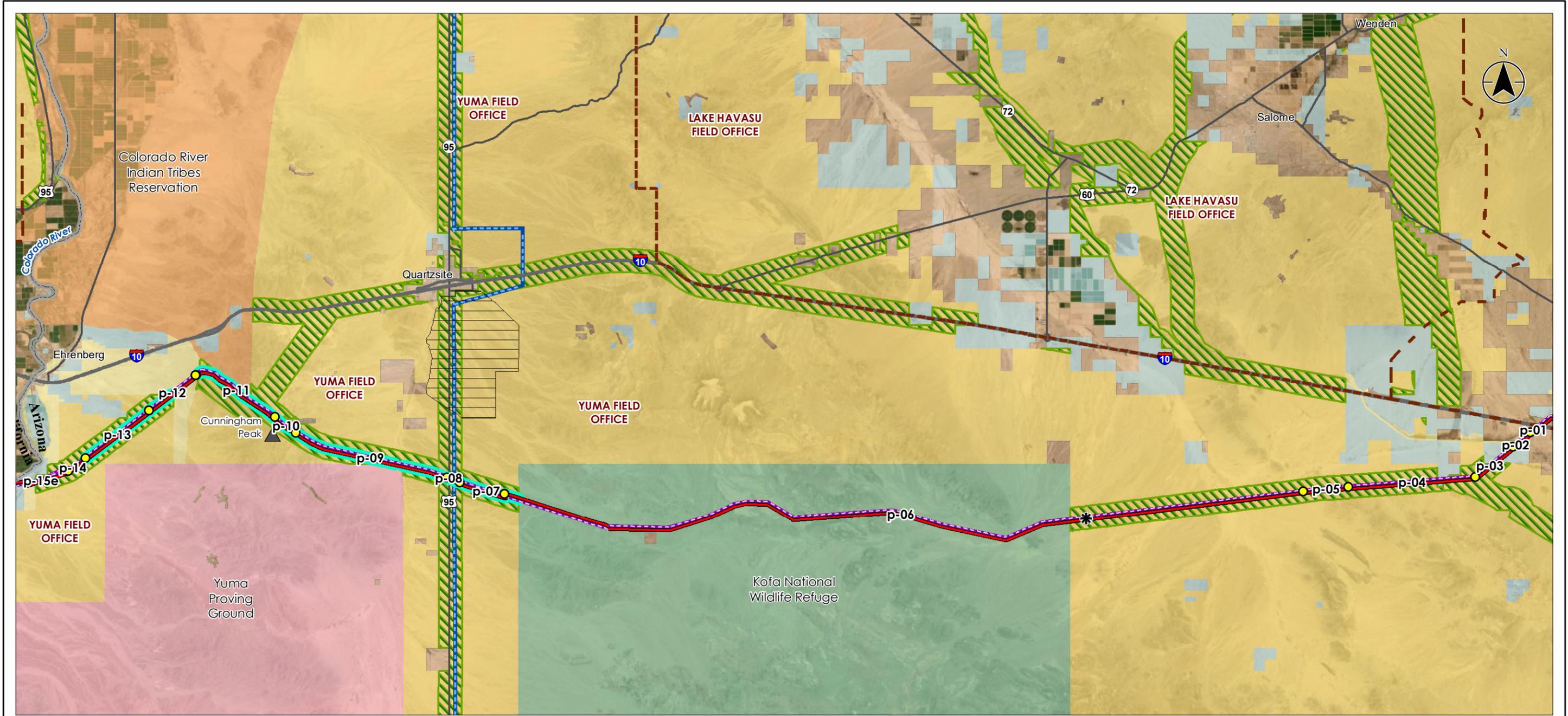
- Land Status**
- Bureau of Land Management
 - Bureau of Reclamation
 - Local or State Parks
 - Indian Lands
 - Military
 - Private
 - State
 - USFWS



**Figure 2-1
Ten West Link
Proposed Action Segments
Overview**

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.



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
- Route Segment Node
- ~ Proposed Action*
- ~ Route Segment including 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.

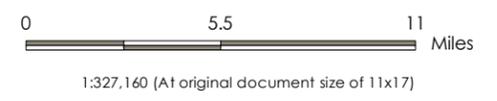
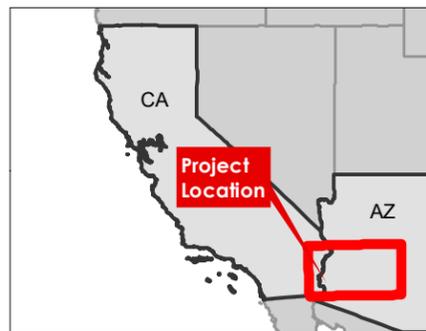
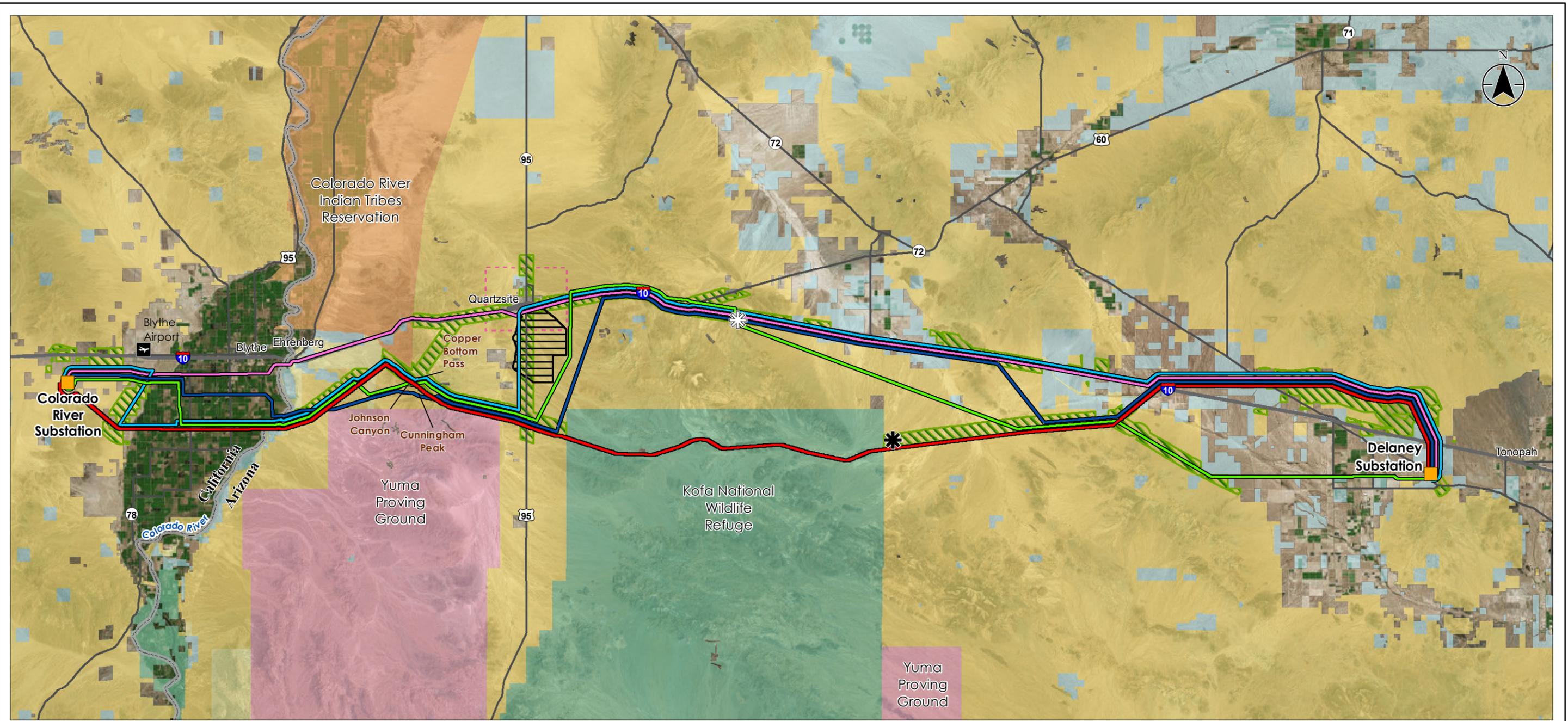


Figure 2-2
Ten West Link
Proposed Action Segments that Would Include Amendment of the YFO RMP



- 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



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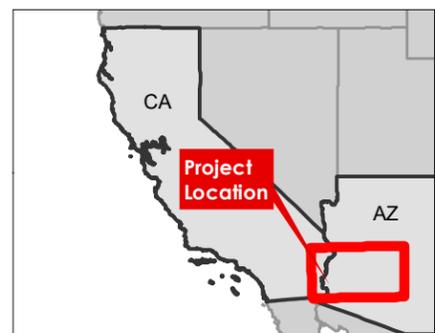
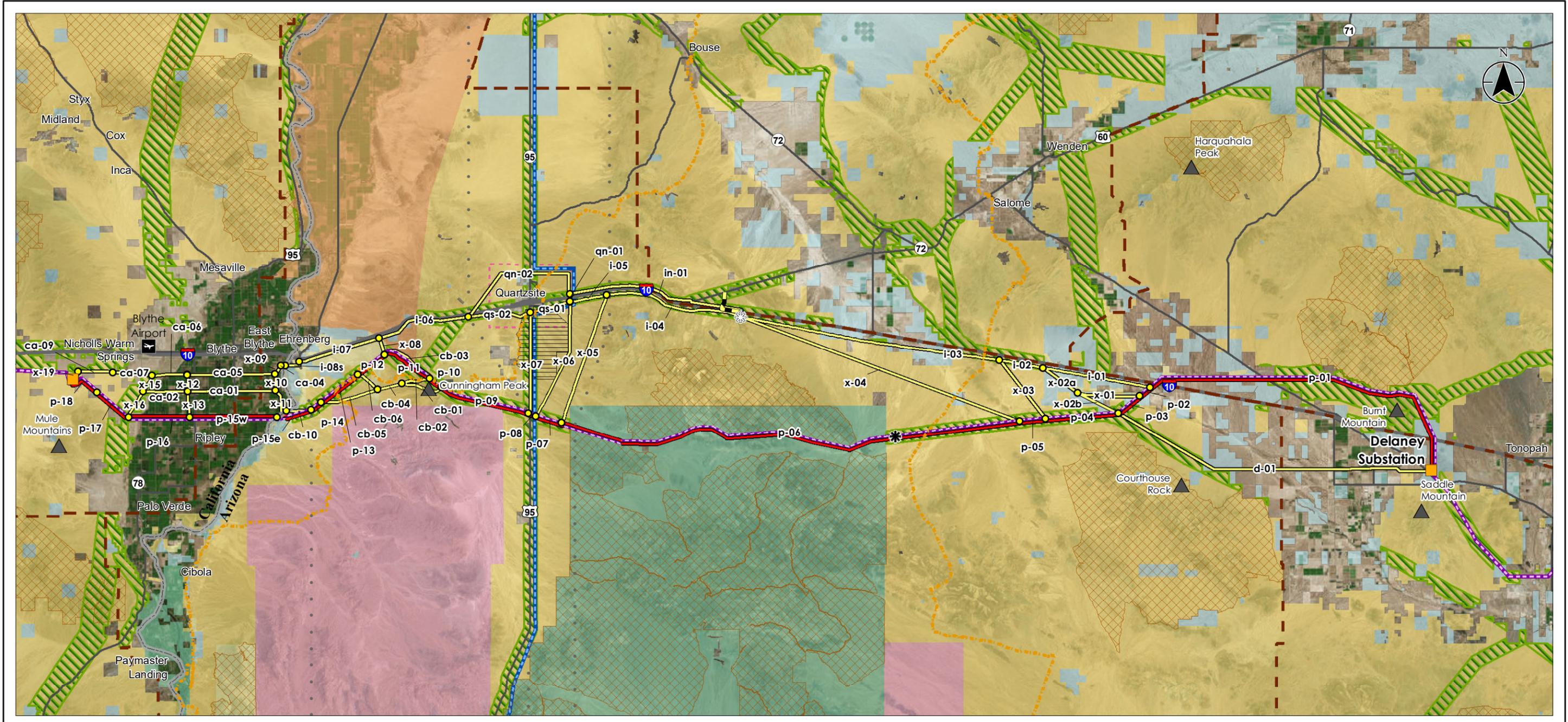


**Figure 2-3
Ten West Link
Full Route Alternatives
to the Proposed Action**

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

[^] = 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.



- Substation
 - Proposed Series Compensation Station
 - Alternative Series Compensation Stations (2 possible site locations; ~75' feet apart)
 - Route Segment Node
 - Proposed Action*
 - Alternative Route Segment
 - Alt SCS 12 kV Distribution Line
 - Existing DPV1 Transmission Line*
 - Proposed Arizona Peace Trail
 - BLM Long-term Visitor Area
 - Peak
 - BLM Utility Corridor
 - BLM Field Office Boundary
 - Wilderness Area
 - Quartzsite Planning Area
 - Local or State Parks
 - Indian Lands
 - Military
 - Private
 - State
 - USFWS
- Land Status**
- Bureau of Land Management
 - Bureau of Reclamation



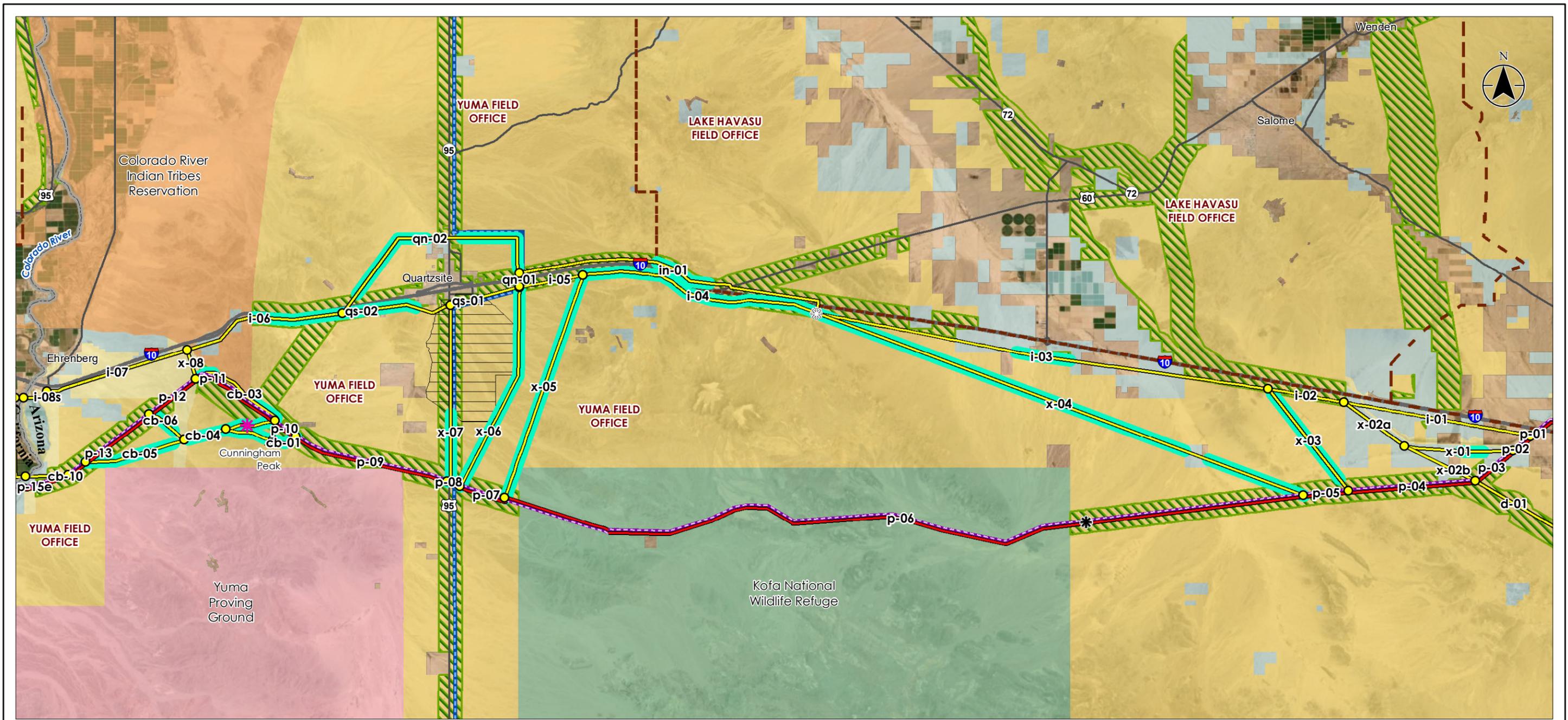
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Notes
 1. Coordinate System: World Mercator
 2. Data Source(s): Project data - HDR; Land Status - BLM
 3. Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User 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 2-4
Ten West Link
Action Alternative Segments



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

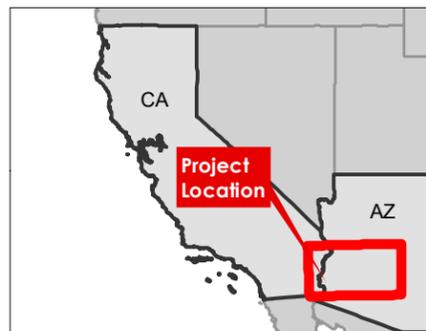
- Route Segment including RMP Amendment
- Existing DPV1 Transmission Line*
- Existing WAPA 161kV Transmission Line
- ▭ BLM Long-term Visitor Area
- ▲ Peak
- ▨ BLM Utility Corridor
- ▭ BLM Field Office Boundary

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



Figure 2-5
Ten West Link
Action Alternative Segments that
Would Include RMP Amendment

* = 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.



- 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



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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

[^] = 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 2-6
Ten West Link
Alternative 1: I-10 Route

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.

In addition to the RMP amendments described above, Subalternative 1C includes a segment (Segment in-01, Table 2-3) in the Lake Havasu FO that crosses VRM Class II designated lands. An amendment to the Lake Havasu RMP (BLM 2007) would be included to change the portion of this segment designated VRM Class II to Class IV within the BLM utility corridor.

2.2.3.3 Alternative 2: BLM Utility Corridor Route

Alternative 2 would be 125.8 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	80.1	63.7
USFWS	0	0
Reclamation	1.7	1.3
DOD	0.2	0.2
State Trust	17.6	14.0
Private	26.2	20.8
Indian Lands	0	0
Total length of route:	125.8	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.

2.2.3.4 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 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	82.6	67.1
USFWS	0	0
Reclamation	0.7	0.6
DOD	0.2	0.2
State Trust	14.0	11.4
Private	25.5	20.7
Indian Lands	0	0
Total length of route:	123.0	100.0

Appendix 2 details:

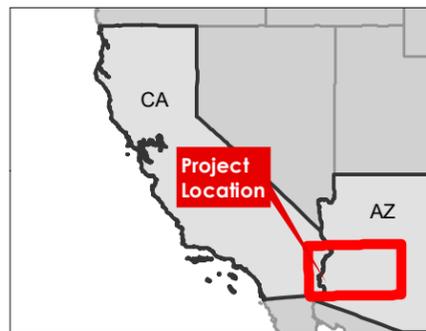
- The 23 segments that comprise Alternative 3 in Table 2.2-7;
- The twelve subalternatives that would also meet the objectives of Alternative 3 in Table 2.2-8; and
- Segment descriptions in Table 2.2-2.

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

In addition to the RMP amendments described above, Subalternative 3D includes a route segment in the Lake Havasu FO that crosses VRM Class II designated lands in the Lake Havasu FO (Table 2-3). An amendment to the Lake Havasu RMP (BLM 2007) would be included to change the portion of this segment designated VRM Class II to Class IV within the BLM utility corridor.

2.2.3.5 Alternative 4: Public Lands Emphasis Route

Alternative 4 would be 120.3 miles long and generally is on public lands, minimizing state trust lands (Figure 2-9, Table 2-7). This alternative route was developed to avoid the Kofa NWR, state trust 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.



- 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



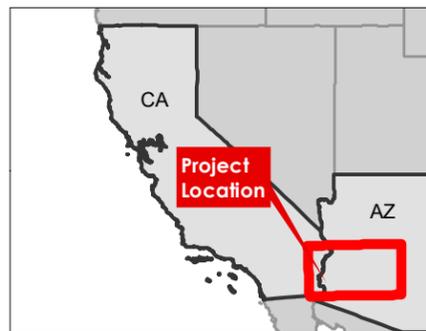
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**Figure 2-7
Ten West Link
Alternative 2:
BLM Utility Corridor Route**

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

^ = 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.



- 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



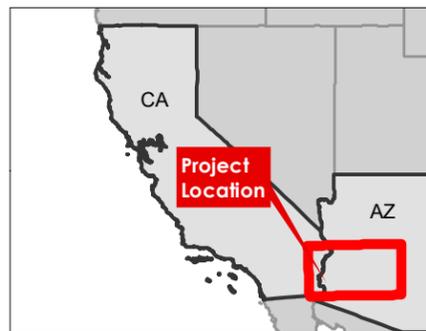
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[^] = BLM Utility Corridors were clipped to a 2-mile Project study area.
 * = The Proposed Action is offset 600 meters to the South for display purposes.

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



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



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[^] = 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 Route 4
Public Lands Emphasis Route

Table 2-7 Alternative 4 Jurisdiction

LAND MANAGEMENT LANDS CROSSED	MILES (#)	% OF TOTAL ROUTE DISTANCE
BLM	84.6	70.3
USFWS	0	0
Reclamation	0.8	0.7
DOD	0.2	0.2
State Trust	6	4.9
Private	28.7	23.9
Indian Lands	0	0
Total length of route:	120.3	100.0

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.

In addition to the RMP amendments described above, Alternative 4 includes a route segment in the Lake Havasu FO that crosses VRM Class II designated lands in the Lake Havasu FO (Table 2-3). An amendment to the Lake Havasu RMP (BLM 2007) would be included to change the portion of this segment designated VRM Class II to Class IV within the BLM utility corridor.

2.2.3.6 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 Agency 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 along Segment i-03 adjacent to I-10 and north of the New Water Mountains; along with design features, APMs, BMPs, and MMs. The Agency Preferred Alternative includes the proposed CDCA Plan amendment (Section 2.2.2.2), proposed Yuma

RMP amendment for authorizing ROWs outside of utility corridors (Segments i-03 and x-05, as discussed in Section 2.2.3.1), and does not include the proposed RMP amendment for VRM class, in order to maintain consistent management of this resource for the length of the corridor in Arizona. Table 2-8 presents affected jurisdiction.

Table 2-8 Agency Preferred Alternative Jurisdiction

LAND MANAGEMENT LANDS CROSSED	MILES (#)	% OF TOTAL ROUTE DISTANCE
BLM	79.3	63.5
USFWS	0.0	0
Reclamation	1.7	1.3
DOD	0.2	0.2
State Trust	17.6	14.1
Private	26.2	20.9
Indian Lands	0.0	0
Total length of route:	125.0	100

Table 2-9 is a summary of short- and long-term disturbance, respectively for the Agency Preferred Alternative. The summary of short- and long-term disturbance (Table 2-9) takes into account changes to structure types on Segments p-07 through p-13, i-04, and x-05 that were made to reduce safety issues associated with high OHV use along those segments.

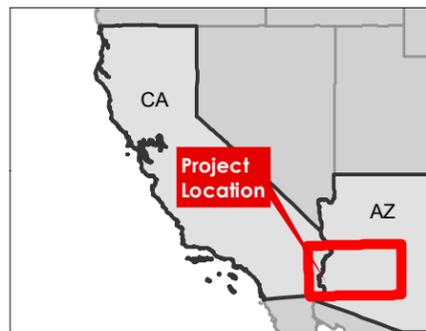
Table 2-9 Short- and Long-Term Disturbance for the Agency Preferred Alternative

COMPONENT	SHORT-TERM ¹ DISTURBANCE (ACRES)	LONG-TERM DISTURBANCE (ACRES)	TOTAL DISTURBANCE (ACRES)
Access Roads		430.8	430.8
Material Staging, Laydown Yards, and Batch Plants	34.5	0	34.5
Fly Yards	33.4		33.4
Structure Foundations and Erection ²	468.6	41.1	468.6*
Wire Stringing (snubbing and pulling sites)	167.4	0	169.7
Crossings (roads, transmission/power lines, water)	53.3	0	53.3
Series Compensation Station	0	1.7	1.7
Distribution Line	0.8	<0.1	0.8
Total	758.0	473.7	1,190.5
Total Water Requirements - Construction (gallons)	60,205,532.2		

¹ Temporary use areas would be located in conformance with BMP-MISC-04 (Appendix 2A, Section 2A.14), 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.

² Includes mitigation to replace structures with guy lines with self-supporting (no guy lines) structures to mitigate safety issues in areas of high OHV use.

*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.



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

- Proposed Action*
- Agency 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



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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

^ = 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
 Agency Preferred Alternative**

2.2.4.1 RMP Amendments

Under the Agency Preferred Alternative, the BLM would amend the Yuma RMP to allow 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 and x-05.

Under the Agency Preferred Alternative, the BLM would amend the CDCA Plan to allow Project construction within 0.25 mile of occurrences of Harwood's eriastrum as identified in Section 2.2.2.2.

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.

2.2.5 Proposed Facilities, Infrastructure, and Construction

2.2.5.1 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, new or upgraded access roads, 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; and
- Reclamation

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

- Conducting preconstruction resource surveys and aerial photography;
- Preparing construction material storage, laydown yards, and concrete batch plants located in previously disturbed areas and areas of lesser ecological sensitivity to the extent practicable;
- Preparing equipment staging areas located in previously disturbed areas and areas of lesser ecological sensitivity to the extent practicable;
- Preparing equipment refueling areas collocated with staging and storage areas where possible and in conformance with the Project Spill Prevention, Control, and Countermeasure Plan;
- Installing flagging, fencing, and signs in areas of active construction activities or where required for employee and public safety;
- Implementing transportation management for Project access and public safety as in conformance with the Project Traffic and Transportation Management Plan;
- Implementing 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;
- Implementing erosion/dust control and air quality management in conformance with the Project Erosion, Dust Control, and Air Quality Plan;
- Implementing hazardous materials management in conformance with the Project Hazardous Materials Management Plan;
- Implementing emergency preparedness and response in conformance with the Project Emergency Preparedness and Response Plan; and
- Implementing 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 listed in Appendix 2B or would be completed before a possible NTP is issued.

2.2.5.2 Transmission Structures

Support structures are proposed to be steel lattice of various configurations; including self-supporting lattice, H-frame lattice, and guyed V (Figure 2.2-15, Appendix 7). In certain high off-highway vehicle (OHV) use areas, self-supporting lattice structures would replace guyed V structures to eliminate hazards to those recreationists (Section 2.4 in Appendix 2). While monopoles are not proposed for the Project, they may be considered for private property if requested by landowners. The structures would be between 72 and 195 feet in height, depending on the span length required and topography, with most being shorter than 142 feet. Span lengths between structures would vary from 400 to 2,300 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 1,500 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.

2.2.5.3 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): precast concrete foundation 9 by 9 feet by 24 feet deep (one per structure); additional 4 grouted or helical anchors for the guys. If dictated by engineering, 3 foot by 24-foot deep concrete piers could be utilized for guys. Guys would be located within the ROW limits and would include a 1-foot square footprint, typically. Guy anchors would add four 1-foot square disturbance footprints.
- H Frame Steel Lattice (Tangent): pier foundations 3 feet in diameter by 25 feet deep (eight piers per structure or four per tower leg).
- Self-supporting Tangent and Dead-end Structures: pier foundation 4 and 6 feet, respectively, in diameter by 38 feet deep (four per structure).
- Drilled pier (steel monopole): foundation 4 to 6 feet in diameter by 38 feet deep (one per structure).

Helicopter-only foundation construction may result in excavations that must be “hand dug” (i.e., jackhammers and shovels). Foundation dimensions increase when dug by hand due to shoring requirements, safety harness requirements, and retrieval equipment requirements. Additional information is provided in Appendix 2.

A short-term disturbance area of approximately 1.1 acres is estimated for each structure site. 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, Action Alternative segments, and the Agency Preferred Alternative is detailed in Tables 2.2-11 through 2.2-13 in Appendix 2. Total short-term structure disturbance associated with the Proposed Action and Action Alternatives ranges from approximately 424 acres to 468 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 anchors: 1 foot by 1 foot (1 square foot) each;
- H Frame Lattice: two 12 by 18-foot foundation areas (432 square feet);
- Self-supporting Structure: 50 feet by 50 feet (2,500 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. In addition to the long-term footprint and foundation of the proposed structure, each structure would require a separate permanent work area anticipated to be 50 by 50 feet (<0.1 acre). While revegetation would occur in these work areas, minimal contouring would be performed.

A typical short-term 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, Section 2A.14). Actual dimensions of the temporary area of disturbance may vary, depending on factors such as terrain, structure size, and vegetation but would disturb a maximum of 1.1 acres. Short-term disturbance areas would be specifically identified in conjunction with structure locations and the Access Road Plan in the final POD, which would receive final approval from the BLM prior to construction. Long-term disturbance associated with the Proposed Action, Action Alternative segments, and the Agency Preferred Alternative is detailed in Tables 2.2-11 through 2.2-13 in Appendix 2. Total long-term disturbance from structures associated with the Proposed Action and Action Alternatives ranges from approximately 33.4 to 36.9 acres (Table 2-11).

Appendix 2 contains details of:

- Structure foundations associated with the Project;
- Structure and Foundation Construction;
- Structure types and estimated disturbance for the Proposed Action segments (Table 2.2-11);
- Structure types and estimated disturbance for the Action Alternative segments (Table 2.2-12); and
- Structure types and estimated disturbance for the Agency Preferred Alternative segments (Table 2.2-13).

2.2.5.4 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 36.25 feet for most of the route and 51.25 feet for the Colorado River crossing, based on NERC, NESC, CPUC GO 95, and 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 optical ground wire (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 152.6 to 176.1 acres.

Appendix 2 provides additional details regarding:

- Short-term disturbance and work areas for conductor, ground wire, and OPGW, pulling and snubbing sites, which are discussed;

- Estimated short-term disturbance for pulling and snubbing for the Proposed Action segments detailed in Table 2.2-14;
- Estimated short-term disturbance for pulling and snubbing for Action Alternative segments detailed in Table 2.2-15; and
- Estimated short-term disturbance for pulling and snubbing for the Agency Preferred Alternative segments detailed in Table 2.2-16.

2.2.5.5 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, particularly in the Colorado River crossing area. This hardware may include aerial marker spheres, structure painting, 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).

2.2.5.6 Series Compensation Station and Distribution Line

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 20-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 nighttime 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 near the town of Brenda, Arizona. The distribution line for either alternative location would be approximately 3.2 miles long with a 20-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;
- The alternative SCS locations;
- A description of SCS 12kV distribution line construction.

2.2.5.7 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.

2.2.5.8 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 that would be part of the final POD (listed in Appendix 2B).

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

- Access Type A – Type A access roads would include existing public or private roads that are parallel to the ROW, or a patchwork of existing roads in the area that would provide access to or would be crossed by Project segments. These roads consist of well-maintained county dirt roads, private roads, and all paved roads. Improvements to Type A roads may include repairs to the roadbed on dirt roads without additional disturbance beyond the existing roadbed width. Surface improvements to the roadbed would only be completed to allow for safe travel conditions.
- Access Type B – Type B access roads would require some level of upgrade to allow sufficient access. In conditions required for construction passage, these roads may be bladed, compacted, and widened to a maximum of 18 feet for travel surface with up to 30 feet of total disturbance overall. This includes the 16-foot travel surface, 2-foot berms on either side, and 5 feet of material displacement on either side of the travel surface in steep terrain. In flat terrain with the exclusion of wash-crossings this total disturbance would be much less, with an approximate 18 feet of total disturbance. In moderate terrain, with the exclusion of wash-crossings, this total disturbance would be approximately 25 feet. In steep terrain with the exclusion of wash-crossings this total disturbance would be approximately 30 feet.
- Access Type C – Type C access roads consist of newly bladed access roads down either side of the centerline of the conductor but within the 200-foot ROW corridor as much as possible. These roads would consist of 16 to 22 feet of travel surface, 2-foot berms on either side, with a maximum of 50 feet of material displacement in steep areas. In areas of flat terrain, except in wash crossings, disturbance would most likely not exceed 22 feet total for travel surface, berms, and material displacement. In areas of moderate terrain, except in wash crossings, disturbance would most likely not exceed 50 feet total for travel surface, berms, and material displacement. Where possible, areas that can support construction activities by drive-and-crush and/or clear-and-cut practices would be implemented.
- Access Type D - Type D access spur roads would be constructed in areas where Type A, B, and C roads provide access to the vicinity of the ROW but are not adequate to provide access to structure locations. These roads would be new spur roads that would be bladed from the main access road to access the structure work areas. New spur roads would consist of native material displacement, and thus require larger disturbance areas in steeper terrain. Travel surfaces for new spur roads would range from 16 to 22 feet with 2-foot berms on either side excluding material displacement. For spur roads in flat terrain, material displacement would not exceed 3 feet on either side for a total of 22 feet if utilizing a 16-foot travel surface. For spur roads in moderate terrain, material displacement would not exceed seven feet on either side for a total of 30 feet if utilizing a 16-foot travel surface. In steep terrain, material displacement would not exceed 76 feet of total disturbance, this includes a 22-foot travel surface, 2-foot berms on either side, and 25 feet of cut/fill on either side. Steep terrain is defined as slopes greater than or equal to 15 percent. Long-term disturbance would consist of the cut, fill, and road base travel surface required for continued operation and maintenance of the line. Total disturbances are estimated and would be calculated during the reclamation period. Where terrain and soil conditions are suitable, non-graded overland access (“drive-and-crush”) would be

utilized. When drive-and-crush cannot be used, vegetation would be cleared, and roads would be cut as determined by terrain, soil, and vegetation (“clear-and-cut”). To the maximum extent possible, roads would cross drainages at grade (low-level crossing). In some cases, road cutting may be needed to drop access roads to the grade of the drainage bottom. Any material moved by road cutting would be cast upland and not deposited in washes.

- Access Type E – Helicopter Access – In areas of particular biological, topographical, archaeological, or visual concerns, a helicopter may be used to assist with Project construction. Areas where helicopters would be used would also include the use of the other types of access roads (Types B, C, D), as possible. Roads would be used by light pick-up trucks or OHV for crew and tool access, and/or equipment whose tracks can adequately stay within the confines of the road disturbance boundaries without risk of roll-over or equipment failure due to stress loading of slope. However, all activities required for transmission line construction that would require large vehicles and equipment such as semi-trucks, tractor-trailers, and lo-boys would be conducted by helicopter application. Currently helicopter construction is expected for Segments p-10, p-11, cb-01, and cb-02.

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;
- Access types and associated widths provided in Table 2.2-17;
- Proposed Action segments access disturbance estimates provided in Table 2.2-18;
- Action Alternatives segments access disturbance estimates provided in Table 2.2-19;
- Agency Preferred Alternative segments access disturbance estimates provided in Table 2.2-20; and
- Helicopter access.

2.2.5.9 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). Conducted currents on these facilities (directly to ground) occur during fault conditions. Prior to initiation of construction activities, an electrical study would be conducted 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.

2.2.5.10 Temporary Use Areas

Temporary use areas would be required for material staging, laydown yards, and helicopter fly yards 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. An average of one material staging/crew

show-up area per 20 line-miles is expected for the Project, currently identified in Tonopah, Quartzsite, Salome, and Blythe. Material laydown areas, not to exceed four, would be within or adjacent the ROW. 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 plants would be co-located with material staging and laydown yards to the extent feasible and would not require additional short-term disturbance.

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.

2.2.5.11 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 2.2-21;
- Estimated disturbance for guard structures for the Action Alternative segments in Table 2.2-22; and
- Estimated disturbance for guard structures for the Agency Preferred Alternative segments in Table 2.2-23.

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

2.2.5.12 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. Foundation and concrete details pertaining to water use are provided in Table 2.2-24. Water requirements for the Proposed Action, Action Alternatives segments, and the Agency Preferred Alternative are estimated in Tables 2.2-25 through 2.2-27 in Appendix 2.

2.2.5.13 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.

2.2.5.14 Construction Reclamation

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

2.2.5.15 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 2.2-28 and 2.2-29, and equipment trip estimates for construction and reclamation, presented in Table 2.2-30. DCRT would commence construction upon timely receipt of necessary permits and ROW approvals. Construction is estimated to require 585 days for the transmission and distribution lines; and 472 days for the SCS. Table 2.2-31 in Appendix 2 outlines the construction task, phase, and anticipated duration.

2.2.5.16 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.

2.2.5.17 Estimated Disturbance Summary

Tables 2-10 and 2-11 summarize the total disturbance acreages and water requirements for the Proposed Action and Action Alternative routes.

2.2.6 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, distribution line 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 2-10 Short-Term Disturbance by Alternative

SHORT-TERM ¹ DISTURBANCE (ACRES)								
ALTERNATIVE	STRUCTURES	MATERIAL STAGING AREA	SCS DIST LINE	HELICOPTER STAGING	GUARD CROSSINGS	SNUBBING AND PULLING SITES	TOTAL SHORT-TERM DISTURBANCE	TOTAL WATER USE - CONSTRUCTION
Proposed Action	426.8	34.5	<0.1	33.4	42.8	171.5	709.1	56,803,096.2
Alternative 1	423.5	34.5	0.8	0	36.9	152.6	648.3	56,082,251.9
Alternative 2	469.7	34.5	0.8	33.4	49.0	167.4	754.8	59,760,221.8
Alternative 3	462.0	34.5	0.8	49.3	47.6	173.9	768.1	59,054,799.3
Alternative 4	455.4	34.5	0.8	56.9	37.6	175.2	760.4	56,744,282.2
Preferred Alternative	468.6	34.5	0.8	33.4	53.3	167.4	758.0	59,639,956.0

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 2-11 Long-Term Disturbance by Alternative

LONG-TERM DISTURBANCE (ACRES)						
ALTERNATIVE	LINE MILES	SCS	SCS DIST LINE	ACCESS ROADS	STRUCTURES	TOTAL LONG-TERM DISTURBANCE
Proposed Action	114.3	1.7	<0.1	375.2	33.1	410.0
Alternative 1	111.6	1.7	<0.1	354.9	33.6	390.3
Alternative 2	125.8	1.7	<0.1	424.5	36.5	462.8
Alternative 3	123.0	1.7	<0.1	429.2	35.4	466.4
Alternative 4	120.3	1.7	<0.1	435.1	31.2	468.1
Preferred Alternative	125.0	1.7	<0.1	430.8	41.1	473.7

2.2.7 Termination 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 on BLM-managed lands would be reclaimed in accordance with the Decommissioning Plan approved by the BLM prior to issuance of the ROW grant¹. A performance and reclamation bond for BLM-managed lands, based on a reclamation cost estimate provided by the applicant and reviewed, modified as needed, and approved by the BLM, is required per BLM bonding policy.

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

2.2.8 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.

Current BLM mitigation policy would be applied to address impacts of the Project that cannot be avoided or minimized to an acceptable level. 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.

2.2.9 Alternative Segments Considered but Eliminated from Detailed Analysis

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) or not relevant to the Project (i.e., development of a route and substation for the Brenda Solar Energy Zone).

¹ There would be reclamation of lands with long-term, Project disturbance, but the majority of reclamation would occur once construction is completed and the transmission line is energized (Section 2.2.5.14 and Appendix 2).

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. Additional information regarding 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 2.2-32 and these are shown on Figures 2.2-24 through 2.2-27 (Appendix 7).

2.3 COMPARISON OF IMPACTS OF ALTERNATIVES CONSIDERED

Table 2-12 provides a summary of the key resource (Section 4.1) impacts of the combined segments for the Proposed Action and each Action Alternative route, as well as the Agency Preferred Alternative, as presented in detail in Chapter 4.

Appendix 2 contains a comparison of impacts by segment, and by alternative and subalternatives, in Tables 2.2-33a-b, 2.2-34a-b, 2.2-35a-c, and 2.2-36a-d; and Tables 2.2-37 through 2.2-41, respectively.

Table 2-12 Comparison of Alternatives and Impacts

CHARACTERISTIC OR RESOURCE IMPACT		PROPOSED ACTION	ALTERNATIVE 1	ALTERNATIVE 2	ALTERNATIVE 3	ALTERNATIVE 4	AGENCY PREFERRED ALTERNATIVE
Land ownership (miles)	BLM	56.5	58.8	80.1	82.6	84.6	79.4
	Reclamation	1.5	6.4	1.7	0.7	0.8	1.7
	USFWS	24.9	0.0	0.0	0.0	0.0	0.0
	DOD	0.2	0.0	0.2	0.2	0.2	0.2
	Arizona State Trust	8.1	19.4	17.6	14.0	6.0	17.6
	Private	23.1	25.6	26.2	25.5	28.7	26.2
	Indian Lands	0.0	1.4	0.0	0.0	0.0	0.0
	Total Length	114.3	111.6	125.8	123.0	120.3	125.0
Ground disturbance	Short-term Acres	709.1	648.3	754.8	768.1	760.4	758.0
	Long-term Acres	410.0	390.3	462.8	466.4	468.1	473.7
BLM RMP	VRM	8 segments include amendments	1 segment includes amendment	5 segments include amendments	6 segments include amendments	7 segments include amendments	No amendments
Conformance	Corridors	Conform	3 segments with amendment	2 segments with amendment	5 segments with amendment	5 segments with amendment	3 segments with amendment
	RMP Amendments and Conformance	Amendments Included (Yuma RMP, CDCA Plan)	Amendments Included (Yuma RMP, CDCA Plan)	Amendments Included (Yuma RMP, CDCA Plan)	Amendments Included (Yuma RMP, CDCA Plan)	Amendments Included (Yuma and Lake Havasu RMPs, CDCA Plan)	Amendments Included (Yuma RMP, CDCA Plan)
Other Plan conformance (Federal, county, municipal)		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.	Same as Alternative 1.	Not consistent with La Paz County Zoning Plan.	Same as Alternative 3.	Same as Alternative 3.
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. Uses Segments p-17 and p-18. Negligible disruption of sand transport or dunes during construction and operation.	Soil loss/erosion risk similar to Proposed Action. 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.
	Total acres of soil disturbance	1,086.0	1,004.9	1,181.0	1,199.0	1,197.2	1,190.5
	Susceptibility to wind erosion	High west of Colorado River.	Same as the Proposed Action.	Same as the Proposed Action.	Same as the Proposed Action.	Same as the Proposed Action.	Same as the Proposed Action.

CHARACTERISTIC OR RESOURCE IMPACT	PROPOSED ACTION	ALTERNATIVE 1	ALTERNATIVE 2	ALTERNATIVE 3	ALTERNATIVE 4	AGENCY PREFERRED ALTERNATIVE	
Biological Resources (Vegetation Resources, Wildlife, including Special Status Species and Migratory Birds)	Loss of native habitat/ communities	Some minor long-term habitat loss for structures and access roads, but entire Project would occur in an area where linear facilities and roads already exist. Short- and long-term impacts from clearing of temporary use areas pending restoration but impacts reduced due to adjacency of existing disturbances. Microphyll wash habitat would not be affected.	Similar to the Proposed Action, but in areas where no linear facilities and few roads exist these impacts would be moderate. Up to 0.5 acre of microphyll wash would be crossed but there would be a 200-foot setback and would be spanned through micrositing.	Similar to the Proposed Action, but in areas where no linear facilities and few roads exist these impacts would be moderate. Up to 2.6 acre of microphyll wash would be crossed but there would be a 200-foot setback and would be spanned through micrositing.	Similar to the Proposed Action, but in areas where no linear facilities and few roads exist these impacts would be moderate. This route crosses more undeveloped areas, therefore the loss of native habitat/communities is greater than the other alternatives. Up to 0.5 acre of microphyll wash would be crossed but there would be a 200-foot setback and would be spanned through micrositing.	Same as Alternative 1.	Same as Alternative 2.
	Noxious weeds	Negligible to minor impact with APMs and BMPs but increased abundance of existing invasives that are already present.	Negligible to minor long-term impacts due to facilitating increased abundance of non-native plants, especially in dune habitats. APMs and BMPs would reduce impact.	Minor long-term impacts due to facilitating increased abundance of non-native plants, especially in dune habitats. APMs and BMPs would reduce impact.	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. APMs and BMPs would reduce impact.	Same as Alternative 3.	Same as Alternative 2.
	Special Status Plant Species	Approximately 0.6 mile of proposed access roads would cross suitable Harwood's eriastrum habitat; in total, approximately 3.3 acres of suitable habitat would be impacted by Project activities. Negligible to minor impact with APMs and BMPs.	Approximately 5.6 mile of proposed access roads would cross suitable Harwood's eriastrum habitat; in total, approximately 27.3 acres of suitable habitat would be impacted by Project activities. Minor to moderate impact with APMs and BMPs.	Similar to Alternative 1.	Similar to Alternative 1.	Similar to Alternative 1.	Similar to Alternative 1.
	Increased avian electrocution risk	Electrocution risk for raptors reduced by APMs, BMPs, and APLIC standards. Increased hazard of collision at the Colorado River crossing and over agricultural lands would be reduced by matching structure spacing and conductor heights with existing facilities.	Similar to the Proposed Action. However, the collision risk at the Colorado River crossing is higher than under the Proposed Action because the crossing is not adjacent to existing facilities.	Similar to the Proposed Action.	Similar to the Proposed Action. However, the collision risk at the Colorado River crossing is higher than under the Proposed Action because the crossing is not adjacent to existing facilities.	Similar to the Proposed Action.	Similar to the Proposed Action.

CHARACTERISTIC OR RESOURCE IMPACT	PROPOSED ACTION	ALTERNATIVE 1	ALTERNATIVE 2	ALTERNATIVE 3	ALTERNATIVE 4	AGENCY PREFERRED ALTERNATIVE
Increased predation potential from artificial perches	Increased predation on desert tortoise and small mammals, reptiles, and invertebrates from raptors due to artificial perch sites; minimized by use of APMs and BMPs.	Similar to the Proposed Action.	Similar to the Proposed Action.	Similar to the Proposed Action.	Similar to the Proposed Action.	Similar to the Proposed Action.
Displacement via construction	Loss of habitat, small mammal and tortoise burrow crushing under vehicles, displacement due to disturbance for tortoise. Minor short-term construction displacement impact to bighorn sheep in Copper Bottom Pass. Impacts minimized through use of APMs and BMPs.	Similar to the Proposed Action. Negligible impacts to bighorn sheep.	Similar to the Proposed Action.	Similar to the Proposed Action. quality habitat.	Similar to the Proposed Action. Route would be close to a wildlife water in Johnson Canyon.	Similar to the Proposed Action.
Increased access to remote areas resulting in displacement via human activity including increased recreation access	Negligible long-term impacts to wildlife and habitats; area already impacted by transmission lines and pipeline corridors.	Negligible long-term impacts to wildlife and habitats by facilitating increased recreational access to remote areas.	Similar to Alternative 1.	Major long-term impacts to bighorn sheep in the Dome Rock Mountains by facilitating increased recreational access to remote areas.	Major long-term impacts to bighorn sheep in the Dome Rock Mountains by degrading high quality habitat and facilitating increased recreational access to remote areas.	Similar to Alternative 1.
Impacts to native wildlife habitat and designated management areas	Project would cross approximately 25 miles of quality habitat for Sonoran desert tortoise, 0.6 mile of Mojave fringe-toed lizard habitat, and is within habitat used by reintroduced Sonoran pronghorn. Passes through Cunningham Peak, a bighorn sheep lambing area. Impacts to wildlife habitats minimized through use of APMs and BMPs. According to USFWS, major, unmitigable, adverse effect to management of Kofa NWR for wildlife, including Sonoran pronghorn and bighorn sheep.	Project would cross only a minor amount of mostly degraded habitat for Sonoran desert tortoise and is not within Sonoran pronghorn habitat. Negligible impacts to bighorn sheep. 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.	Minor impact on Sonoran desert tortoise habitat, and negligible impact on Sonoran pronghorn. Avoids Mojave desert tortoise habitat. Passes through Cunningham Peak, which is nearly pristine bighorn sheep habitat and a bighorn sheep lambing area (major impact). Impacts to wildlife habitats minimized through use of APMs and BMPs.	Minor impact on Sonoran desert tortoise habitat, and negligible impact on Sonoran pronghorn. Passes through Cunningham Peak, which is nearly pristine bighorn sheep habitat and a bighorn sheep lambing area (major impact). Impacts to wildlife habitats minimized through use of APMs and BMPs.	Minor impact on Sonoran desert tortoise and Sonoran pronghorn habitat. Passes through Cunningham Peak, which is nearly pristine bighorn sheep habitat and a bighorn sheep lambing area (major impact). Impacts to wildlife habitats minimized through use of APMs and BMPs.	Same as Alternative 2.

CHARACTERISTIC OR RESOURCE IMPACT	PROPOSED ACTION	ALTERNATIVE 1	ALTERNATIVE 2	ALTERNATIVE 3	ALTERNATIVE 4	AGENCY PREFERRED ALTERNATIVE	
Migratory birds	Negligible to minor impacts from noise of construction causing displacement, increased predation from raptors, loss of nests, risk of collision with towers and lines (especially at Colorado River crossing and over agricultural lands); minimized by use of APMs and BMPs.	Similar to Proposed Action. Additional hazard at the Colorado River crossing because there are no existing structures to match.	Similar to Proposed Action.	Similar to Proposed Action. 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.	Similar to Proposed Action.	Similar to Proposed Action.	
Special Status Animal Species	Sonoran pronghorn potential major impact on Kofa NWR. Crosses Mojave and Sonoran desert tortoise habitat, Mojave fringe-toed lizard potential impacts (crushing, displacement) from construction and increased predation by ravens; minimized by APMs and BMPs.	Similar to Proposed Action, except impacts to special status species on Kofa NWR would not occur.	Similar to Alternative 1. Increased, 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.	Similar to Alternative 1.	Similar to Alternative 1.	Similar to Alternative 1. Increased, 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.	
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. Note: Continued consultation with Native American tribes and/or other interested parties potentially may identify additional resources of concern.	Known National Register of Historic Places (NRHP)-eligible sites and sites requiring NRHP evaluation: 66 (cultural resources survey coverage: 39.3%). Known site density: 11.3 sites per 100 acres. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 164. 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 Tank Discontinuous Rock Art District, Limekiln Wash Intaglio Site, and	Known NRHP-eligible sites and sites requiring NRHP evaluation: 23 (cultural resources survey coverage: 30.7%). Known site density: 5.0 sites per 100 acres. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 75. Key resources projected to occur include trails and intaglios.	Known NRHP-eligible sites and sites requiring NRHP evaluation: 50 (cultural resources survey coverage: 32.5%). Known site density: 7.8 sites per 100 acres. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 150. Key resources projected to occur include trails and intaglios. Areas of tribal concern (NRHP-listed Ripley Intaglio Site and Limekiln Wash Intaglio Site) are in the vicinity of this alternative route.	Known NRHP-eligible sites and sites requiring NRHP evaluation: 35 (cultural resources survey coverage: 24.4%). Known site density: 9.4 sites per 100 acres. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 134. Key resources projected to occur include trails.	Known NRHP-eligible sites and sites requiring NRHP evaluation: 41 (cultural resources survey coverage: 23.2%). Known site density: 10.3 sites per 100 acres. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 170. Key resources projected to occur include trails. Areas of tribal 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.	Known NRHP-eligible sites or sites requiring NRHP evaluation: 49 (cultural resources survey coverage: 30.0%). Known site density: 8.1 sites per 100 acres. Projected NRHP-eligible sites or sites requiring NRHP evaluation: 132. Key resources projected to occur include trails and intaglios. Areas of tribal concern (NRHP-listed Ripley Intaglio Site and Limekiln Wash Intaglio Site) are in the vicinity of this alternative route.

CHARACTERISTIC OR RESOURCE IMPACT	PROPOSED ACTION	ALTERNATIVE 1	ALTERNATIVE 2	ALTERNATIVE 3	ALTERNATIVE 4	AGENCY PREFERRED ALTERNATIVE	
		Indian Well Site) are in the vicinity of this proposed route.					
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).	Same as Proposed Action.	Same as Proposed Action.	Same as Proposed Action.	Same as Proposed Action.	
	Native infrastructure* and the interconnectedness of the landscape.	10 segments contain relevant concerns, including trails.	4 segments contain relevant concerns, including trails and intaglios.	12 segments contain relevant concerns, including trails.	13 segments contain relevant concerns, including trails.	11 segments contain relevant concerns, including trails.	12 segments contain relevant concerns, including trails.
	Places of elevated spiritual importance	5 segments contain relevant concerns, including intaglio or petroglyph sites. Two segments pass through a prehistoric cultural landscape that include the Mule Tank Discontinuous Rock Art District.	4 segments contain relevant concerns, including intaglios.	2 segments contain relevant concerns including intaglios.	1 segment contains relevant concerns.	3 segments contain relevant concerns.	2 segments contain relevant concerns, including intaglios.
	Colorado River	1 segment crosses the Colorado River; concerns were expressed about the Colorado River, and its influence on their spiritual belief and cultural history.	Same as Proposed Action.	Same as Proposed Action.	Same as Proposed Action.	Same as Proposed Action.	Same as Proposed Action.
	Treatment of human remains	1 segment includes a site with calcined bone consistent with a human cremation.	No known concerns to Indian tribes.	No known concerns to Indian tribes.	No known concerns to Indian tribes.	No known concerns to Indian tribes.	No known concerns to Indian tribes.
	Intrusion on pristine landscapes	No known concerns to Indian tribes.	No known concerns to Indian tribes.	No known concerns to Indian tribes.	3 segments would be an intrusion on pristine landscapes.	3 segments would be an intrusion on pristine landscapes.	1 segment would be an intrusion on pristine landscapes.

CHARACTERISTIC OR RESOURCE IMPACT		PROPOSED ACTION	ALTERNATIVE 1	ALTERNATIVE 2	ALTERNATIVE 3	ALTERNATIVE 4	AGENCY PREFERRED ALTERNATIVE
Land Use	Land use authorizations and ROWs and other Plan compliance	Short-term conflict with access to ROWs during construction; minor with Quartzsite; noncompliant with Kofa NWR Plan.	Same as Proposed Action except Alternative 1 would avoid the Kofa NWR and the YPG, would cross through more ASLD land. It would not be consistent with Town of Quartzsite or La Paz County plans.	Same as the Proposed Action except inconsistent with La Paz County Zoning Plan and the Quartzsite General Plan. Avoids the Kofa NWR.	Same as the Proposed Action except avoids Kofa NWR. Inconsistent with La Paz County Zoning Plan.	Same as the Proposed Action except would not cross Kofa NWR. Inconsistent with La Paz County Zoning Plan.	Same as the Proposed Action except avoids Kofa NWR; non-compliant with La Paz County Zoning Plan.
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 routes and Arizona Peace Trail short-term, and 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.	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.	Negligible to minor effects to recreation areas short-term due to access restrictions; negligible effects long-term as already impacted by DPV1 line. Avoids LTVA. Negligible to moderate effects to OHV route and Arizona Peace Trail short-term, negligible long-term, with MMs. Negligible effects to hunting.
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.	Same as Proposed Action.

CHARACTERISTIC OR RESOURCE IMPACT	PROPOSED ACTION	ALTERNATIVE 1	ALTERNATIVE 2	ALTERNATIVE 3	ALTERNATIVE 4	ALTERNATIVE 4	AGENCY PREFERRED ALTERNATIVE
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.	The Proposed Action route would avoid visual impacts to the Town of Quartzsite. Additionally, the Proposed Action route would avoid direct visual impacts to CRIT land and to sensitive recreational users of Johnson Canyon. This route would not meet VRM Class objectives and would include amendment of the Yuma RMP for Segments p-13 through p-16. In California, this route would follow the existing transmission line across private agricultural lands and cross BLM lands into the Colorado River Substation, meeting VRM Class objectives.	The Alternative 1 route would consolidate disturbance and development along I-10, large portions of which would be within BLM utility corridors. This route 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 including amendment of the Yuma RMP to ensure conformance with VRM Class objectives. In California, this route would cross private agricultural lands north of the existing transmission line, impacting a new set of residential viewers and road users. On BLM lands, VRM Class objectives would be met.	The Alternative 2 route would visually 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. Views of recreationists in the LTVA and travelers on SR 95 would be impacted by the Project paralleling SR 95; however, the portion of the route in this area would be within a BLM utility corridor. This alternative would include an amendment of the Yuma RMP for Segments x-07 and p-09 through p-13 to ensure conformance with VRM Class objectives. In California, this route would follow the existing transmission line across private agricultural lands and cross BLM lands in utility corridors into the Colorado River Substation, meeting VRM Class objectives.	The Alternative 3 route would impact the portion of the Project east of Quartzsite similar to Alternative 1; except it would reduce the visual effects to travelers along I-10. The Project would avoid visual impacts to the Town of Quartzsite and minimize visual impacts to recreationists in the LTVA. West of US 95, visual impacts would be similar to the Proposed Action, except it would include an amendment of the Yuma RMP for Segments cb-01, cb-04, and cb-05 to ensure conformance with VRM Class objectives. In California, this route would shift the visual impacts of the Colorado River crossing north and would visually impact a different set of local residents and road users. Segments located on BLM-administered land would meet the VRM Class objectives and be within utility corridors.	Alternative 4 would minimize visual impacts to travelers on I-10. However, the route would follow the boundary of the LTVA, impacting the views of recreationists in that area West of US 95, visual impacts would be similar to the Proposed Action, except the Project would be routed through Johnson Canyon, impacting the views of recreationists in that area. This alternative would include amendment of the Yuma RMP for Segments x-06 and p-13 to ensure conformance with VRM Class objectives. 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 be on private land visually impacting a different set of local residents and road users. Impacts from Segments ca-07, ca-09, and x-19 would meet the VRM Class objectives within utility corridors.	East of Quartzsite, the Agency Preferred Alternative would have the same impacts as Alternatives 1 and 2. The Agency Preferred Alternative would avoid visual impacts to the Town of Quartzsite, the LTVA, and travelers along US 95. This alternative would follow the Proposed Action route and have the same visual resource impacts through the Copper Bottom Pass area. Impacts for the remainder of the route would be the same as those described for Alternative 2. This alternative does not include any RMP amendments for VRM Class. Instead, for management consistency the corridor would remain VRM Class III and impacts to visual resources would be addressed through application of APMs, BMPs, and MMs. These measures would serve to reduce impacts to visual resources to the extent practical. However, in some areas the VRM Class may not be met, especially for sensitive viewers.

Sources: Jurisdiction from Table 2-1, and Appendix 2 – Tables 2.2-1 and 2.2-2; Disturbance from Appendix 2 - Tables 2.2-37 through 2.2-41.

* Native infrastructure: Elements of the landscape, either cultural or natural, important to Indian tribes. Elements of Native infrastructure on the landscape may include, but are not limited to, prehistoric trail networks and cultural resources sites, natural landmarks, and areas used for resource procurement.

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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 (Appendix 2, Section 2.4). 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. They would be included and apply to the Agency Preferred Alternative (Section 2.2.4). Additionally, WAPA would require a Mitigation Action Plan (to be completed before the NTP is issued), if impacts were not addressed through implementation of BMPs, APMs, and MMs.

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, management allocations, or wilderness resources; noise; socioeconomics; environmental justice; and water resources. The APMs and BMPs would adequately address these resources.

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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. Additional baseline data is provided in the TES available on the BLM's ePlanning website.

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 region 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 climate is characterized by being the driest in the US.

The Project Area is within the Basin and Range Physiographic Province, Sonoran Desert subdivision, with approximately 20 percent mountains and 80 percent plains. The topography is characterized by mountain ranges that are roughly parallel. The basins between the ranges are relatively flat with gentle slopes next to the mountains (Fenneman 1931) that 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). Federal and state trust lands include commercial, recreational, range, and undeveloped lands. Private land includes residential, commercial, industrial, and undeveloped areas. The primary types of land within the study 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 (Appendix 1, Table 1.9).

The study 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 study 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 the section below (Section 3.2), while more detailed descriptions of “key” resources are provided in the sections that follow (Sections 3.3 through 3.11).

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 greenhouse gas assessment, the existing conditions in each state 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 oxides [NO_x], ozone, particulate matter less than 10 micrometers [PM₁₀], particulate matter less than 2.5 micrometers [PM_{2.5}], and sulfur dioxide [SO₂]). 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; 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} emissions in that state in 2015 (CARB 2017a).

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. Based on changes in topography east of the Palo Verde Valley, greater depths to groundwater, and lower seismic risk, the liquefaction hazard is likely less overall in the Arizona portion of the Project area. 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, with much of the area having moderate to high potential. Additional mining activities could occur within the study area based on market conditions. 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 study 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. No previously recorded paleontological localities are located directly within the study area; however, at least six significant fossil localities have been recorded nearby or in geologic units that underlie the study area (Applied Earthworks 2018). 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 study area is a 4,000-foot-wide corridor encompassing the Proposed Action and Action Alternatives. There are five available BLM grazing allotments in the study area, all of them in Arizona. Four additional allotments present in the study area have been made unavailable by land use planning decisions. There are also a number of parcels administered by the ASLD and leased for multiple purposes, including grazing. The BLM also manages portions

of its land as wild horse and burro (WHB) herd areas and herd management areas (HMAs) under the Wild Free-roaming Horses and Burros Act of 1971; the Cibola-Trigo HMA overlaps the study area.

3.2.5 Special Designations, Management Allocations, and Wilderness Resources

The special designations, management allocations, and wilderness resources study area includes a 4,000-foot-wide corridor encompassing the Proposed Action and Action Alternatives. 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), Wildlife Habitat Management Areas (WHMAs), and lands with wilderness characteristics are the types of federal specially designated areas, management allocations, or wilderness resources found in the special designations, management allocations, and wilderness resources study area. Development Focus Areas (DFAs) are a management allocation in California that identifies areas for renewable energy development.

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.

3.2.5.2 Wildlife Habitat Management Areas

WHMAs 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 WHMAs 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 WHMAs (Figures 3.2-2a through 3.2-2c, Appendix 7).

3.2.5.3 Lands with Wilderness Characteristics

Lands with wilderness characteristics is not a special or administrative designation but rather a description of areas that have been inventoried and identified as possessing wilderness characteristics. Lands with wilderness characteristics are generally roadless BLM-administered public land areas greater than 5,000 acres (or less if they adjoin a designated WA or a Wilderness Study Area) that have maintained their natural character and are primarily undeveloped; they have the presence of wilderness character. Additionally, they may provide outstanding opportunities for solitude and for primitive and unconfined recreation. After an evaluation of the study area for potential lands with wilderness characteristics, six polygons were identified that have wilderness characteristics (Figure 3.2-3, Appendix 7). All of these areas are within the BLM Yuma Field Office, and none of them have been identified in the Yuma RMP to be managed to maintain wilderness characteristics.

3.2.5.4 Development Focus Areas

The DRECP land use plan amendment (LUPA) included land use allocations 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. One key allocation is that DFAs are public lands that are available for solar, wind, and geothermal development and ancillary facilities (Figure 3.2-2c, Appendix 7). Applications benefit from a streamlined permitting process with predictable survey requirements and simplified mitigation measures.

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 long term visitor areas (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 encompasses 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, aboveground 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 with military operations, and dust-related illness (i.e., valley fever [*coccidioidomycosis*]).

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 is the type associated with transmission lines. 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).

Intentional destructive acts include acts of sabotage, terrorism, vandalism, and theft that sometimes occur at power facilities, including transmission lines and substations; these acts have the potential to create health and safety hazards. Vandalism and thefts are the most common intentional destructive act, especially theft of metal and other materials that can be sold when the price of construction materials is high on the salvage market. The majority of the study area is within sparsely populated rural or undeveloped terrain with the most common adjacent developed areas or infrastructure limited to transportation and utility infrastructure.

Valley fever 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 study 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 I-10, US 95, US 60, SR 95, SR 78, 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. SR 78 travels north-to-south through Blythe. 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.

The AGFD utilizes helicopters and fixed-wing aircraft to conduct aerial wildlife surveys in the Plomosa and Dome Rock Mountains. Also, 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 1-1) and numerous ephemeral washes, canals (including the CAP canal, Appendix 7 Figure 2.2-24), 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). Except for the Colorado River, 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; and runoff is typically erratic and sediment-laden; in addition, springs are few and limited in extent; and wetlands and shallow groundwater are localized.

3.3 SOIL RESOURCES

3.3.1 Study Area

The study area for soils is a 2-mile wide corridor encompassing the Proposed Action and Action Alternatives. 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

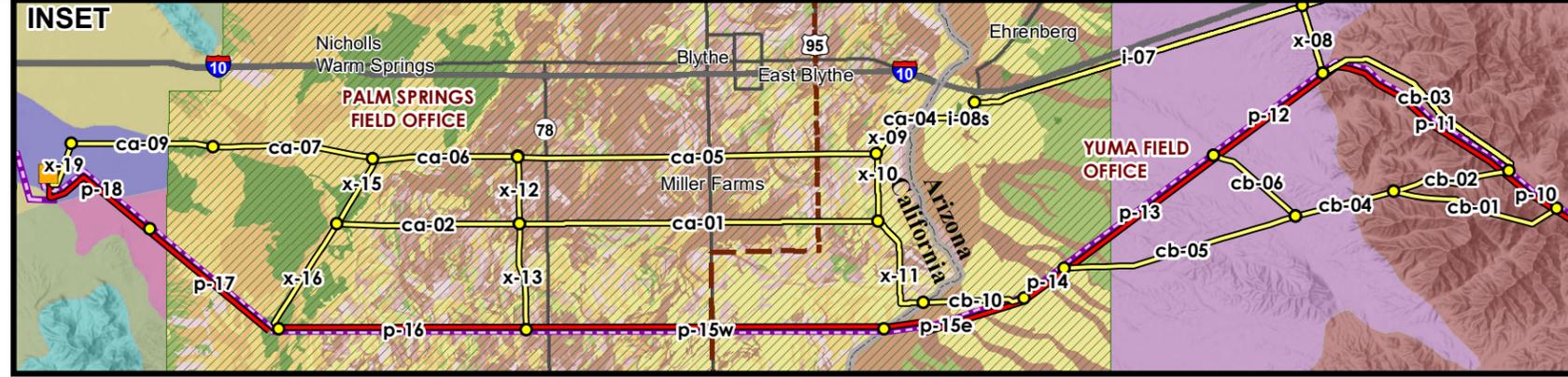
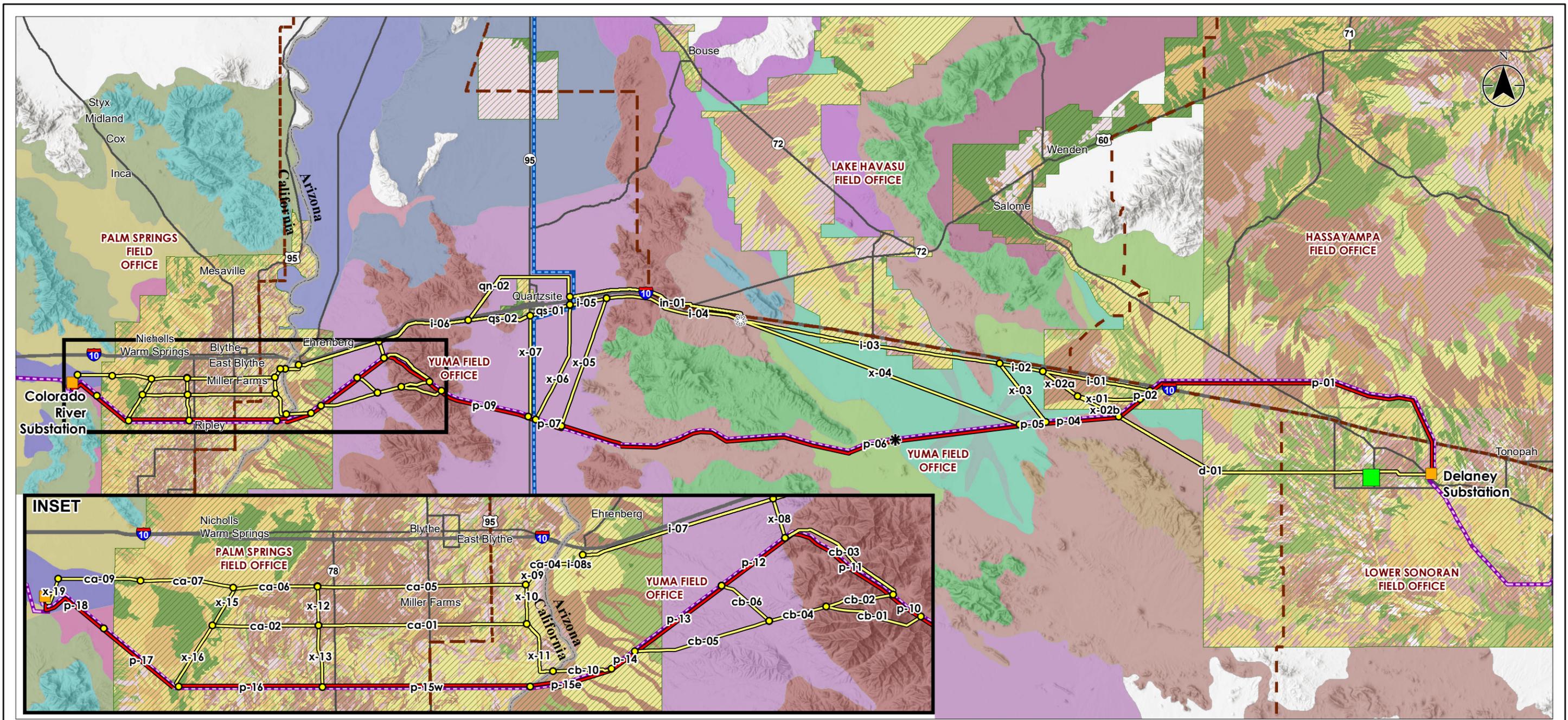
The soils in the study area are associated with a variety of climates, vegetative cover, topography, and geology (BLM 2008a). Their properties vary depending on environmental conditions, but area soils were typically developed under hot, dry conditions characterized as having thermic or hyperthermic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

The Natural Resource Conservation Service (NRCS) develops and maintains several soil geographic databases. The relatively general State Soil Geographic Data Base (STATSGO) data is being used in this EIS, and where available, the more detailed Soil Survey Geographic Data Base (SSURGO) data is also used. 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 2008a). 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.

3.3.2.2 Segment-Specific Soil Conditions

Figure 3-1 maps the STATSGO soils described below, by Proposed Action and Action Alternative segments. Additional details are provided in Appendix 3, Table 3.3-1.



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

- Proposed Action*
- Alternative Route Segment
- Route Segment Node
- Proposed Series Compensation Station
- Alternative Series Compensation Stations (2 possible 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-Carizo-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-Cher... (s1141)
- Valencia-Estrella-Cuerda (s300)

* = 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

Proposed Action Route Segments p-01 through p-06

Two of the eight STATSGO soil associations (Ligurta-Gunsight-Cristobal, Schenco-Rock outcrop-Laposa) mapped along Segments p-01 through p-06 include deep, well drained to somewhat excessively drained, soils. Generally, the soils are on fan terraces, stream terraces, floodplains, mountains, and hills.

Several other soil associations (Hyder-Coolidge-Cipriano-Cherioni, Momoli-Denure-Carrizo, Pahaka-Estrella-Antho, Valencia-Estrella-Cuerda, Rock outcrop-Quilotosa-Hyder-Gachado, Rock outcrop-Lehmans-Gran) include very shallow and shallow to moderately deep, well drained to somewhat excessively drained soils formed in slope alluvium from schist, granite, gneiss, rhyolite, and eolian deposits. The soils are on hill slopes, hills, and mountains. The remaining soil association (Rillito-Gunsight-Denure-Chuckwalla) is also very shallow and shallow, well drained soils formed in slope alluvium-colluvium from volcanic rock, generally located on pediments, hill slopes, and mountain slopes.

Of these soil associations, the Momoli-Denure-Carrizo, Valencia-Estrella-Cuerda, and Rillito-Gunsight-Denure-Chuckwalla have a moderate susceptibility to wind erosion.

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

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

Proposed Action Route Segments p-07 and p-08

The STATSGO soils (Ligurta-Gunsight-Cristobal) mapped for Segments p-07 and p-08 consist 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. Susceptibility to wind erosion is low to moderate.

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

Two STATSGO soils (Ligurta-Gunsight-Cristobal and Schenco-Rock outcrop-Laposa) are mapped for these segments. The Ligurta-Gunsight-Cristobal association is 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. The Schenco-Rock outcrop-Laposa 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. Susceptibility to wind erosion is low. In addition, Rock outcrop-Lehmans-Gran is mapped along Segment x-05 and 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. Of these soils associations, none have a high susceptibility to wind erosion.

Proposed Action Segments p-09 through p-14

Two STATSGO soil associations (Ligurta-Gunsight-Cristobal and Schenco-Rock outcrop-Laposa) are mapped for Segments p-09 through p-14. The Ligurta-Gunsight-Cristobal association is 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. The Schenco-Rock outcrop-Laposa 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. These soil associations have a low to moderate susceptibility to wind erosion.

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

The STATSGO soil associations mapped for the Action Alternative segments are the same as the Proposed Action route segments.

Proposed Action Segments p-15e through p-18

Five of the STATSGO soil associations (Rositas-Ripley-Indio-Gilman, Rositas-Orita-Carrizo-Aco, Rillito-Gunsight, Rositas-Dune land-Carsitas, and Ligurta-Gunsight-Cristobal) mapped along Segments p-15e through p-18 generally include very deep, well, or moderately well to 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, fan remnants and terraces, lacustrine basins, floodplains, dunes or sand sheets. The Vaiva-Quilotosa-Huder-Cipriano-Cherioni 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.

Of these soil associations, Rositas-Ripley-Indio-Gilman, Rositas-Orita-Carrizo-Aco, and Rositas-Dune land-Carsitas have a high susceptibility to wind erosion.

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 Rositas-Ripley-Indio-Gilman, Rositas-Orita-Carrizo-Aco, Rositas-Dune land-Carsitas, and Ligurta-Gunsight-Cristobal STATSGO soil associations mapped along the segments listed above generally consist of very deep, well, or moderately well to 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, fan remnants and terraces, lacustrine basins, floodplains, dunes or sand sheets, and valley fills. Other soils (Vaiva-Quilotosa-Huder-Cipriano-Cherioni) consist 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.

Of these soil associations, Rositas-Ripley-Indio-Gilman, Rositas-Orita-Carrizo-Aco, and Rositas-Dune land-Carsitas have a high susceptibility to wind erosion.

Active Windblown Sand, Dunes, and Sand Transport Corridors

The Chuckwalla Valley of the Mojave Desert, located along I-10 between Blythe and Desert Center, contains several sand transport corridors. 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 Study 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). 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).

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).

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 an RMP (BLM 2010a, Figure 2-5; BLM 2010b; BLM 2012a; BLM 2007).

Sand dunes

The Colorado River Substation and the routes that approach the substation are in or near a series of sand sheets and dunes (Section 3.3.2) Recent research has posited that over the last several thousand years the dune system has become increasingly stable and in places, degrading (Kenney 2017). Dune vegetation can strongly influence sand transport by providing surface and subsurface roughness that helps to stabilize dunes. The dominant vegetation in these sand dunes includes creosote bush (*Larrea tridentata.*), white bursage (*Ambrosia dumosa*), brittlebush (*Encelia farinosa*), white ratany (*Krameria grayi*), cheesebush (*Hymenoclea salsola*), big galleta (*Pleuraphis rigida*), and birdcage evening primrose (*Oenothera deltoides*) (CPUC 2011, Section D.2.1 and Figure D-2; HDR 2017c). Sahara mustard (*Brassica tournefortii*) is a persistent, dominant non-native invasive weed. Numerous rare plants and animals, such as the plant Harwood's eriastrum (*Eriastrum hardwoodii*) and the Mojave fringe-toed lizard (*Uma scoparia*), are found on sand dunes.

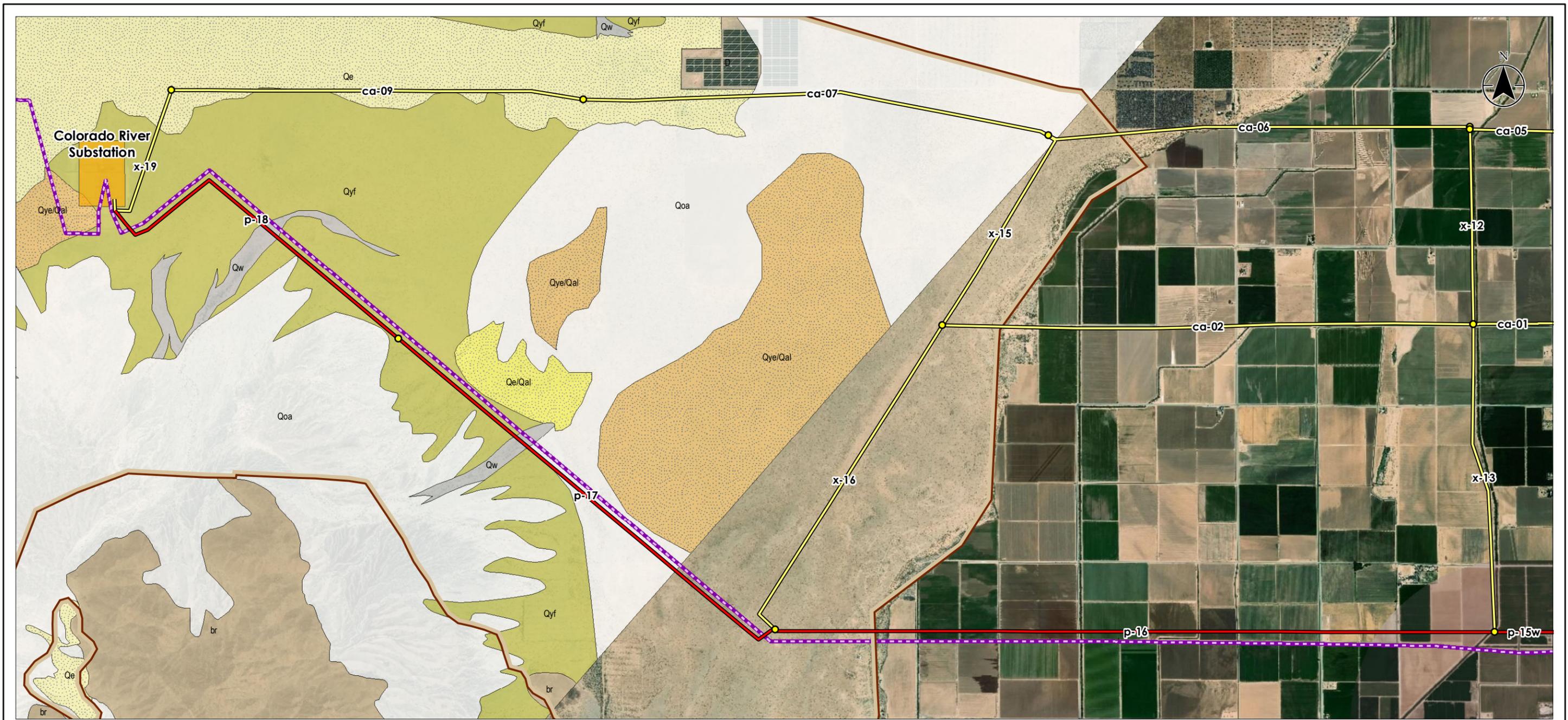
Springs and other watering sites

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 (AGFD 2016a). Table 3.4-1 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 plant species currently listed or proposed for listing under the ESA have been documented or would be expected to be present in the Project Area.



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



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

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

* = 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.

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. Seven plants classified as sensitive by the BLM are present in the BLM Yuma Planning Area and elsewhere in southwestern Arizona. The seven species listed are either unlikely or not expected to be present in the Project Area. Table 3.4-2 in Appendix 3 lists plants protected under the Arizona Native Plant Law and Arizona BLM Sensitive plants and their potential to be present in the Project Area.

Table 3.4-3 in Appendix 3 lists BLM Yuma Field Office 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.

Other Special Status Plant Species – California

In addition to BLM designated sensitive plant species (BLM 2015b), 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).

Of the sixteen special status plant species identified in Table 3.4-4, Appendix 3, two have been found during surveys and an additional ten could be present in the Project Area or in the surrounding region. However, none of those species are classified as endangered, threatened, or rare by the California Fish and Game Commission (California Department of Fish and Wildlife [CDFW] 2016a, 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 (BLM 2002, 2006, 2008a; Weinstein et al. 2003; YPG 2017). BLM's Land Use Plan Amendments (BLM 2002 and 2008a) have identified salt cedar (*Tamarisk* sp.) 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 3.4-5, Appendix 3) on those lists that are known to be present in the BLM planning areas that are crossed by route segments.

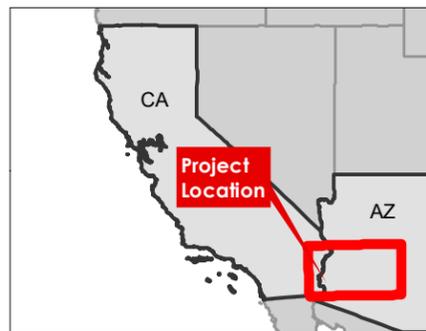
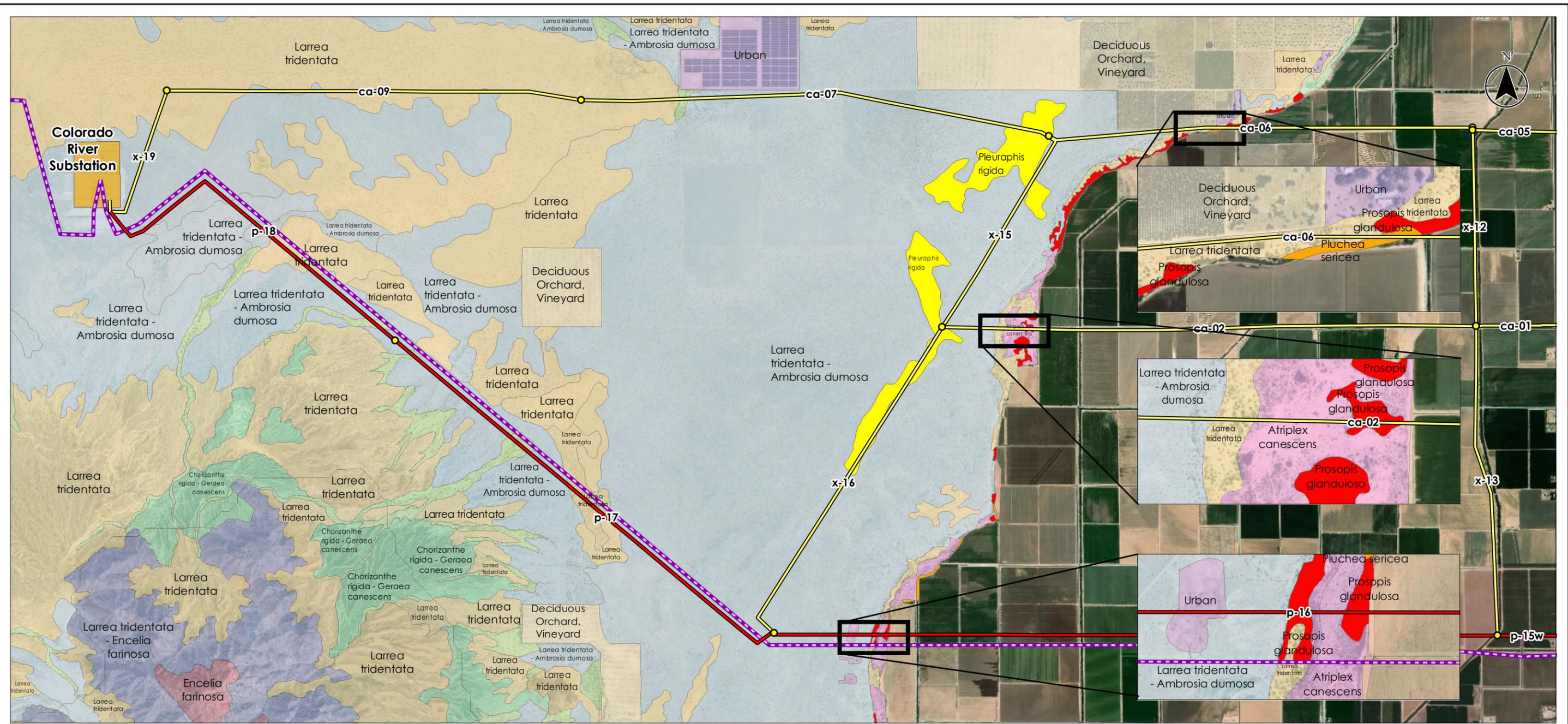
Rare and Sensitive Vegetation Alliances

For California, the California Department of Fish and Wildlife (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. CDFW rankings and DRECP classification of vegetation alliances show three rare plant alliances on the Palo Verde Mesa that are crossed by one or more route segments (Figure 3-3): *Pleuraphis rigida* (big galleta) Alliance (S2, imperiled); *Prosopis glandulosa* (honey mesquite) Alliance (S3, vulnerable); and *Pluchea sericea* (arrowweed) Alliance (S3, vulnerable). The *Prosopis glandulosa* (honey mesquite) Alliance, *Pluchea sericea* (arrowweed) Alliance, *Parkinsonia florida–Olneya tesota* (blue paloverde-ironwood) Alliance (S3, vulnerable but not rare), and *Suaeda moquinii* (bush seepwood) Alliance (S3, vulnerable but not rare) are also crossed by one or more route segments and are included in the semi-desert wash woodland riparian vegetation type, often referred to as microphyll woodlands. These rare vegetation alliances and dry desert wash woodland communities are considered sensitive in the California BLM planning area (BLM 2015a). Appendix 3, Table 3.4-6 identifies the Project segments and distance, in miles, of intersection for rare vegetation alliances on the Palo Verde Mesa.

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 appears 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* Alliances) and a small number of protected washes with blue paloverde, mesquite, smoketree (*Psoralea argemonea*), 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 2002). The *Parkinsonia florida–Olneya tesota* Alliance (blue palo verde-ironwood woodland) and *Prosopis glandulosa* Alliance (mesquite bosque, mesquite thicket) are both included in the Colorado 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.



- Route Segment Node
 - ▬ Proposed Action*
 - ▬ Alternative Route Segment
 - ▬ Existing DPV1 500kV Transmission Line*
 - Substation
- NVCS Name (Of Interest)**
- Pleuraphis rigida
 - Pluchea sericea
- NVCS Name (Other)**
- Prosopis glandulosa
 - 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
 - Parkinsonia florida - Olneya tesota
 - Suaeda moquinii
 - Urban

0 0.75 1.5 Miles
 1:48,000 (At original document size of 11x17)



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

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

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

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 (*Astragalus insularis* var. *harwoodii*), 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 and Harwood's milkvetch, 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).

Harwood's eriastrum has special management requirements. A habitat model for this species was developed as part of the DRECP (BLM 2016c), 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 California Natural Diversity Database (CNDDDB) and occurrences documented by Project surveys are plotted with the California Geologic Survey surficial geology 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 sand sediment 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 CNDDDB of Mojave fringe-toed lizards, another sand dune obligate species, was plotted with the plant occurrences and surficial geological 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.

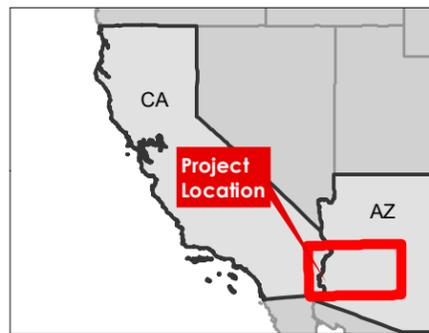
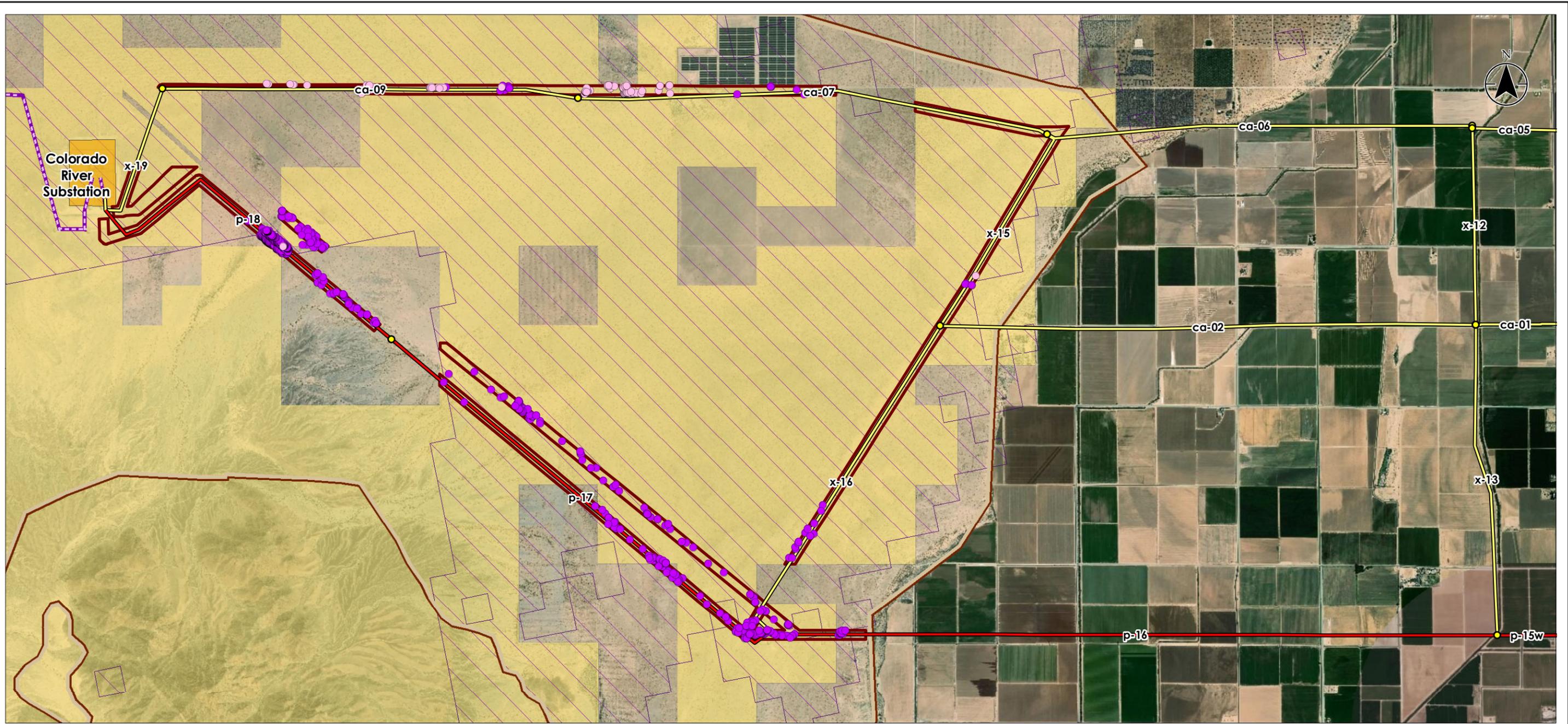
Couch's spadefoot toad (*Scaphiopus couchii*) is found in uplands throughout much of the Project Area and generally is active after summer rains. Other amphibians, such as the Sonoran desert toad (*Incilius alvarius*), Woodhouse's toad (*Anaxyrus woodhousii*), and red-spotted toad (*Anaxyrus punctatus*)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

Birds

More than 350 species of birds have been documented in southwestern Arizona (BLM 2006, 2008a; YPG 2017). Most of those species are protected under the Migratory Bird Treaty Act (MBTA). Many species of raptors are known to nest in the region, as well as several wintering migrant raptor species (BLM 2008c; YPG 2017). 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.

Mammals

More than 60 mammalian species are present in southwestern Arizona (BLM 2008a). 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 2008a, 2008b, 2011). 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 2002, 2008a). 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 2008a; USFWS 1996; Weinstein et al. 2003). No known bat roosts or abandoned mines occur within Project's segments; however, bats may use nearby cliffs and crevices for roosting.



- 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

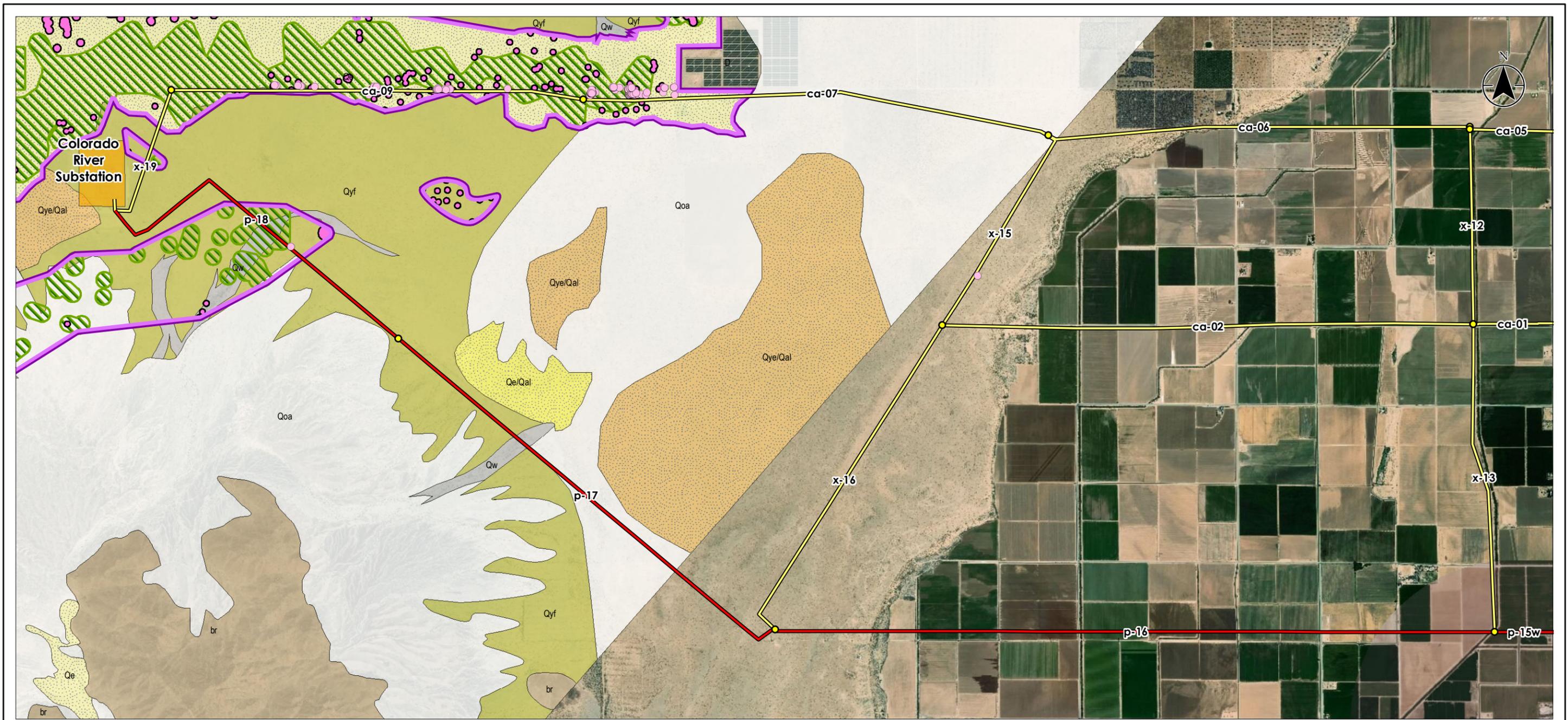
0 0.75 1.5 Miles
 1:48,000 (At original document size of 11x17)



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

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

* = Existing DPV1 follows Proposed Action. DPV1 is cartographically offset for display purposes. Route segments were updated after rare plant survey.



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



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

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

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

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 2008a, 2008b; 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; and
- Segment x-05 through the La Posa Plain between the New Water and Dome Rock mountains.

Special Status Wildlife Species

ESA Threatened, Endangered, and Proposed Wildlife Species

Seven 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.

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, 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. There is no suitable nesting habitat for the western yellow-billed cuckoo or southwestern willow flycatcher in the Project Area, and only small stands of suitable nesting habitat (too small to provide nesting) for the Yuma Ridgway's rail is present. 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). Hatchery reared bonytail chub (endangered) have been released into backwater channels near the Project crossing of the Colorado River.

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. Sonoran desert tortoises are managed in accordance with the Candidate Conservation Agreement for the Sonoran Desert Tortoise in Arizona (USFWS 2015). Habitat for the Sonoran desert tortoise on land managed by the BLM has been mapped and classified into three categories (BLM 2008a, 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.
- **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 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 is a total of 21 special status mammal species present in or near the Project Area (Table 3.4-9, Appendix 3).

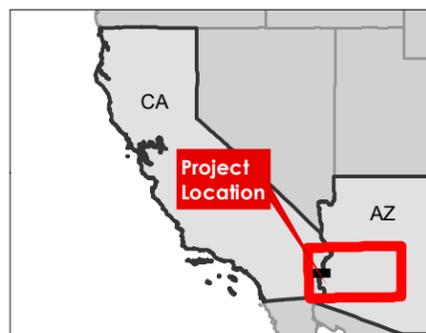
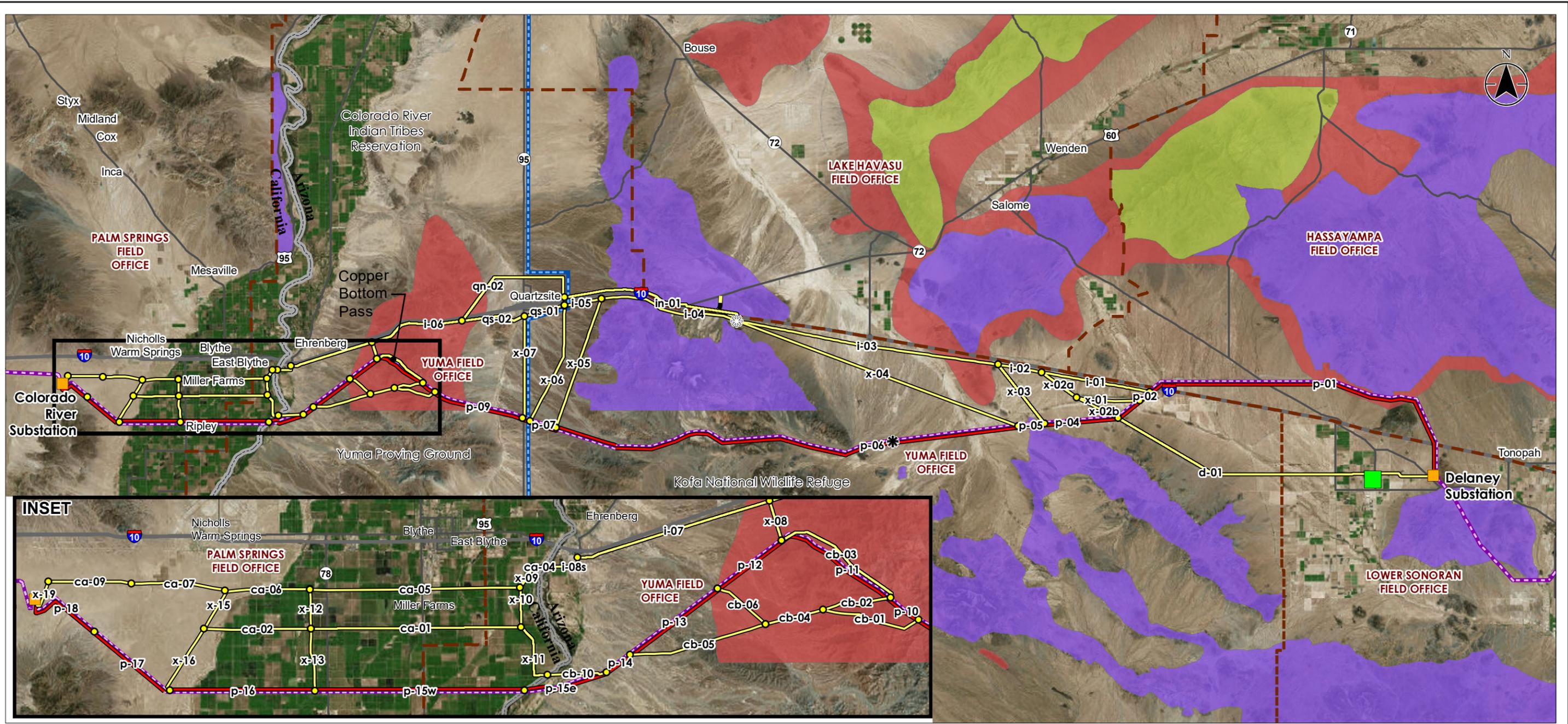
Other Special Status Wildlife Species – California

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.

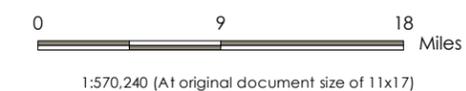
The Mojave fringe-toed lizard, a BLM sensitive species and DRECP LUPA focus species, is only found in habitats with loose sand, and is considered common on the Palo Verde Mesa. The habitat model developed for the DRECP maps most of the Palo Verde Mesa as potentially suitable habitat for the Mojave fringe-toed 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 CNDDDB were plotted with the California Geologic Survey surficial geology 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 sand deposits 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 CNDDDB of Harwood's eriastrum, another sand dune obligate species, was plotted with the Mojave fringe-toed lizard occurrences and surficial geology 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 Wildlife Habitat Management Areas (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).



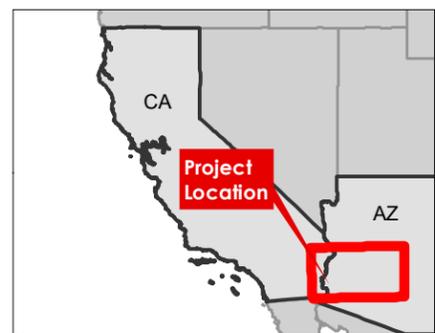
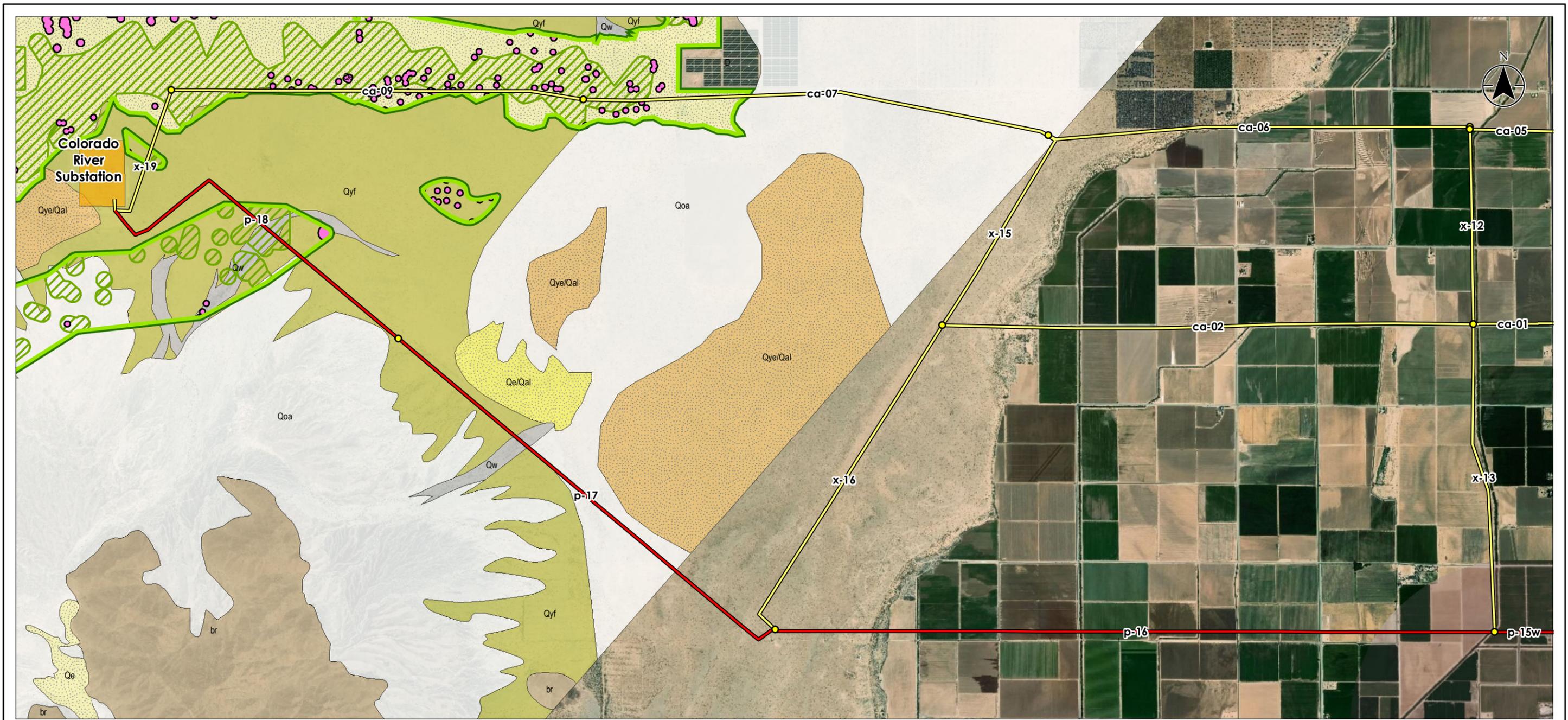
- Proposed Action*
- Alternative Route Segment
- Route Segment Node
- Proposed Series Compensation Station
- Alternative Series Compensation Stations (2 possible locations; ~75 feet apart)
- Alt SCS 12 kV Distribution Line
- Substation
- Harquahala Power Plant
- Devers-Palo Verde 500kV Transmission Line*
- Existing WAPA 161kV Transmission Line
- BLM Field Office Boundary
- Tortoise Habitat on BLM-Managed Land**
 - Category 1
 - Category 2
 - Category 3



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



- Route Segment Node
 - Proposed Action*
 - Alternative Route Segment
 - Substation
 - Boundary of Presumed Fringe-toed Lizard Habitat
- California Natural Diversity Database (CNDD) 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



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

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

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

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.

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

3.5.1 Analysis Area

The analysis area for the Project consists 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, were also considered in the development of the cultural resources analysis area. The Area of Potential Effects (APE) under Section 106 differs from the cultural resources analysis area discussed in this FEIS.

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.

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

3.5.1.1 Class I Inventory

The Class I 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.

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 with 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 2016a). The sensitivity analysis 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.

3.5.2 Existing Conditions

3.5.2.1 Cultural History

The cultural history is provided in Section 3.6.3.1 of the TES.

3.5.2.2 Project-Specific Conditions

A total of 919 cultural sites were identified by the Class I investigations (607 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 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 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.

Proposed Action

A total of 66 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 23 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 50 NRHP-eligible or unevaluated 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 35 NRHP-eligible or unevaluated 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 41 NRHP-eligible or unevaluated 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.

Agency Preferred Alternative

A total of 49 NRHP-eligible or unevaluated sites have been previously recorded within the 200-foot analysis corridor of the Agency Preferred Alternative. Sensitive sites known to occur in the study area include prehistoric trails and intaglios.

Cultural Resources of Concern to Indian Tribes

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 the Mule Tank Discontiguous Rock Art District, containing archaeological sites CA- RIV-504 and CA-RIV-773. 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.

Cultural Resources Sensitive to Indirect Effects

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 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 previously 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.

Mule Tank Discontiguous Rock Art District, containing archaeological sites CA- RIV-504 and CA-RIV-773, 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/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.

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.

3.6 CONCERNS OF INDIAN TRIBES

Government-to-government consultation with tribes, as well as Section 106 consultation with interested communities and parties is currently ongoing to identify properties of concern and other issues. The BLM, as the lead Federal agency, is conducting these consultation efforts.

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. Consultation and coordination with several of the tribes suggests that the Project Area is both a traditional cultural landscape and there may be traditional cultural properties (TCPs) present.

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 cultural sites and places 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 (Section 3.5), other types of cultural resources that may be of cultural and religious significance to Indian tribes within the Project Area are addressed and evaluated. Tribal cultural resources can include a site, feature, place, cultural landscape, sacred place, or an object of cultural value. 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 or meet NRHP eligibility. Nevertheless, such site types may be culturally significant to Indian tribes, regardless of NRHP eligibility, 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

The following is not a comprehensive list of cultural resources of tribal concern; 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). 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 integral component of the site's importance.

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.

Ripley Intaglio Site

Site AZ R:10:1(ASM)/Ripley Intaglio Site 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 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.

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.

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.

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 cultural resources and potential historic properties. Further information on CRIT cultural resources or historical properties was not provided by the CRIT; therefore, the affected environment of these resources on CRIT lands is unknown and cannot be evaluated further.

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 cultural properties, AZ R:10:1(ASM)/Ripley Intaglio Site and the Mule Tank Discontiguous Rock Art District, containing archaeological sites CA-RIV-504 and CA-RIV-773, 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.”

The Mule Tank Discontiguous Rock Art District, containing archaeological sites CA-RIV-504 and CA-RIV-773, is located in the northern Mule Mountains southwest of Segments p-17 and p-18. 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).

Government-to-government consultation with tribes for this Project have identified the Mule Mountains and surrounding area as a traditional cultural landscape. The consulting tribes' consider natural resources to be cultural resources, and that together these resources constitute a cultural landscape that provide a sense of place and identity and are important to their cultural heritage. In addition, the Project analysis area is within the ancestral territory of the consulting tribes' that contains multiple, linked features that have cultural and historical meanings attached to them by the peoples who have traveled, used, and interwoven these places into generations of practice that are integral to their way of life.

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. It is located along an existing access road in Segment p-17.

3.7 LAND USE

3.7.1 Study 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. The land use study area also encompasses 200-feet on either side of the alternative SCS 12kV distribution line.

3.7.2 Existing Conditions

3.7.2.1 Land Jurisdiction and Plans

Federal land use plans that govern federal land in the Arizona portion of the land use study area are identified in Section 1.7.1.2.

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) LUPA uses land use allocations. The Project would cross a land use allocation called a DFA identified in the DRECP (Figure 3.2-2c, Appendix 7). Each land use allocation has CMAs, as do 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. DFAs are available for energy transmission outside of utility corridors and streamline development through consistent and predictable mitigation requirements identified in the CMAs.

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] 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 designated utility corridors. Of the 58.3 miles of Proposed Action segments that fall on BLM or Reclamation land, 98 percent also overlap designated utility corridors. Of the 183.3 miles of Action Alternative segments that fall on BLM or Reclamation land, 62 percent also overlap designated utility corridors. 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 within the military land use study area. The YPG is a center for testing military equipment including vehicles, unmanned aerial systems, air delivery, electronic warfare, artillery, rockets and other weapon systems. Testing on the YPG consists of both developmental testing for new equipment and operational testing to prepare equipment for fielding by military units. The Army's Free Fall School is also located on the YPG. Land use within the YPG is not entirely restricted to military equipment and artillery testing. General Motors operates a test track on the YPG under an Enhanced Use Lease. Different regions within the YPG are used for different purposes (YPG 2017). Where compatible with the military

mission, for example, in coordination with the AGFD, the YPG administers public access for hunting in certain parts of the installation by permit.

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

Federal and state roads are public facilities located within the land use study area. 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 (4,000-foot corridor) for Proposed Action Segment p-11 and Action 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-14, and x-19 are on privately owned land, they do not coincide with designated utility corridors. However, the majority of Action Alternative Segments ca-07, ca-09, and a portion of x-19 overlap with the WWEC 30-52 west of Blythe.
- BLM-administered land in California crossed by Proposed Action Segments p-16 through p-18 and Action Alternative Segments ca-02, ca-05 through ca-07, ca-09, x-09 through x-16, and x-19 are classified as a DFA (Figure 3.2-2c, Appendix 7), 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.

3.8 RECREATION

3.8.1 Study 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 study 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) to inventory, classify, and map 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 many 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 study 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 study area in Arizona (Figure 3.8-2, Appendix 7). The CDFW manages hunting in the study 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 study area. Use is generally classified as “heavy” use in the BLM’s route inventory for the study 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.
- The alternative SCS 12kV distribution line would run adjacent to the Ramsey Mine Road dispersed camping area.

3.9 SOCIOECONOMICS

3.9.1 Study 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 sometimes not readily available 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.

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.

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 the Bureau of Labor Statistics and the Bureau of Economic Analysis (BEA; BEA 2016) 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 payments¹) per capita in the socioeconomics study area is provided in Table 3.9-9 in Appendix 3. The data show 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

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

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.

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 \$1,848,763, \$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 EIS 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 socioeconomic 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 Study Area

The environmental justice (EJ) study area is a 1-mile corridor encompassing the Proposed Action and Action Alternative segments. The study area includes all census block groups crossed by the Proposed Action and Action Alternative segments. This study area was designated due to the linear nature of the Proposed Action and is intended to include all adjacent and nearby communities that may be impacted.

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 3.10-1 (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 has an average of 17 percent of the population recorded as low-income individuals (Appendix 3 Table 3.10-2).

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 substantially greater than the EJ comparison area.

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 substantially greater than the EJ comparison area's minority population percentage, and four of the block groups have a low-income population percentage substantially 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 have low-income percentages that are substantially greater than those of the EJ comparison area (Appendix 3, Table 3.10-2).

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 a Federally recognized Indian tribe, the CRIT are considered an EJ Population under BLM policy and guidance, as well as Council on Environmental Quality (CEQ) and EPA guidelines (CEQ 1997; EPA 2014). Should the CRIT be adversely and disproportionately impacted by the Proposed Action, ongoing consultation, as documented in Section 5.3.2, will be used to address tribal concerns. Previous 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; Section 5.3, Consultation with Indian Tribes). Consultation and coordination with the CRIT

suggests that the Project Area is both a traditional cultural landscape and there may be TCPs present.

3.11 VISUAL RESOURCES

3.11.1 Study Area

The study area for visual resources encompasses the Proposed Action and Action Alternative segments. 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

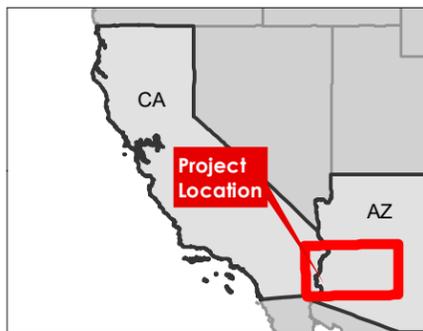
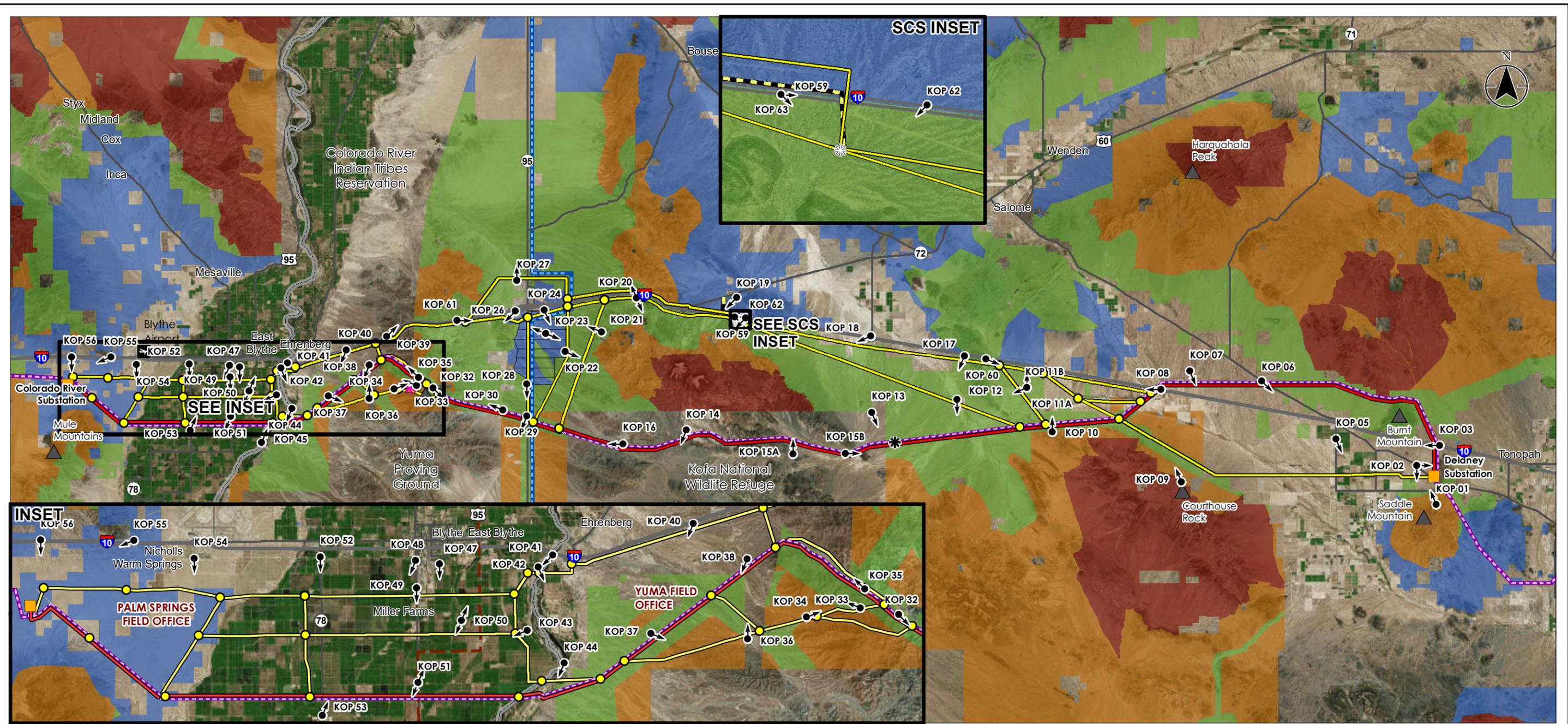
Visual resource inventory (VRI) classes have been defined for BLM-administered land under the Hassayampa, Palm Springs, and Yuma Field Offices. VRI classes are unavailable for BLM-administered land under the Lake Havasu and Lower Sonoran Field Offices. The data collected on scenic quality, viewer sensitivity, 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 Palm Springs Field Office included areas where the Proposed Action and Action Alternative segments are located within the boundaries of the YFO and Palm Springs Field Office, 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 2014a)—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.



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
 - Alt SCS 12 kV Distribution Line
 - Existing DPV1 Transmission Line*
 - Existing WAPA 161kV Transmission Line
 - BLM Long-term Visitor Area
 - Peak
- * = 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.

- BLM VRM Class**
- I
 - II
 - III
 - IV



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

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.

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. Table 3.11-1 in Appendix 3 provides a detailed overview of the KOPs that were examined for the Project and Tables 3.11-2 through 3.11-5 in Appendix 3 provide 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 RMP amendments 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 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 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 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 VRI Class III lands, 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 VRI Class III lands, 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 VRI Class III lands, 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 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 trust lands to the north. Segment qn-02 would be on BLM-administered land that are 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 VRI Class III lands, 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 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 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 VRI Class II and III land, 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. Landforms 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 VRI Class II land, 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 VRI Class II and III land, 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 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 VRI Class III and/or IV lands, 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 VRI Class II, III, and IV lands; 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 State Lands Commission (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 Trust – 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

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

²percentages 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 Trust 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

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

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

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

⁴land use either undeveloped or unspecified in GIS data

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

⁶Road 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 soils is the area that includes the Proposed Action and Action Alternative segments, and a 2-mile-wide buffer surrounding them. The CEA for Soil Resources encompasses 711,573 acres.

Cumulative Conditions

The primary source of impacts to soils is surface disturbance which is directly tied to land use. Disturbed soil loses its structure and porosity when disturbed through displacement or compaction by heavy equipment. Consequently, the soil is more prone to erosion by water or wind and may be less able to support some kinds of vegetation (loss of productivity). The types of past and present disturbances that have affected soils in the CEA include , utility corridors, road construction, , energy development, mineral extraction, livestock grazing, agricultural activities and recreational use. These activities and other types of developments could modify surface topography, thus altering drainage and erosion. (Table 3-2 above and Table 3.12-1 in Appendix 3).

Numerous utility and energy development projects have occurred in the CEA, including the DPV1 transmission line, WAPA transmission line, El Paso natural gas pipeline system, and numerous solar facilities and gas power plants (Appendix 3, Table 3.12-1). Known active existing mines in the general vicinity of the Project include the West Port Gold Project, the Ehrenberg Wash pit, and the Plomosa Mine Quarry.

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. 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 LTVA 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. 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. High traffic volume on interstate highways has fragmented habitat and impeded wildlife movement across the landscape; facilitated human access to adjacent areas resulting in disturbance to wildlife and damage to habitats, especially by off road vehicles; and caused repeated loss of individual animals to road mortality over the long-term, resulting in reduced population numbers. 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.

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 and shows that 70.2 percent of the CEA is under Federal regulatory oversight, subject to Section 106 of NHPA. An additional 84,350 acres (7.2 percent) are Arizona state trust 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 adverse 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. Consultation and coordination with several of the tribes suggests that the CEA is both a traditional cultural landscape and there may be TCPs present.

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 and renewable energy projects within the viewshed (Appendix 3, Table 3.12-1). 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. 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).

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 Conservation 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. 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 led 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.

As expressed by the CRIT, they have a deep connection to the landscape, natural and cultural resources, and wildlife. Continued development could result in impacts to the cultural landscape and linkage.

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 1 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.

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, 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. Additional resource data analysis is provided in the TES, available on the BLM's ePlanning website.

4.1.1 Impact Assessment

The No Action Alternative forms the baseline against which the potential impacts of the Proposed Action and Action Alternatives on the human environment are compared. Under all alternatives, including the No Action Alternative, changes to the current baseline of the human environment by ongoing natural and anthropogenic processes would occur.

Many concepts and terms used when discussing impacts assessment may not be familiar to the average reader. The following sections clarify some of these concepts.

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. Duration of Project disturbance is generally described as short-term (during construction) and long-term (life of Project, projected to be about 50 years). The magnitude of a Project impact can be negligible, minor, moderate, or major (Table 4-1). However, specific durations and magnitudes 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, maintenance, or decommissioning.
	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. A significant impact.
Duration	Short-term	During construction (1.5 – 2 years), up to 10 years.
	Long-term	More than 10 years.

4.1.3 APMs, BMPs, and CMAs

Appendix 2A contains APMs and BMPs that have been identified and described for the Project. 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. CMAs required for CDCA Plan compliance are identified within each resource section.

4.1.4 Avoidance, Minimization, and Mitigation of Impacts

The impact analysis in this EIS assumes avoidance of impacts to sensitive resources where possible and implementation of all APMs and BMPs (Appendix 2A) as part of the applicant’s Project description. Where impacts are identified that are not precluded or adequately minimized by these APMs or BMPs (derived from RMPs), additional Mitigation Measures (MMs) are identified and analyzed as being implemented. The MMs presented in this EIS are identified in the mitigation monitoring, compliance, and reporting tables at the end of each resource analysis. 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.

Any compensatory mitigation identified in the EIS is either a requirement of the existing land use plan (CDCA Plan, as amended) or in order to comply with state or Federal law.

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). Avoidance of cultural resource sites, followed by minimizing impacts, is the preferred method to address potential impacts to cultural resources and Indian concerns, followed by other types of mitigation or data recovery.

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.

Brief summaries of impact analysis for “non-key” resources follow in the section below (Section 4.2). Additional information, including comparison of impacts to the No Action Alternative for “non-key” resources can be found in the TES. More detailed impact analyses of “key” resources are provided in the sections that follow (Sections 4.3 through 4.11).

4.2 NON-KEY RESOURCES

Decommissioning activities would have generally the same impacts to non-key resources as described for construction, unless otherwise noted.

4.2.1 Air Quality and Climate Change

All the Action Alternatives would result in emissions of criteria pollutants, hazardous air pollutants (HAPs), and GHGs, but operational and maintenance emissions and impacts would be much lower than construction and decommissioning phase emissions (Appendix 4, Tables 4.2-1 through 4.2-3). Fugitive dust, engine exhaust, concrete batch plant emissions, and sulfur hexafluoride (SF₆) 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 would not exceed the daily and annual Mojave Desert Air Quality Management District (MDAQMD) significance thresholds for the Riverside corridor. CO, PM_{2.5}, SO₂, and volatile organic compounds (VOCs) would not exceed the Arizona Department of Environmental Quality (ADEQ) Permitting Exemption thresholds, indicating that those emissions would not exceed the NAAQS. NO_x and PM₁₀ emissions would 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 would be less than the 25,000 metric tons (MT) CO₂e reporting thresholds and would be short-term; operational emissions would be long-term, but substantially below the reporting thresholds.

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.

CMAAs 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 CMAAs through APM-AQ-01 and APM-AQ-02 and BMP-AQ-01, BMP-AQ-02, and BMP-AQ-05 (Appendix 2A, Section 2A.1). 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; therefore, potential impacts to the Project operations 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 typically 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 limited access to develop the claim or occurrence during construction. Operation and maintenance of the Project would not directly impact active mines or mining districts. The location of a valid mining claim gives a mining claimant possessory rights to the lands superior to any subsequent appropriations.

This resource is not considered key to distinguishing between the Action Alternatives or decision-making because the resource would be considered in Project engineering.

There are no CMAAs 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. Although the potential for fossils to be present (PFYC) has been identified across the study area (HDR 2017b); 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 fossil specimens. While some fossils may be damaged during construction, they may otherwise remain undiscovered. Construction 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 due to the limited extent of project ground disturbance and project micrositing to avoid identified resources. No direct effects to paleontological resources due to operations, maintenance, or decommissioning would be anticipated.

Once a route is selected, assessment and mitigation of adverse effects to paleontological resources would be conducted according to the Project's Paleontological Resource Monitoring and Discovery Plan and Treatment Plan (Appendix 2B, Section 2B.13), which would comply with the Paleontological Resources Preservation Act (P.L. 111-11, Title VI, Subtitle D).

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, Section 2A.3).

4.2.4 Grazing and Rangeland

Construction activities could have minor, short-term effects on livestock and WHB 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 and WHB grazing in the area. In addition, disturbance within grazing allotments would cause a negligible reduction of the forage available in the allotment until revegetation is successful on disturbance sites. Degradation of forage by noxious weed encroachment during construction would be prevented by implementation of the Noxious Weed Management Plan (Appendix 2B, Section 2B.11). 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 replaced by support structures, the SCS, or access roads would not be available for grazing. Maintenance activities would be unlikely to affect grazing and rangelands. Once successful final 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, Management Allocations, and Wilderness Resources

Potential direct effects from construction activities on special designations, management allocations, and wilderness resources would include direct ground disturbance. Increases in ambient noise levels, the presence of equipment, and dust would be short-term indirect effects in areas adjacent to special designations, management allocations, and wilderness resources and would decrease with the completion of construction activities. Access to special designations, management allocations, and wilderness resources may be temporarily rerouted during construction, which would be a short-term indirect effect. Effects to special designations, management allocations, and wilderness resources 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; therefore, construction related impacts would be negligible.

Potential long-term effects to special designations, management allocations, and wilderness resources due to operations, maintenance, and decommissioning could occur where Project facilities would be sited near or within WAs, WHMAs, or lands with wilderness characteristics.

4.2.5.1 Wilderness Areas

There would be no direct effects on WAs, as the Project would not be within WA boundaries. Some alternatives would have indirect effects on BLM- and USFWS-managed WAs due to noise, dust, and the proposed presence of heavy equipment during construction.

4.2.5.2 Wildlife Habitat Management Areas

Direct effects to the designation of WHMAs would be unlikely because the designation of the WHMAs would not be changed 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. Effects to wildlife habitat within WHMAs are discussed in Section 4.4.4.

4.2.5.3 Lands with Wilderness Characteristics

Under Alternatives 3 and 4, there would be a direct, long-term, major effect on the wilderness characteristics of Polygon 23, because new roads and/or transmission facilities associated with segments under these alternatives would fracture the acreage of Polygon 23 to below the 5,000-acre lands with wilderness characteristics requirement, and Polygon 23 is not adjacent to a WA. Therefore, Polygon 23 would no longer meet the criteria for lands with wilderness characteristics under Alternatives 3 and 4. This area is not included in the Proposed Action, Alternative 2, or Agency Preferred Alternative; therefore, this direct effect to lands with wilderness characteristics would not occur under those alternatives. Under the Preferred Alternative, lands with wilderness characteristics Polygon 23 would be reduced by 9 acres; however, this acreage loss would not otherwise affect the wilderness characteristics of Polygon 23.

4.2.5.4 Development Focus Areas

There would not be effects to DFAs under any of the alternatives. All of the alternatives would be located within a DFA and are an appropriate development within this allocation.

4.2.5.5 Summary

Under any Action Alternative, APMs and BMPs would require disturbance to be reclaimed and revegetated, thereby minimizing impacts to WAs and WHMAs. While lands with wilderness characteristics polygons could be eliminated, the analysis assumed that lands with wilderness characteristics in the study area would remain as “not managed for wilderness characteristics, and this resource is not considered key to distinguishing between the Action Alternatives or decision-making.

CMAAs 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 CMAAs through BMP-REC-01 (Appendix 2A, Section 2A.7).

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. Further, in general there are few residents along the Project route and construction activities at any given location would be brief.

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 variation in audible

noise with no significant impact expected. Noise impacts during operations would be long-term but negligible.

Maintenance activities associated with the Project 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, Section 2A.8).

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, operations, maintenance, and/or decommissioning activities 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 (Section 2A.9), 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 existing or 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, Section 2A.9) 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 decommissioning. 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 is selected, micrositing would be done to avoid any existing 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, Section 2A.9).

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 proper implementation of BMPs as described in Appendix 2A (Section 2A.10). 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 (to be completed before NTP would be issued), and the Hazardous Substance Control and Emergency Response Plan (to be completed before NTP would be issued). 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, operation, maintenance, and/or decommissioning, activities such as refueling, welding, or blasting, and sparks from vehicles and other equipment could cause fires. Fuel and ignition sources would be addressed through vegetation management, fire prevention practices, planning, and education provided in the construction safety program and as standard safety practices. The implementation of APMs and BMPs (Appendix 2A, Section 2A.9), such as APM-HAZ-02, Fire Avoidance and Suppression, ensures that workers would minimize the risk of igniting wildfires through their actions. A Fire Protection Plan would be prepared for the Project (Appendix 2B, Section 2B.14). 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.

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.

It is not possible to predict with certainty whether the transmission line, SCS, and ancillary facilities would be the target of an intentional act of destruction and what type of intentional act of destruction would occur. Whereas individual acts of vandalism and theft (i.e., metal theft from a substation) could most likely cause a localized temporary impact to the applicant, acts of sabotage and terrorism could most likely cause a larger and longer-term impact to the general public. An intentional act of destruction from sabotage or terrorism on the electrical infrastructure of all action alternatives would have the same direct and indirect impacts on public health and safety. In general, the electricity infrastructure proposed by all of the action alternatives could potentially be targets of an act of sabotage or terrorism. However, the addition of transmission lines and associated facilities generally strengthens the reliability of delivering electricity to the general public, because if one line is affected by an intentional act of destruction or any other disruption, other lines would be available to continue the delivery of electricity. The potential impacts from the unlikely event of an act of terrorism or sabotage from any of the Action Alternatives would be considered minor and long-term.

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. Soil disturbance for structure construction, road building, and various work and staging areas would locally increase valley fever risk. APM-AQ-01, BMP-AQ-01, and APM-AQ-04 (Appendix 2A, Section 2A.1) 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 (to be completed before NTP would be issued or provided in Appendix 2B), this resource is not considered key to distinguishing between the Action Alternatives nor decision-making.

CMAAs DFA-VPL-BIO-FIRE-1 and DFA-VPL-BIO-DUNE-1 would apply to the Project (Appendix 2C). The Project would comply with these CMAAs through APM-HAZ-02 and BMP-PHS-02 (Appendix 2A, Sections 2A.9 and 2A.10).

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. In areas where the Project would cross roadways, Federal, state, or county encroachment permits would be obtained, as applicable. 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. Construction using helicopters could cause a hazard if AGFD was concurrently conducting aerial wildlife surveys in Copper Bottom Pass; however, BMP-TT-10 (Appendix 2A, Section 2A.11) would require DCRT to coordinate with AGFD in such case to avoid this hazard. Operation and maintenance traffic would not increase traffic on primary roads, and, subsequently, would not decrease the level of service for any primary roads.

Operation of the Project may represent a collision hazard to pilots accessing private aviation facilities, such as the Cyr Aviation Airport for structures within 0.5-mile of the facility. This would be a moderate to major, long-term impact on such private aviation facilities, no impacts are expected to the Blythe Airport. This would be a moderate to major, long-term impact on such private aviation facilities. Marking of structures and lines at these locations would reduce the impact to minor to moderate (Appendix 2, Section 2.4, MM-TT-01). Additionally, structures and lines within Segments in-01 and i-04 where they pass through the Plomosa Mountains and Segments i-06, cb-01, cb-02, cb-03, and cb-04 in the Dome Rock Mountains would constitute a moderate to major, long-term effect on the safety of AGFD aircraft conducting aerial wildlife surveys. The marking of structures and lines in these locations would reduce this effect to minor to moderate (Appendix 2, Section 2.4, MM-TT-02).

Because under any Action Alternative, additional mitigation would be required to further reduce operational impacts to a private airport or aviation safety related to aerial surveys, this resource is not considered key to distinguishing between the Action Alternatives or decision-making.

CMAAs LUPA-BIO-13 and DFA-VPL-BIO-DUNE-1 would apply to the Project (Appendix 2C). The Project would comply with these CMAAs through BMP-TT-04, BMP-TT-05, BMP-TT-06, BMP-TT-07, and BMP-TT-08 (Appendix 2A, Section 2A.11).

4.2.10 Water Resources

Construction activities could have 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. There are groundwater wells along all of the

Action Alternatives; however, it is assumed that they could be avoided or would be replaced with no impact. Shallow groundwater may be found near the Colorado River and encountered during structure placement. Flexibility with structure placement would eliminate or reduce impacts to water resources. Water sources for the Project would be widely distributed along the project alignment, over a 2-year construction period. Such a wide distribution of sources, including private wells and/or municipal supplies, and over a long period of time, would minimize the potential for overdraft of any individual water supply. Proper implementation of design features, APMs, and BMPs (Appendix 2A, Section 2A.13) would protect groundwater quantity and 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.

CMAAs 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 CMAAs through APM-WQ-01 and BMP-WQ-04, BMP-WQ-05, BMP-WQ-06, and BMP-WQ-07 (Appendix 2A, Section 2A.13). Requirements for floodplain management and protection of wetlands would be 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; and,
- loss of active sand dune habitat.

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.

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 after construction or as part of decommissioning 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

At the batch plant and lay-down sites, topsoil would be stockpiled and covered during construction and reapplied during reclamation in order to minimize topsoil loss (Appendix 2A, Section 2A.2). 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.

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 minor but long-term due to the slow recovery of soils in desert environments.

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 APMs and BMPs (notably BIO-38 and SOIL-02 [Appendix 2A, Sections 2A.4 and 2A.2]), 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 Section 3.3.2.2 and Appendix 3 Table 3.3-1 suggest that all segments west of the Colorado River include soils that have a high susceptibility for wind erosion. 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, Sections 2A.2 and 2A.13) would minimize water erosion through implementation of a SWPPP. 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.

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.

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.

Segments p-17 and p-18 or ca-07, ca-09, and x-19 would be used to access the Colorado River Substation from the east. Tangent lattice structures are proposed to be used, regardless of the route taken (Figure 3-2). 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 2.6 acres for the long-term. The portions of the foundations that extend above ground level would intermittently interrupt sand transport on the upwind side. Access roads, as required, would be at grade and only minimally impact sand transport on 18.3 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 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, guyed-v, and dead-end lattice structures of 2.1 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 26.5 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. 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 impacts similar to project construction except where established access roads and other permanent impact areas would be used.

4.3.6 Mitigation Measures

APMs and 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

The types of impacts to soils are described above. The magnitude of those impacts varies by the acreage disturbed. Table 4-2 shows the construction (short-term) disturbance and operations (long-term) disturbance associated with each of the Action Alternatives.

Table 4-2 Soil Disturbance by Full Route Alternative in Acres

FULL ROUTE ALTERNATIVE	CONSTRUCTION DISTURBANCE (SHORT -TERM)	OPERATIONS AND MAINTENANCE DISTURBANCE (LONG-TERM)	TOTAL DISTURBANCE
Proposed Action	709.1	410.1	1,086.0
Alternative 1: I-10 Route	648.3	390.3	1,004.9
Alternative 2: BLM Utility Corridor	754.8	462.8	1,181.0
Alternative 3: Avoidance Route	768.1	466.4	1,199.0
Alternative 4: Public Lands Emphasis Route	760.4	468.1	1,197.2
Preferred Alternative	758.0	473.7	1,190.5

* 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 (Section 2.2.5.3).

4.3.7.1 Proposed Action

Under the Proposed Action, there would be negligible to minor short- and long-term effects to soils, and the effects would differ because of soil types. Approximately 1,086 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 410 acres of disturbance that would not be restored during the term of the ROW permit. The remaining 709 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. The Proposed Action west of the Colorado River includes soils that have a high susceptibility for wind erosion.

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 1,005 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 390 acres of disturbance that would not be restored during the term of the ROW permit. The remaining 648 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. Alternative 1 west of the Colorado River includes soils that have a high susceptibility for wind erosion.

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 1,181 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 463 acres of disturbance that would not be restored during the term of the ROW permit. The remaining 755 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. Alternative 2 west of the Colorado River includes soils that have a high susceptibility for wind erosion.

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 1,199 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 466 acres of disturbance that would not be restored during the term of the ROW permit. The remaining 768 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. Alternative 3 west of the Colorado River includes soils that have a high susceptibility for wind erosion.

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 1,197 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 468 acres of disturbance that would not be restored during the term of the ROW permit. The remaining 760 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. Alternative 4 west of the Colorado River includes soils that have a high susceptibility for wind erosion.

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 Agency 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 1,191 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 473.7 acres of disturbance that would not be restored during the term of the ROW permit. The remaining 758 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. The Preferred Alternative west of the Colorado River includes soils that have a high susceptibility for wind erosion

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 (Section 2A.2) would likely alleviate most 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 (Appendix 2A, Section 2A.13).

CMAAs 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 Section 2.2.8; Appendix 4, Section 4.3; and Appendix 4, Section 4.2.10, respectively. LUPA-SW-6 through LUPA-SW-11 would also apply to the Project (Appendix 2C). The Project would comply with these CMAAs through APM-GEO-01 and BMP-HAZ-01 and BMP-SOIL-04 through BMP-SOIL-07 (Appendix 2A, Sections 2A.2 and 2A.9).

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. Within the 711,573-acre CEA, approximately 165,197 acres (23.2 percent) have been disturbed (Table 3-2). The use of land through activities such as mining, ranching, roads, solar projects, transmission lines, and OHV use have all shaped the current condition 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.

The reasonably foreseeable future projects (Table 3.12-2) have the potential to disturb an estimated 20,596 acres (2.9 percent of CEA). Any disturbance to surface soils through grading or other ground disturbance can potentially result in accelerated erosion at any one project site. Current and reasonably foreseeable projects would result in a total disturbance of 26.1 percent of the CEA representing a moderate impact to soils.

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 to soil resources can be mitigated.

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, this project would result in a negligible increase to 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. However, because soils in desert environments can be slow to recover, these minor impacts could be long-term.

4.3.13 Relationship of Short-term Uses and Long-term Productivity

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;
- 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 to 10

years; however, the DRECP defines short-term impacts to biological resources 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 by the Project. 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 including loss of habitat due to the footprints of tower structures and access roads (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 the life of the transmission line). 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 Habitat Reclamation and Monitoring Plan (Appendix 2B, Section 2B.10) (APM/BMP-BIO-15; Appendix 2A, Section 2A.4). The plan would specify processes for reclamation with the goal of restoration.

Tables 4.4-1 through 4.4-3 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 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, Section 2A.4).

Special Status Plant Species

The impacts described for general vegetation apply to special status plant species. As noted in Section 3.4, no plant species listed under the Federal ESA would be expected to occur in the Project Area; therefore, no impacts to listed plant species would occur. 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 two plant species considered sensitive by the BLM have 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 Noxious Weed Management Plan (Appendix 2B, Section 2B.11) (APM-BIO-12; Appendix 2A, Section 2A.4), 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, Section 2B.11).

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, Section 2A.4).

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.

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. The use of 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, Section 2A.4).

Special Status Wildlife Species

Project activities could impact special status wildlife species in much the same way as discussed for common wildlife species. The APMs and BMPs identified for general wildlife would apply to special status wildlife species, minimizing Project-related impacts. These include 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.

Project construction activities could frighten Sonoran pronghorn if they are in the area. These individuals would move away from construction activities. Construction activities may keep Sonoran pronghorn from water sources or may cause them to avoid the areas entirely. Sonoran pronghorn need to move widely across the landscape as habitat conditions may vary dramatically between different locations based on sporadic and localized rainfall. Because there are large areas of similar habitat for those individuals, and construction activities would occur for a relatively short amount of time, this effect would be negligible.

Small stands of emergent vegetation are adjacent to the Colorado River and associated backwater channels. Though too small for nesting, Yuma Ridgway's rail or California black rail could occasionally use and forage in these and other stands of emergent vegetation along canals and drains in the agricultural areas. Though no suitable nesting habitat is within the Project area for southwestern willow flycatcher or western yellow-billed cuckoo, preconstruction surveys for nesting migratory birds would detect (and protect) these species, if present. No large trees would be removed within the Colorado River corridor, reducing potential impacts to proposed critical habitat for the western yellow-billed cuckoo.

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. Micrositing would reduce the effects of the Project on Mojave desert tortoise habitat.

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.

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, Section 2A.4).

Between potential Project crossing locations, a backwater channel east of and parallel to the river channel would be avoided by spanning the aquatic habitat. There would be no direct impact to fishes (e.g., razorback sucker and bonytail chub). Areas designated as critical habitat for the razorback sucker would be spanned by the Project; therefore, there would be negligible impact on razorback sucker critical habitat.

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.

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, Section 2A.4).

Migratory Birds and Raptors

Impacts could occur if trees and/or shrubs were removed that contained an active nest. The removal of habitat or substantial disturbance (e.g., helicopter fly yard activity) 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 such as an Avian Protection Plan and Bird and Bat Conservation Strategy (APP/BBCS) (Appendix 2B, Section

2B.5), seasonal restrictions, utilizing APLIC guidelines (APLIC 2012), and modifying structures at river crossings (Appendix 2A, Section 2A.4).

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 4.4-3 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 and 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 where the Sonoran pronghorn is protected as a threatened species. Sonoran pronghorn may avoid the area during construction, thereby disrupting natural movement patterns, and forage habitat and access to water sources 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 (approximately 1.2 miles from the centerline of the segment), 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 and the Kofa NWR. 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 Harwood's eriastrum has been located and Mojave fringe-toed lizards are more common. These segments pass through about 3.5 miles of sand dune habitat, and about 18 structures would be constructed. Development of Segments ca-07, ca-09, and x-19 would impact 22.7 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; 1.4 acres would be impacted on BLM-administered lands, while impacts to 0.3 acre 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 approximately 0.1 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.

Helicopter fly yards for Segments p-09, p-10, p-11, and cb-01/cb-02 would generate greater amounts of fugitive dust than for segments where helicopters are not used; therefore, the potential to affect photosynthetic rates and decrease plant productivity would be higher in the vicinity of the fly yards. The Erosion, Dust, and Air Quality Plan (Appendix 2B, Section 2B.12) would include information about the reduction of dust emissions generated from helicopter use. The noise and dust associated with the helicopter fly yards would also cause a higher level of wildlife disturbance; however, adherence to seasonal wildlife restrictions per the AGFD, CDFW, and/or applicable RMPs (BMP-BIO-32; Appendix 2A, Section 2A.4) would eliminate these effects during sensitive periods. Wildlife would be expected to return after helicopter use had ceased and habitat was restored. Therefore, these effects would be negligible to minor and short-term.

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.

Construction activities may keep Sonoran pronghorn from water sources or may cause them to avoid the areas entirely. Sonoran pronghorn need to move widely across the landscape as habitat conditions may vary dramatically between different locations based on sporadic and localized rainfall. These potential impacts would be minimized through implementation of various APMs and BMPs (Appendix 2A, Section 2A.4).

Rare and Sensitive Vegetation Alliances

Three 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 *Pleuraphis rigida* (big galleta) Alliance and/or *Prosopis glandulosa* (honey mesquite) Alliance, depending on route segment selection. The *Pleuraphis rigida* Alliance is a sand dune vegetation alliance; impacts would be minimized through BMPs (Appendix 2A, Section 2A.4). Any required mitigation in California would be addressed during micro-siting for the Project. These

potential impacts would be minimized through implementation of various APMs and BMPs (Appendix 2A, Section 2A.4).

In California on BLM lands, specific protection measures for four desert riparian woodland alliances (*Prosopis glandulosa* Alliance [also rare], *Pluchea sericea* Alliance, *Parkinsonia florida*–*Olneya tesota* Alliance, and *Suaeda moquinii* Alliance) (Figure 3-3) include a 200-foot setback from the outer perimeter of these alliances for ground disturbing (and vegetation disturbing) activities. Minor incursions would be allowed to balance avoiding the need for vegetation trimming while maintaining an appropriate buffer (BMP-BIO-52; Appendix 2A, Section 2A.4). Any loss of desert riparian woodland would be compensated at a 5:1 ratio.

Harwood's Eriastrum

Harwood's eriastrum is the only BLM designated sensitive plant species known to be present 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 stockpiles, 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 (Appendix 2A, Section 2A.4), 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. Tangent lattice structures would be used, 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 (to be completed before a NTP would be issued) 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, Section 2A.4) 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 to the maximum extent practical based on micro-siting and implementation of BMP-BIO-31 (Appendix 2A, Section 2A.4).

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 60.2 acres of Harwood's eriastrum habitat (0.02 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 373.8 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 0.36 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, Section 2A.4).

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.

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, Section 2A.4).

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 CNDDDB, 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.

Alternative 2 would potentially disturb 60.2 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 0.048 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 maintenance and operations activities, vegetation within the ROW may be selectively removed or trimmed in accordance with the Vegetation Management Plan (Appendix 2B, Section 2B.11) (APM/BMP-BIO-11; Appendix 2A, Section 2A.4) to provide the required minimum conductor clearance. Maintenance crews would routinely trim vegetation and remove brush within the ROW, as necessary, to prevent accidental grounding contact with conductors.

The potential introduction of non-native plant species would be less likely than during construction but would continue during operation and maintenance phases of the Project.

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.

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 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. Any new roads built and not reclaimed would provide vehicle access in areas previously precluded due to lack of roads.

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 ongoing 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 APP/BBCS (Appendix 2B, Section 2B.5) (APM-BIO-21 and BMP-BIO-29; Appendix 2A, Section 2A.4), 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.

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 micro-siting and final design and could include habitat improvement. In California, 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 micro-siting 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. The Proposed Action would not affect microphyll wash habitat (Appendix 4, Table 4.4-4). Protected native plants would be avoided or salvaged, and impacts to the sand dune habitat of Harwood's eriastrum would be minimized by following Segments p-17 and p-18. Approximately 0.6 mile of proposed access roads would cross suitable Harwood's eriastrum habitat under the Proposed Action; in total, approximately 3.3 acres of suitable habitat would be impacted by Project activities (Appendix 4, Tables 4.4-5 and 4.4-8). Application of APMs and BMPs would protect the plant from loss of individuals and maintain the ecological processes (e.g., sand transport) that sustain its habitat; therefore, these impacts would be negligible to minor. 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 area used by a reintroduced population of the endangered Sonoran pronghorn.

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 (Appendix 2A, Section 2A.4) 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 (Appendix 2A, Section 2A.4) 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;
- Negligible 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 (Appendix 2A, Section 2A.4) because Alternative 1 does not go through Copper Bottom Pass, and APM/BMP-BIO-19 (Appendix 2A, Section 2A.4) 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. Alternative 1 would impact 0.5 acre of microphyll wash (Appendix 4, Table 4.4-4); however, there would be a 200-foot setback and microphyll washes would be spanned through micrositing. Approximately 5.6 miles of proposed access roads would cross suitable Harwood's eriastrum habitat under Alternative 1; in total, approximately 27.3 acres of suitable habitat would be impacted by Project activities (Appendix 4, Tables 4.4-5 and 4.4-8). Application of APMs and BMPs would protect the plant from loss of individuals and maintain

the ecological processes (e.g., sand transport) that sustain its habitat; therefore, these impacts would be minor to moderate.

Alternative 1 access roads would cross more suitable Harwood's eriastrum habitat than the Proposed Action and the same as Alternatives 2 through 4; 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, Tables 4.4-5 and 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 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

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 3.5 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

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 3.7 miles in length and intersect approximately 0.8 mile of the *Pleuraphis rigida* (big galleta) Alliance, which would be protected by a 200-foot setback. Alternative 2 would impact 2.6 acre of microphyll wash (Appendix 4, Table 4.4-4); however, there would be a 200-foot setback and microphyll washes would be spanned through micrositing. Approximately 5.6 mile of proposed access roads would cross suitable Harwood's eriastrum habitat under Alternative 2; in total, approximately 27.3 acres of suitable habitat would be impacted by Project activities (Appendix 4, Tables 4.4-5 and 4.4-8). Application of APMs and BMPs would protect the plant from loss of individuals and maintain the ecological processes (e.g., sand transport) that sustain its habitat; therefore, these impacts would be minor to moderate.

Alternative 2 access roads would cross more suitable Harwood's eriastrum habitat than the Proposed Action and the same as Alternatives 1, 3, and 4; would have the same amount of Project mapped suitable acres of impacts to Harwood's eriastrum as Alternatives 1, 3, and 4; and more modeled acres of impacts to Harwood's eriastrum as Alternatives 1, 3, and 4 (Appendix 4, Table 4.4-8).

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 (Appendix 2A, Section 2A.4) 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 negligible impacts to the Sonoran pronghorn; would impact a minor amount of Sonoran desert tortoise habitat in the Plomosa and Dome Rock mountains; and avoid the more suitable 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 (Appendix 2A, Section 2A.4) 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 desert scrub 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 cross 0.5 acre of microphyll wash (Appendix 4, Table 4.4-4); however, there would be a 200-foot setback and microphyll washes would be spanned through micrositing. Approximately 5.6 mile of proposed access roads would cross suitable Harwood's eriastrum habitat under Alternative 3; in total, approximately 27.3 acres of suitable habitat would be impacted by Project activities (Appendix 4, Tables 4.4-5 and 4.4-8). Application of APMs and BMPs would protect the plant from loss of individuals and maintain the ecological processes (e.g., sand transport) that sustain its habitat; therefore, these impacts would be minor to moderate.

Alternative 3 access roads would cross more suitable Harwood's eriastrum habitat than the Proposed Action and the same as Alternatives 1, 2, and 4; 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, Sonoran pronghorn, 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 Sonoran pronghorn, 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.

In comparison to the Proposed Action, Alternative 3 would have no direct impact on the Kofa NWR because the route avoids the refuge and would have reduced impacts to the Sonoran pronghorn. 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 Sonoran pronghorn due to the vicinity to Kofa NWR;
- 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 cross 0.5 acre of microphyll wash (Appendix 4, Table 4.4-4); however, there would be a 200-foot setback and microphyll washes would be spanned through micrositing. Approximately 5.6 mile of proposed access roads would cross suitable Harwood's eriastrum habitat under Alternative 4; in total, approximately 27.3 acres of suitable habitat would be impacted by Project activities (Appendix 4, Tables 4.4-5 and 4.4-8). Application of APMs and BMPs would protect the plant from loss of individuals and maintain the ecological processes (e.g., sand transport) that sustain its habitat; therefore, these impacts would be minor to moderate. Alternative 4 access roads would cross more suitable Harwood's eriastrum habitat than the Proposed Action and the same as Alternatives 1, 2, and 3; would have 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-term impacts to Sonoran pronghorn south of I-10;
- 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 La Posa 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 Agency 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 likelihood 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 (Appendix 2A, Section 2A.4) 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 the more suitable 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, Section 2A.4).

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 (Appendix 2A, Section 2A.4).

Compliance with biological CMAs is demonstrated in Appendix 2C, with details of applicable APMs/BMPs provided in Appendix 2A, Section 2A.4.

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 could 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 past development and 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 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.

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 60.2 acres of Harwood's eriastrum habitat. Maximum Project-related impacts based on the DRECP model would constitute 0.02 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 micro-siting. 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 373.8 acres of DRECP modeled habitat within Chuckwalla Valley; a total of 0.36 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 60.2 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 (60.2 acres) would impact a total of 2,465.7 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 and would make a negligible 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, Section 2B.10) 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.

The long-term loss of productivity related to Project activities to special status wildlife species would be similar as discussed for common wildlife species, below. The APMs and BMPs identified for general wildlife would apply to special status wildlife species minimizing Project-related impacts.

4.4.13.3 Noxious Weeds

The introduction and colonization of noxious weeds and other exotic invasive plant species would be minimized with implementation of monitoring and control.

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 increased 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, maintenance, and decommissioning 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 analyses, but is included as part of this NEPA analysis. As noted in the PA, the ROW would stipulate, and the BLM shall ensure, that decommissioning would be considered a new action for

Section 106 review, and that historic properties potentially affected by decommissioning would be considered in accordance with the pertinent laws, regulations, and policies extant at the time.

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 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 Section 4.5.4.2, as well as in Appendix 4 Tables 4.5-1 through 4.5-4 and provides the foundation for the impact analysis. A Class III inventory would be conducted on the selected route prior to issuance of any NTP for the Project per Section 106 requirements.

4.5.2 Methods for Analysis

4.5.2.1 Analysis Area

The analysis for the Project consists of areas where direct effects to cultural resources may occur. For the purposes of this discussion “analysis area” is defined as a 200-foot-wide corridor where direct effects are projected to occur.

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 Section 106 process is on-going; additional impacts may be identified through PA consultation efforts.

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, maintenance, or decommissioning 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 or impact its aspects of integrity (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);
- 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, maintenance, or decommissioning. 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, maintenance, or decommissioning. 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.
Magnitude	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, maintenance, or decommissioning. 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, maintenance, and decommissioning 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 Construction of Action Alternative Segments

4.5.4.1 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. Historic properties would be avoided by the Project as the primary means of precluding impacts. 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 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 Segments p-17, p-18, qs-01, x-10, and ca-09, which are discussed in Section 4.5.7, 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 effects analysis area and/or future studies of indirect effects to historic properties in the indirect effects analysis area. 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.

4.5.4.2 Direct and Indirect Segment-specific Effects

Table 4-4 presents known cultural resources data from a 200-foot analysis corridor defined as the “direct effects analysis area” 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	643.2	46.7	3.3	2	7	0.7/4	2.3/15
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	51.6	28.3	34.2	1	4	6.8/4	27.4/14
p-08	16.6	5.6	17.9	0	0	0.0/0	0.0/0
p-09	168.0	77.4	1.5	0	2	0.0/0	1.5/3
p-10	28.3	62.9	5.6	0	1	0.0/0	5.6/2
p-11	100.1	61.4	3.3	0	2	0.0/0	3.3/3
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	68.5	31.1	14.1	0	3	0.0/0	14.1/10
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	205.0	10.3	9.4	0	2	0.0/0	9.4/19

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	256.1	1.9	0.0	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	248.9	2.4	41.7	1	0	41.7/104	0.0/0
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	74.7	70.4	3.2	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	57.3	13.3	26.3	0	1	13.2/8	13.2/8
x-19	24.2	100.0	16.5	0	3	0.0/0	12.4/3
SCS DISTRIBUTION LINE							
12kV Line ³	7.6	5.3	0.0	0	0	0.0/0	0.0/0

Note: See Appendix 4, Section 4.5 for a discussion of how the density of projected sites was calculated.

¹Density 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.

³12kV Line corridor is 20-ft. wide.

4.5.5 Operations, Maintenance, and Decommissioning

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 could result in unanticipated adverse effects to, or vandalism of, historic properties. Measures to resolve potential adverse effects to historic properties as a result of improved access would be included in the PA and the ROD.

Impacts associated with decommissioning would be similar to those identified for construction of the Proposed Action or Action Alternatives. The ROW would stipulate, and the BLM shall ensure, that decommissioning would be considered a new action for Section 106 review, and that historic properties potentially affected by decommissioning would be considered in accordance with the pertinent laws, regulations, and policies extant at the time.

4.5.6 Measures for the Resolution of Adverse Effects

Resolution measures for adverse effects to historic properties would be outlined in the PA and HPTPs (APM-CULT-01, APM-CULT-03; Appendix 2A, Section 2A.6). The PA has been developed (Appendix 2D) and would direct resolution measures. The PA ensures the priority of avoidance of historic properties during construction phases, and ensures the process of identifying, evaluating, and avoiding or mitigating is followed and would continue even after the NEPA process is complete. HPTPs would be developed in accordance with 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; Appendix 2A, Section 2A.6). Resolution measures for adverse effects to historic properties located within the CDCA Plan area are further outlined by specific compliance requirements discussed in Section 4.5.9. Tribal consultation is on-going.

APMs and BMPs for cultural resources are contained in Appendix 2A, Section 2A.6.

4.5.7 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.

4.5.7.1 Proposed Action

A total of 66 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 164 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 through 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 has the potential to affect more known cultural resources 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 negligible (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 the Native American Graves Protection and Repatriation Act (NAGPRA) on Federal land and under the California Health and Safety Code Section 7050.5, "Discovery of Human Remains," on state or private land.

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 Tank Discontiguous Rock Art 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 (Appendix 2A, Section 2A.6) 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.

4.5.7.2 Alternative 1: I-10 Route

A total of 23 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 75 NRHP-eligible or unevaluated sites are projected to occur within the 200-foot analysis corridor of Alternative 1 (Appendix 4, Tables 4.5-1, through 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). Alternative 1 would affect fewer cultural resources than the Proposed Action, Alternatives 2-4, or the Preferred Alternative.

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 13.3 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 19 NRHP-eligible cultural resource sites or sites requiring NRHP evaluation are projected to occur along the portion of Alternative 1 that Subalternative 1A would replace.

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 13.3 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 19 NRHP-eligible cultural resource sites or sites requiring NRHP evaluation are projected to occur along the portion of Alternative 1 that Subalternative 1B would replace.

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 1C have been investigated by Class III survey, while 9.2 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 the portion of Alternative 1 that Subalternative 1C would replace.

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 temporary and permanent disturbance).

A total of 89.6 percent of Subalternative 1D has been investigated by Class III survey, while only 2.0 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 the portion of Alternative 1 that Subalternative 1D would replace.

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 the portion of Alternative 1 that Subalternative 1E would replace.

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.

4.5.7.3 Alternative 2: BLM Utility Corridor Route

A total of 50 NRHP-eligible and NRHP-unevaluated cultural resources sites have been previously recorded within the 200-foot analysis corridor of Alternative 2. A total of 150 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 through 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 known cultural resources sites than Alternatives 1, 3, and 4, less than the Proposed Action, and approximately the same as the Preferred Alternative.

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 37.9 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 38 NRHP-eligible sites or sites requiring NRHP evaluation are projected to occur along the portion of Alternative 2 that Subalternative 2A would replace.

While the data suggest that Subalternative 2A has a slightly lower 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 13.3 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 19 NRHP-eligible cultural resource sites or sites requiring NRHP evaluation are projected to occur along the portion of Alternative 2 that Subalternative 2B would replace.

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 41.3 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 the portion of Alternative 2 that Subalternative 2C would replace.

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 61.4 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 the portion of Alternative 2 that Subalternative 2D would replace.

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 14.1 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 42 are projected to occur along the portion of Alternative 2 that Subalternative 2E would replace.

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.

4.5.7.4 Alternative 3: Avoidance Route

A total of 35 NRHP-eligible or NRHP-unevaluated cultural resources sites have been previously recorded within the 200-foot analysis corridor of Alternative 3. A total of 134 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 through 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 6.1 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 fewer known cultural resource sites than the Proposed Action, Alternative 2, Alternative 4, and the Preferred Alternative but more than Alternative 1.

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 37.9 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 38 NRHP-eligible site or sites requiring NRHP evaluation are projected to occur along the portion of Alternative 3 that Subalternative 3A would replace.

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 7.5 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 19 NRHP-eligible or NRHP unevaluated cultural resources sites are projected to occur within Subalternative 3B, while 39 sites are projected to occur along the portion of Alternative 3 that Subalternative 3B would replace.

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 the portion of Alternative 3 that Subalternative 3C would replace.

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, and only 2.0 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 the portion of Alternative 3 that Subalternative 3D would replace.

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 2.4 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 93 cultural resources sites are projected to occur along the portion of Alternative 3 that Subalternative 3E would replace.

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 1.0 percent of Segment x-05 (Alternative 3) has been previously investigated. A total of 21 NRHP-eligible or NRHP-unevaluated sites are projected to occur within Subalternative 3F, and 104 NRHP-eligible or NRHP-unevaluated sites are projected to occur along the portion of Alternative 3 that Subalternative 3F would replace.

The data suggest that Alternative 3 would have a higher 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 44.8 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. Two cultural resources sites are projected to occur within Subalternative 3K and none along the portion of Alternative 3 that Subalternative 3K would replace.

The data suggest that Subalternative 3K would have a higher potential to affect historic properties than Alternative 3.

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 70.6 percent of Segments p-09, p-10, p-11 (Alternative 3) has been previously investigated. A total of 7 NRHP-eligible cultural resource sites are projected to occur within Subalternative 3L, and a total of 7 NRHP-eligible cultural resources sites are projected to occur along the portion of Alternative 3 that Subalternative 3L would replace.

The data suggests that Subalternative 3L has a comparable 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 27.0 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 65 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 the portion of Alternative 3 that Subalternative 3M would replace. 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.

4.5.7.5 Alternative 4: Public Lands Emphasis 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 4. A total of 170 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 through 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 fewer cultural resource sites than the Proposed Action, Alternative 2, and the Preferred Alternative; but more than Alternative 1 and 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 43.2 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 33 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 the portion of Alternative 4 that Subalternative 4A would replace. 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 comparable 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 1.9 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 no cultural resources sites requiring NRHP evaluation are projected to occur along the portion of Alternative 4 that Subalternative 4B would replace.

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 2.0 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 5.7 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 122 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 along the portion of Alternative 4 that Subalternative 4D would replace.

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 44.8 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. Two NRHP-eligible sites or sites requiring NRHP evaluation are projected to occur along the portion of Alternative 4 that Subalternative 4E would replace.

The data suggest that Alternative 4 has a slightly greater 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 the portion of Alternative 4 that Subalternative 4F would replace.

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 4G 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 the portion of Alternative 4 that Subalternative 4G would replace.

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 54.0 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 74 NRHP-eligible sites or sites requiring NRHP evaluation are projected to occur along the portion of Alternative 4 that Subalternative 4P would replace. Additionally, one NRHP-listed property, the Mule Tank Discontiguous Rock Art 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.

4.5.7.6 Agency Preferred Alternative

A total of 49 NRHP-eligible or NRHP-unevaluated cultural resources sites have been previously recorded within the 200-foot analysis corridor of the Preferred Alternative. A total of 132 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 through 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 Preferred Alternative has the potential to affect more cultural resource sites than Alternative 1, Alternative 3, and Alternative 4, about the same as Alternative 2, and less than the Proposed Action.

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 the Preferred Alternative would be the same as those described under the Proposed Action.

4.5.8 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.

4.5.9 CDCA Plan Compliance

CMAAs 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-CUL-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 applicant would follow avoidance and stipulations outlined in the PA (Appendix 2D) and appropriate HPTPs, and APM-CULT-01 and APM-CULT-02 (Appendix 2A, Section 2A.6), in which the applicant commits to following those stipulations.

LUPA-TRANS-CUL-1 and DFA-VPL-CUL-1 are specific to the responsibility of the applicant 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 (Appendix 2A, Section 2A.6), in which the applicant commits to conducting a cultural resources inventory of the direct and indirect APE, preparing HPTPs, and conducting cultural resource monitoring during Project construction, operations, maintenance, and decommissioning (as appropriate) to meet stipulations outlined in the PA (Appendix 2D).

LUPA-TRANS-CUL-2 and DFA-VPL-CUL-2 are specific to the applicant's payment of compensatory mitigation fees for cumulative and indirect effects to historic properties as a result of Project construction, operations, maintenance, and decommissioning. Compliance with LUPA-TRANS-CUL-2 and DFA-VPL-CUL-2 would be satisfied by BMP-CULT-05 (Appendix 2A, Section 2A.6), 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 applicant'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 (Appendix 2A, Section 2A.6), 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. (Appendix 2D) Compliance with LUPA-TRANS-CUL-4 and DFA-VPL-CUL-4 would be satisfied with BMP-CUL-06 (Appendix 2A, Section 2A.6). 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 (Appendix 2D). Compliance with LUPA-TRANS-CUL-5 and DFA-VPL-CUL-5 would be satisfied by BMP-CULT-07 (Appendix 2A, Section 2A.6), 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 applicant's justification to include culturally sensitive areas through NEPA and CEQA analyses (Appendix 2D). Compliance with LUPA-TRANS-CUL-6 and DFA-VPL-CUL-6 would be satisfied by BMP-CULT-08 (Appendix 2A, Section 2A.6), which requires such justification from the Project applicant. This compliance measure has been met.

DFA-VPL-CUL-7 addresses completion of the Section 106 process (Appendix 2D). 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 PA for the Project.

4.5.10 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.

4.5.11 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 conveyance	Solar Facility	5,935
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			24,110

* expansion would be within the existing footprint and is therefore not included in total.

The La Paz County Land Conveyance would remove 5,935 acres from Federal oversight. However, most of the land in the Project Area would remain under Federal jurisdiction and therefore be 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 reasonably 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.

4.5.12 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.

4.5.13 Relationship of Short-term Uses and 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 Indian Tribe of Arizona
- Colorado River Indian Tribes (CRIT)
- Fort McDowell Yavapai Nation
- Fort Mojave Indian Tribe
- Fort Yuma Quechan Tribe
- Gila River Indian Community
- Hopi Tribe of Arizona
- Moapa Band of Paiute Indians
- Morongo Band of Mission Indians
- Salt River Pima-Maricopa Indian Community
- San Manuel Band of Mission Indians
- Soboba Band of Luiseño Indians
- Tohono O’odham Nation
- 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
- Pueblo of Zuni

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 analysis area for the Project consists of areas where direct effects to places of Indian tribal concern may occur. Direct effects are defined by areas where ground disturbance would occur for Project construction, such as structure locations, access roads, lay down areas, and spur roads, among others. The analysis area is defined as a 200-foot-wide corridor where direct effects are expected to occur. Baseline data for the analysis area are presented in 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).

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 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, Fort Yuma Quechan Tribe, 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, Fort Yuma Quechan Tribe, 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, Fort Yuma Quechan Tribe, 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, Fort Yuma Quechan Tribe, 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, Fort Yuma Quechan Tribe, 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 cultural resources 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, Fort Yuma Quechan Tribe, 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 cultural resources.
- 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.

Non-NRHP eligible cultural resources may be of importance to the tribes and must be considered when assessing impacts to Indian tribes. 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 INDIAN CONCERNS
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, maintenance, or decommissioning. There would be no effect to the existing access of specific areas; prehistoric or ethnohistoric cultural resources, areas of elevated spiritual importance, or the Colorado River; human remains; or pristine qualities of existing undeveloped landscapes.
Magnitude	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 maintenance, and decommissioning. While a change to the existing access of specific areas may occur, it would not affect that access. Prehistoric or ethnohistoric cultural resources, 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 maintenance and decommissioning. While a small change to the existing access of specific areas may occur, it would not negatively affect that access. While prehistoric or ethnohistoric cultural resources, 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, maintenance and decommissioning would occur. Changes to existing access would occur that would require a general effect resolution measure to minimize impacts. Prehistoric or ethnohistoric cultural resources, areas of elevated spiritual importance, the Colorado River, and the pristine qualities of existing undeveloped landscapes would be affected to a measurable degree.
	Major	A large, easily measurable change in condition to areas of concern to Indian tribes would occur as a result of Project construction, operation maintenance and decommissioning. Changes to existing access would occur that would require specific resolution measures to minimize impacts. Prehistoric or ethnohistoric cultural resources, 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 Construction of Action Alternative Segments

4.6.4.1 Direct and Indirect Effects Common to All Action Alternatives

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 (i.e., traditional cultural landscape);
- 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.

Impacts to cultural resource sites would be the same as discussed in section 4.5. Should a tribal cultural landscape be identified during additional study, impacts to the landscape would be evaluated. 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), HPTP, and the Tribal Participation Plan. Avoidance of impacts by final design and construction would be the preferred adverse effect resolution measure.

Indirect Effects

Indirect effects to cultural resources and areas of tribal concern 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 cultural resources 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 cultural resources and areas of tribal concern 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 cultural resources 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.

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 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 prehistoric or ethnohistoric cultural resource 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.

4.6.4.2 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. This table summarizes information itemized in the cultural resources assessments of each segment (Section 4.5) and known tribal concerns (Section 3.6). Consultation and coordination with tribes is ongoing, therefore additional areas of concern to Indian tribes may be identified in the future.

Table 4-7 Direct and Indirect Segment-Specific Effects to Areas of Concern to Indian Tribes

Segment No.	Existing Access	New Access	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	New Access	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	New Access	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							

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 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).

Segments cb-10, ca-04, and p-15e cross the Colorado River. The CRIT, Fort Yuma Quechan Tribe, 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 cultural resources 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.

4.6.5 Operations, Maintenance, and Decommissioning

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 (Section 4.5.5).

4.6.6 Resolution Measures for the Resolution of Adverse Effects

Resolution measures for adverse effects to cultural resources 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; Appendix 2A, Section 2A.6) and

ongoing government-to-government Section 106 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 and operation activities (APM-CULT-01, BMP-CULT-02, BMP-CULT-04) (Appendix 2A, Section 2A.6).

Resolution measures for adverse effects to historic properties located within the CDCA Plan area are further outlined by specific compliance requirements discussed in Section 4.5.9. APMs and BMPs for minimizing effects to areas of tribal concern are contained in Appendix 2A, Section 2A.6.

4.6.7 Construction of Full Route Alternative and Subalternative Effects

4.6.7.1 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 culturally significant environments would be 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.

The Mule Tank Discontiguous Rock Art District containing petroglyphs and intaglios is located within the 1-mile analysis corridor of Segments p-17 and p-18. 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 of the Fort Yuma Indian Reservation.

Resolution Measures

Resolution measures for concerns to Indian tribes would be developed and 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.

4.6.7.2 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.

4.6.7.3 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. 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, 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.

4.6.7.4 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 cultural resources 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, 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.

4.6.7.5 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.

The Eagletail Petroglyph Site, potentially sensitive to indirect visual impacts, 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. 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 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, the Mule Tank Discontiguous Rock Art 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.

4.6.7.6 Agency 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 4.6.7.1. 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. 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.

4.6.8 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.

4.6.9 CDCA Plan Compliance

The same CMAs, BMPs, and APMs discussed under Section 4.5.9 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-CUL-7 would also apply to the Project (Appendix 2C) and would be satisfied by information provided in Chapter 3 and Chapter 5, Sections 5.3 and 5.5.2, 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 applicant would follow avoidance and stipulations outlined in the PA and appropriate HPTPs, and APM-CULT-01 and APM-CULT-02 (Appendix 2A, Section 2A.6), in which the applicant commits to following those stipulations.

LUPA-TRANS-CUL-1 and DFA-VPL-CUL-1 are specific to the responsibility of the applicant 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 (Appendix 2A, Section 2A.6), in which the applicant commits to conducting a cultural

resources inventory of the direct and indirect APE, preparing HPTPs, and conducting cultural resource monitoring during Project construction, operations, maintenance, and decommissioning (as appropriate) to meet stipulations outlined in the PA (Appendix 2D).

LUPA-TRANS-CUL-2 and DFA-VPL-CUL-2 are specific to the applicant's payment of compensatory mitigation fees for cumulative and indirect effects to historic properties as a result of Project construction, operations, maintenance and decommissioning. Compliance with LUPA-TRANS-CULT-2 and DFA-VPL-CUL-2 would be satisfied by BMP-CULT-05 (Appendix 2A, Section 2A.6), 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 applicant'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 (Appendix 2A, Section 2A.6), 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-CULT-06 (Appendix 2A, Section 2A.6). 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 (Appendix 2A, Section 2A.6), 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 applicant'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 (Appendix 2A, Section 2A.6), which requires such justification from the Project applicant.

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, Section 5.3. Appendix 3, Section 3.6.1.1 presents the regulatory requirement of the NHPA that includes Section 106. Appendix 5, Section 5.5.2 summarizes the process of drafting the PA. Appendix 5, Section 5.3 presents the efforts of consultation with Indian tribes. Appendix 2D is the PA for the Project.

4.6.10 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. The CRIT have expressed that the Project would result in adverse impacts on the CRIT that appreciably exceed those of the general population, as development impacts their ancestral ties to the land.

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.

4.6.11 Cumulative Effects

The Project Area is crossed by numerous utility and transportation corridors, including the I-10 corridor, SR 78, US 95, SR 95, the DPV1 transmission line, numerous local transmission and distribution lines, solar facilities, and the El Paso natural gas pipeline, 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 additional large solar facilities in the western portion of the Project Area (Appendix 3, Table 3.12-2).

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 and solar facilities 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 Appendix 7, Figure 3.12-1,) 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 Mule Tank Discontiguous Rock Art District. 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 Tank Discontiguous Rock Art District.

Future projects in the western portion of the Project Area include large solar facilities (Blythe Mesa Solar, Desert Quartzite Solar, and Crimson Solar Projects) and the Blythe Energy Power Plant and Sonoran Energy Project, all of which cumulatively affect issues of concerns to Indian tribes, including potential visual impacts to the Mule Mountains, an area of importance to the 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. Cumulative impacts to cultural resource sites would be the same as those described in Section 4.5.11. Impacts to prehistoric cultural resources that convey the significance of the landscape, including those not eligible for the NRHP and historic properties mitigated through data recovery, cumulatively impact the cultural landscape and linkage. The development of the Project further contributes to these cumulative effects. Minimization of cumulative effects of this Project would be addressed through implementation of the PA which directs avoidance of sites and minimization of the Project footprint before any consideration of mitigation of sites and data recovery.

4.6.12 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. Impacts to cultural resources, including those not eligible for the NRHP, as well as sites mitigated, represent an irreversible and irretrievable commitment of those resources. 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.

4.6.13 Relationship of Short-term Uses and 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

No assumptions were made when performing the analysis of Project impacts on land use.

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 Construction of Action Alternative Segments

4.7.4.1 Direct and Indirect Effects Common to All Action Alternatives

Construction

BLM-authorized land uses 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 uses would not be precluded by construction of the Project. For non-BLM lands, ROWs would be obtained as easements or leases, as appropriate. Encroachment permits would be obtained for the crossing of Federal, state, and county roadways, as applicable.

4.7.4.2 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 include a land use plan amendment to address issues with visual resources management are described in Section 4.11.8.

Proposed Action Segments Segment p-06 would cross 24 miles of the Kofa NWR; however, the Project was not found to be an appropriate use within 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 an appropriate use of the refuge; therefore, this would be a major impact on land use if the Project were approved.

Alternative Segments

- Segments x-01, x-02b, x-03 and x-04 cross BLM-administered land that is not within a designated utility corridor.
- 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.
- 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.
- A portion of Segment i-03 would fall approximately 0.2-mile outside of a designated corridor
- 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.

4.7.5 Operations, Maintenance, and Decommissioning

The presence of the Project during operations 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. Maintenance

activities would not affect land use plan compliance or land uses. After decommissioning, previous land uses could be restored.

4.7.5.1 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 Amendments

Yuma RMP

The acreage of BLM-administered land that would be required for the Project outside of a designated utility corridor is 2,122 acres in aggregate (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. The impacts of the RMP amendment to land use is that these additional lands would be open to ROW development.

CDCA Plan

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.

Designated Utility Corridors, Land Use Authorizations and Rights-of-Way

The Project would be authorized on BLM-managed land with a ROW grant containing terms and conditions the holder must comply with to prevent undue and unnecessary degradation, including that the Project will not conflict with any valid any existing authorizations. The terms and conditions would come from DRECP's CMAs (Appendix 2C), applicable Interagency Operating Procedures within the WWEC corridor 30-52, ROW regulation and policy, APMs, and BMPs, as necessary. Further, the designation of the utility corridor is for the use proposed. Thus, there would not be significant impacts to designated utility corridors.

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 not be an appropriate use on the Kofa NWR (USFWS 2017); 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 prior to granting the project 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)

One additional segment than under Alternative 1 would require a Yuma 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 prior to granting the project 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 and 3H would require an additional Yuma RMP amendment. Subalternative 3E would not be consistent with the Town of Quartzsite General Plan.

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 prior to granting the project ROW under Subalternatives 4B and 4D.

4.7.7.6 Agency 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. However, La Paz County and the Town of Quartzite have expressed support for the Preferred Alternative in their written comments. 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 Segment x-05 and a portion of Segment i-03 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 (Appendix 7, Figure 3.2-2c), 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; Appendix 2A, Section 2A.4).

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.).

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 limit 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 limit 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. 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.

4.7.12 Irreversible and Irrecoverable 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 would 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 and recreation trends.

4.8.4 Construction of Action Alternative Segments

4.8.4.1 Direct and Indirect Effects Common to All Action Alternatives

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. Recreation 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 at locations with 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; Appendix 2A, Section 2A.7). 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 Project facilities (BMP-REC-01, BMP-REC-02; Appendix 2A, Section 2A.7).

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, Section 2A.7) 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 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;
- Segments that could affect the recreation experience of OHV users; and
- Segments that could pose a safety hazard to OHV users.

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 the recreation experience on more OHV routes 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 the recreation experience on more OHV routes 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 through p-09 and p-12 would require self-supporting structures to reduce the safety hazards to OHV users (MM-REC-02).
- 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 the recreation experience on more OHV routes 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 relatively more classified OHV routes in the area near the Colorado River and in California of the Proposed Segments. Therefore, this segment would affect the recreation experience on more OHV routes than the other Proposed Segments in this area and would also have the potential for the most increase in illegal OHV use.
- Segments p-09, p-10, and p-11 would include helicopter fly yards during construction which could decrease the recreation experience for some users of the La Posa and Colorado River SRMAs and OHV users in the vicinity of the fly yards.
- The construction of segments associated with the crossing of the Colorado River would temporarily inhibit boating activity during wire stringing and pulling. These restrictions would be temporary in nature and boat traffic would be allowed to resume after each wire stringing activity was completed.

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 largest portion of proposed Arizona Peace Trail. Therefore, these Action Alternative segments would affect the recreation experience on more OHV routes 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 largest portion of proposed Arizona Peace Trail. Therefore, these segments would affect the recreation experience on more OHV routes 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 largest portion of proposed Arizona Peace Trail of the Action Alternative segments. Therefore, these segments would affect the recreation experience on more OHV routes 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 relatively more classified OHV route in the area near the Colorado River and in California of the Alternative Segments. Therefore, these segments would affect the recreation experience on more OHV routes than the other Alternative Segments in this area and would also have the potential for the most increase in illegal OHV use.
- Segments i-04, i-06, qn-02, qs-02, cb-05, cb-06, and cb-07 would require self-supporting structures to reduce the safety hazards to OHV users (MM-REC-02).
- A helicopter fly yard for Segments cb-01/cb-02 could decrease the recreation experience for some users of the La Posa and Colorado River SRMAs and OHV users in the vicinity of the fly yard.
- The construction of segments associated with the crossing of the Colorado River would temporarily inhibit boating activity during wire stringing and pulling. These restrictions would be temporary in nature and boat traffic would be allowed to resume after each wire stringing activity was completed.

4.8.5 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, Section 2A.7, 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; Appendix 2A, Section 2A.7).

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 lattice structures 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.

Decommissioning and 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.

4.8.6 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 when there are fewer recreational users in the area.

MM-REC-02: In areas of high OHV use, such as in Copper Bottom Pass and the Ehrenberg Sandbowl OHV Area, Project structures with guy lines would be replaced with self-supporting (no guy lines) lattice 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. This would preclude and/or minimize recreational use of access roads.

In addition, the BLM developed required BMPs that would further reduce impacts to recreation resources (Appendix 2A, Section 2A.7).

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 Agency 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

Depending on the alternative (Section 4.8.7), after implementation of MMs, there would be residual negligible to minor effects from illegal OHV use, 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. Additionally, there would be minor to major residual recreation effects under some alternatives from the crossing of the La Posa LTVA and Dome Rock Camping Area near Quartzsite and

minor residual recreation effects on the Ehrenberg Sandbowl OHV Area, because these effects (other than safety risk to OHV users) would not be mitigated.

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, Section 2A.7).

4.8.10 Unavoidable Adverse Effects

Under some alternatives (Section 4.8.7), during construction the temporary closure of OHV use in portions of the Copper Bottom Pass area, and the proximity to Quartzsite camping areas would be an unavoidable, short-term, adverse, moderate effect on OHV users on the proposed Arizona Peace Trail and other OHV routes. The effect of temporary OHV closures and the safety risk to OHV users would be mitigated to a minor effect (Section 4.8.6).

In the long term, under all alternatives the main unavoidable adverse effect would be increased development in natural areas heavily used for recreation. The addition of the Project would impact the scenic views of recreationists, increasing the perception of development and clutter in conjunction with the existing DPV1 transmission line. New or expanded access routes would remain after construction, increasing the access in and around otherwise natural areas, which would affect the character of the recreation environment in some areas. This would be an unavoidable, long-term, adverse negligible to moderate impact.

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 currently developed/disturbed areas, the likelihood that users are currently pursuing primitive or unconfined recreational settings and solitude is low, therefore no cumulative impacts are anticipated. However, it is more possible that users will be pursuing primitive and unconfined recreational opportunities and solitude in currently undeveloped areas of the CEA. In conjunction with the Project, reasonably foreseeable future actions in undeveloped areas would have a minor cumulative effect on the recreation experience and availability of primitive or unconfined recreational settings and solitude in the

CEA. Larger projects, such as solar facilities, and specifically the proposed 5,935-acre La Paz County land conveyance, would permanently remove lands from recreation.

The Proposed Action and portions of the other alternative routes 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 Irrecoverable Commitment of Resources

There would not be any irreversible or irretrievable adverse effects on recreation related to the Project.

4.8.13 Relationship of Short-term Uses 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 positive or negative. The following types of potential impacts were included in the socioeconomic impact analysis to determine presence, duration, and intensity:

- 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 (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.

Overall, the Project could 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.

Economic Effects

As shown in Appendix 2, Table 2.2-28, 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.

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 2.0214¹ 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 indirect and induced jobs and associated 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 construction 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 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 be 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

¹ This multiplier is based on the RIMS II 2007 Benchmark Input-Output Table for the Nation and 2015 regional data.

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 and primarily related to noise, dust, visual disturbance and restricted access during construction. Considering the large number of recreational opportunities and their areal extent, the reduction in recreation users coming to the area should be minor, as most users would likely move to other nearby locations not impacted by construction activities.

Recreation activities, such as OHV riding, hunting, wildlife viewing, hiking and equestrian activities, might be temporarily affected in some locations or displaced to other 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 (DCRT 2019) and have relatively little direct economic impact in the Project Area. Decommissioning the Project would require more workers than during operations and maintenance, but it is unlikely the workforce and expenditures would be as large as that associated with construction. After decommissioning, there would be no further economic or social effects associated with the Project.

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 positive 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. 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. 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 socioeconomic 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

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. However, it is more likely that this recreational use would shift to other trails within the local 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 Agency 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

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 in Riverside County have been identified as containing EJ populations of concern. 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). Due to their status as a single Federally recognized tribal entity, the CRIT have been identified as an EJ population (Section 3.10.2.4).

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; therefore, it extends beyond 0.5 mile. The analysis area includes adjacent and nearby communities that may be affected by the final route.

4.10.2.2 Assumptions

Evaluation of EJ impacts involves assessment of the potential for disproportionately high and adverse impacts 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 identified EJ 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 impacts 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 impacts may affect visual resources and property value. Potential adverse impacts 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. 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 impacts 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 impacts would occur over a relatively short duration. Visual and air quality impacts are related to EJ populations 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 impacts.

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.

The CRIT have expressed that the Project would constitute an adverse impact to the Tribe that exceeds that of the general population, as they have greater ties to the specific environments and lands encompassing the Project Area. This is discussed in further detail in Section 4.6.

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 population 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 impacts 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 populations 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 Agency Preferred Alternative

The impacts on EJ populations under the Preferred Alternative would be similar to the Proposed Action and Action Alternatives. These impacts 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 minor 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

Identified EJ populations would likely experience adverse impacts on a localized basis from construction, operation, maintenance, and decommissioning of the Project. As discussed previously, these adverse impacts 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.

As noted in Section 4.6.10, the CRIT have expressed that the Project would result in adverse impacts on the CRIT that appreciably exceed those of the general population, as development impacts their ancestral ties to the land. Consultation with the CRIT will be ongoing in an effort to address impacts.

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 impacts 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 impacts 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 (to be completed before NTP would be issued). 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.

As noted in Section 4.6.11, the cumulative development within and around the CEA has had the effect of substantially altering the native landscape of affiliated Indian tribes, including the CRIT. Consultation with the CRIT is ongoing. As expressed by the CRIT, the continued development and alteration of the landscape cumulatively contributes to impacts on the cultural landscape and the deep connection the CRIT have with the land, natural and cultural resources, and wildlife.

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 amendments included to address RMP non-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 4.11.6 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 (VRM Classes), 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 projects proposed in the area;
- 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 1986), 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 guyed V structures in certain locations 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 Construction of Action Alternative Segments

4.11.4.1 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. 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, human developments, 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, spans and structure locations would be matched to the extent possible, and 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 managed by Reclamation. Further, a portion of this part of the Project Area includes CRIT tribal land. 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 and is more sensitive to changes in VRM Class.

Visually, where the Project approaches the Colorado River it 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. The VRM class for this area is Class IV.

Appendix 2A, Section 2A.12 lists APMs and BMPs that would be applied to the Project to minimize visual impacts.

4.11.4.2 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 would not conform to established VRM Classes,
- Those segments that would require mitigation or have mitigation from other resources that would affect visual resource impact analysis;
- Those segments for which BLM is considering an RMP amendment; or
- Those segments that would affect the views of private landowners (presented under a separate heading below).

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 under consideration in certain alternatives.

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 west of the Kofa NWR.

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 4.11-1a, 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 4.11-1b, 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 ensure conformance. Consequently, amendment of the RMP to similarly change the VRM class of Segment p-06 west of the Kofa NWR would be implemented (Figure 4.11-2, 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 4.11-3, 4.11-4, 4.11-5a and b, 4.11-6, 4.11-7a 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. Further, due to steeper than average slopes in Copper Bottom Pass, access roads (upgraded existing roads, new centerline access roads, or access spur roads) would range from 18 – 22 feet in width for relatively flat areas (0 – 7.9 percent slope), 25 – 30 feet in width for moderately sloped lands (8 – 14.9 percent slope), and 30 – 76 feet in width for steep lands (>15 percent slope). Areas allowing for vehicular turning radius would also be placed at intervals along Copper Bottom Pass Road. Such alterations would be visible in the views from

KOP 32 and 35 (simulated; Appendix 1, Figure 4.11-4 and 4.11-5a and b, respectively), though current simulations do not reflect maximum potential width of the roads. 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 4.11-8a, 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 and also match the existing DPV1 structures, decreasing visual impacts (Figures 4.11-8b, 4.11-3, and 4.11-6, Appendix 7).

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 ensure conformance.

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 4.11-10a, 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 4.11-10b, 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 ensure conformance (Figure 4.11-11, Appendix 7).

Segment in-01 (Figure 4.11-12, 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; amendment of the Yuma RMP to change the VRM Class from III to IV would ensure conformance (Figure 4.11-11, 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 to change the VRM Class from II to IV along this segment would ensure conformance. 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 4.11-13a, 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 4.11-14, 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 4.11-14, 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 4.11-13b and c, Appendix 7) as mitigation to eliminate the hazards associated with guy wires (Figures 4.11-15a 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 ensure 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 ensure 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 ensure conformance for the portion of the segment located on BLM-administered land.

The construction of Segments cb-01/cb-02 would require a helicopter fly yard, which would require crushing, mowing, or removal of vegetation and would disturb soil on 43.5 acres. In the short term, these locations would cause a visual change to the landscape due to the movement of the helicopters and an increase in fugitive dust. In the long term, the disturbed soil and crushed or mowed vegetation would be noticeable on the landscape until fully recovered.

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 4.11-5b, 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. In certain alternatives 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 4.11-9², 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 4.11-16 and 4.11-17a 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 minimally visible but

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.

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 reduce 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. In certain alternatives 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 4.11-17a and b, 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-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. In certain alternatives, 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 4.11-18 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. These segments would not conform to VRM Class II and III objectives. An amendment to the Yuma RMP to Class IV in an area 0.3-mile either side of the centerline of these segments would ensure conformance.

Residents and Local Viewers

Potential impacts to residents in the easternmost portion of the Project Area are represented by KOPs 5, 7, 19 (Figures 4.11-19, 4.11-20, and 4.11-21, Appendix 7, respectively). Potential impacts to travelers and other viewers on private lands are represented by KOPs 2 and 6 (Figures 4.11-22a and b and 4.11-23, respectively; Appendix 7), along Salome Road, and KOP 18

(simulated, Figures 4.11-24a 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 4.11-25, 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.

4.11.5 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. After decommissioning, these visual contrasts would no longer be present.

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.

4.11.6 Mitigation Measures

The applicant has committed to APMs, and the BLM developed required BMPs, that would minimize impacts to visual resources (Appendix 2A, Section 2A.12). However, the following MMs would be required, as appropriate, 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.

4.11.7 Resource Management Plan Amendments

RMP Amendments to address issues with visual resources management would only be included for the Yuma and Lake Havasu RMP. The following Proposed Action and Action Alternative segments (but not the Agency Preferred Alternative) include RMP amendments for VRM class changes as shown on Figure 4-1:

- 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 potential visual resource-related RMP amendments by segment to the Yuma RMP and Lake Havasu RMP, respectively.

The impact of these proposed RMP amendments would be to change the visual management standards for the design and management of future projects and for the rehabilitation of existing projects from the current VRM Class II or III to VRM Class IV, which allows for major modifications to the landscape.

4.11.8 Construction of Full Route Alternatives and Subalternative Effects

4.11.8.1 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. 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 include amendment of the Yuma RMP for Segments p-13 through p-16.

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. 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.

4.11.8.2 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 trust,

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 including amendment of the Yuma RMP.

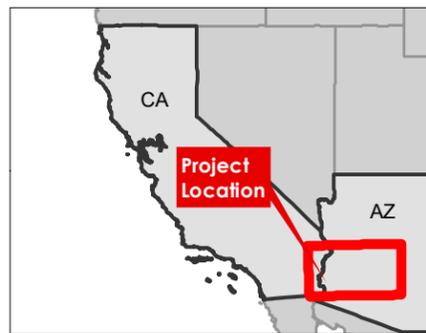
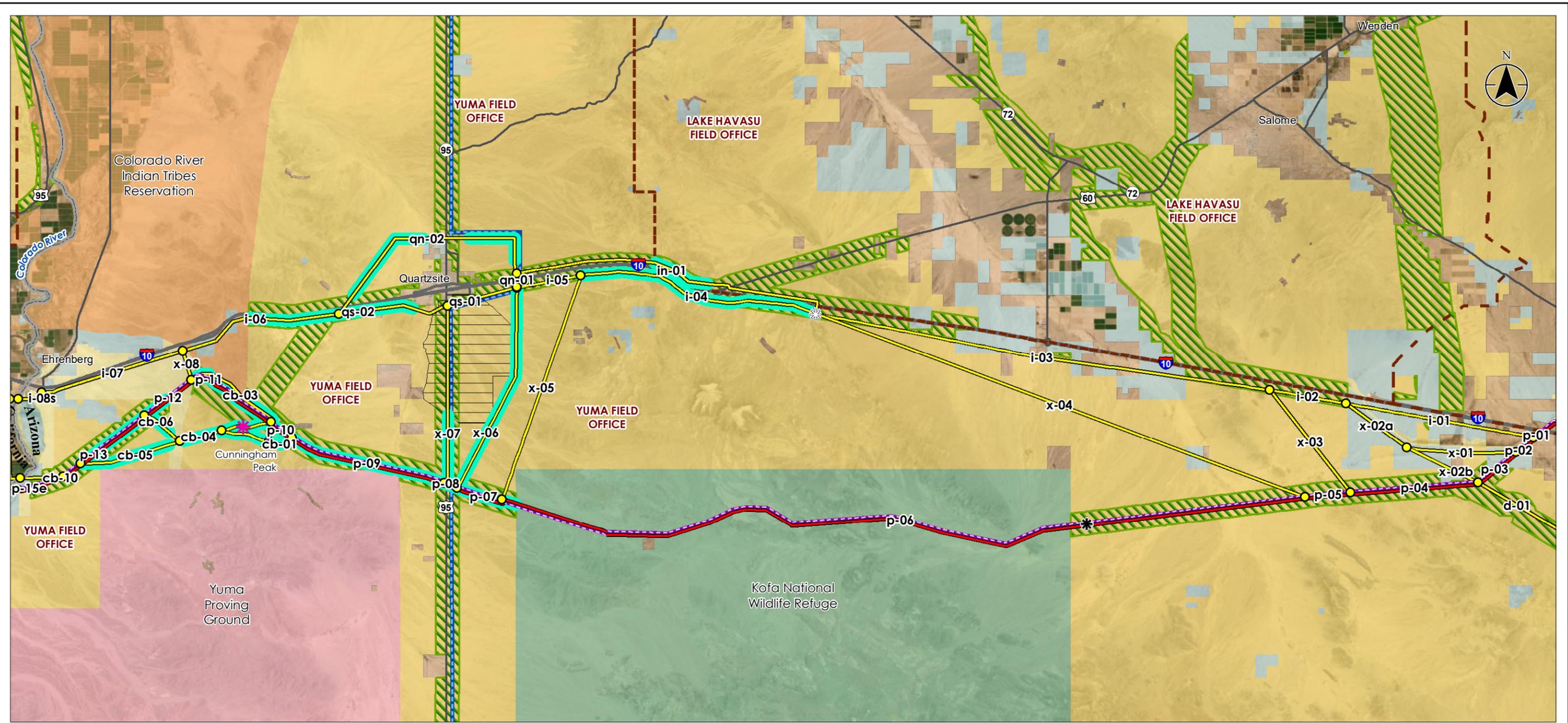
Linear KOP

From the western crossing of I-10 by Segment p-01, 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 (Figures 4.11-26 and 4.11-27, Appendix 7). In addition, the alternate 12kV SCS distribution line would be visible crossing I-10 and extending south of the interstate to the Alternative SCS.

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 4.11-23 and Figure 4.11-28, Appendix 7) as travelers move along the highway.

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 4.11-24a 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.



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 including 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

0 5.5 11 Miles

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



**Figure 4-1
 Ten West Link
 Segments that Would Include
 VRM Class Change RMP Amendment**

* = 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.

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 includes a VRM Class change from III to IV.

4.11.8.3 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 included for Segments p-09 through p-13 to ensure 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 nor 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 includes an amendment of the Yuma RMP for Segment x-07 to ensure conformance with VRM class objectives.

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.

4.11.8.4 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 trust 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, including an amendment of the Yuma RMP for Segments cb-01, cb-04, and cb-05 to ensure conformance with VRM class objectives. 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 include 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.

4.11.8.5 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 include an amendment of the Yuma RMP to ensure conformance with VRM class objectives. 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 include amendment of the Yuma RMP for Segment p-13 to ensure conformance with VRM class objectives. 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 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.

4.11.8.6 Agency Preferred Alternative

Full Route Analysis Summary

East of Quartzsite, the Preferred Alternative would have the same impacts as Alternative 1. By following Segment x-05, the 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. Impacts for the remainder of the route would be the same as those described for Alternative 2. This alternative does not include any RMP amendments for VRM Class. Instead, for management consistency the corridor would remain VRM Class III and impacts to visual resources would be addressed through application of APMs, BMPs, and MMs. These measures would serve to reduce impacts to visual resources to the extent practical. However, in some areas the VRM class may not be met, especially for sensitive viewers.

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 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 Preferred Alternative containing Subalternative 4D would have the same impacts as described under Alternative 1.

4.11.8.7 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

¹Any structure changes on non-BLM lands would be negotiated between the DCRT and landowner.

4.11.9 Residual Impacts

After the application of mitigation, non-conforming segments would continue to not conform to established 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.

4.11.10 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-4 would 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, Section 2A.12).

4.11.11 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.

4.11.12 Cumulative Effects

The Project in conjunction with past, present, and reasonably foreseeable future projects 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.

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 conveyance 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 conveyance 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.

4.11.13 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.

4.11.14 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 EIS.

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 EIS 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.

5.2.1 Cooperating Agency Coordination

The entities who formally agreed to participate as Cooperating Agencies for this EIS are listed in Table 5-1.

Table 5-1 Cooperating Agencies

FEDERAL	ARIZONA	CALIFORNIA
EPA	AGFD	CPUC
DOD YPG	ASLD	
USFWS	MAG	
WAPA	La Paz County	
Reclamation	Town of Quartzsite	
USACE		

5.3 CONSULTATION WITH INDIAN TRIBES

5.3.1 Applicable Laws, Regulations, Policies, and Plans

The United States has a unique legal relationship with Federally recognized Indian tribes established through and confirmed by the Constitution of the United States, treaties, statutes, executive orders, and judicial decisions. In accordance with that relationship, the BLM engages in regular and meaningful consultation and collaboration with Federally recognized tribes in the development of policy and land-use decisions that have tribal implications. The numerous laws,

regulations, and policies pertaining to cultural resources are listed in Tables 1.7-1 and 1.7-2 in Appendix 1.

5.3.2 Federal Consultation Process

As lead Federal agency, the BLM consults with Federally recognized Indian tribes and California Native American tribes under Section 106 of the NHPA as part of the process to identify historic properties, including properties to which consulting Indian tribes ascribe traditional religious and cultural significance, also referred to as Traditional Cultural Properties (TCP). In addition, the CPUC must consider whether the Project would impact Traditional Cultural Resources eligible for listing in the California Register of Historical Resources (CRHR) as historical resources, as required by CEQA and its 2014 amendment known as AB 52. The BLM invited 23 Federally recognized tribes and California Native American tribes to participate in the Section 106 review of the Project based on information provided by the Yuma, Lake Havasu, Hassayampa, and Lower Sonoran field offices in Arizona and the Palm Springs–South Coast field office in California. The BLM in Arizona also reviewed the consultation maps maintained by the Arizona SHPO in its government-to-government consultation toolkit (<https://sites.google.com/view/az-consultation-toolkit/consultation-map>), on which tribes have self-identified their areas of interest for agency consultation. The CPUC contacted the Native American Heritage Commission in California and initiated consultation with California Native American tribes identified in that file search, pursuant to AB 52.

The BLM’s tribal relations policy consists of notification through letters and outreach, coordination through email, telephone, and conference calls, and formal government-to-government consultation between agency officials and tribal leaders in face-to-face meetings and field trips to project areas. In addition, the BLM requested tribal input throughout the NEPA process (scoping and DEIS review), as well as during the socioeconomic workshop.

BLM consulted with the following 23 Indian tribes with jurisdiction or interest in the Project:

- | | |
|--|---|
| Agua Caliente Band of Cahuilla Indians | Morongo Band of Mission Indians |
| Ak-Chin Indian Community | Fort Yuma Quechan Tribe |
| Augustine Band of Cahuilla Indians | Salt River Pima-Maricopa Indian Community |
| Cabazon Band of Mission Indians | San Manuel Band of Mission Indians |
| Chemehuevi Tribe | Soboba Band of Luiseno Indians |
| Cocopah Indian Tribe | Tohono O’odham Nation |
| Colorado River Indian Tribes | Torres Martinez Desert Cahuilla Indians |
| Fort McDowell Yavapai Nation | Twenty-Nine Palms Band of Mission Indians |
| Fort Mojave Tribe | Yavapai-Apache Nation |
| Gila River Indian Community | Yavapai-Prescott Indian Tribe |
| Hopi Tribe | Pueblo of Zuni |
| Moapa Band of Paiute Indians | |

Efforts to initiate government-to-government consultation with these tribes have been undertaken and are ongoing. The tribal responses to the request for government-to-government consultation are in the Project record and available upon request. Appendix 5, Table 5.3-1 summarizes the consultation to date.

5.4 PUBLIC PARTICIPATION SUMMARY

To collect agency and public input for the Project environmental review, the BLM administered a public notice and participation program. The intent of scoping and public outreach is to provide information about the Project to stakeholders and the public, and solicit information from public agencies, governmental representatives, tribal representatives, and the public to aid the environmental review.

5.4.1 Scoping Process

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 45-day formal scoping period from March 23 through May 9, 2016.

A BLM Arizona State Office website for the Project was launched concurrently with publication of the NOI (<https://www.blm.gov/site-page/programs-planning-and-nepa-project-arizona-10-west-link>). The BLM's ePlanning website for the Project is located at <https://go.usa.gov/xU6Be>.

Legal notices and/or advertisements informing the public about scoping for the Project were published in the appropriate newspapers in Arizona and California (Appendix 5, Table 5.4-1).

The BLM mailed scoping letters describing the project proposal and proposed Federal actions, and public involvement opportunities. 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 local special interest groups. The mailing list also includes additional parties who might be interested in the Project such as adjacent landowners or land managers. In addition to the invitation letter, the BLM emailed notifications of both the agency-only scoping meeting and the public scoping meetings to interested parties who provided email addresses.

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. Representatives from the BLM, the proponent (DCRT), and their contractors were present at each meeting to discuss the project and answer questions. A total of 49 individuals attended the meetings and 44 comment letters were submitted.

Tables of agencies and organizations consulted are presented in Appendix 5 Table 5.4-2 through Table 5.4-6.

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 tribal and agency representatives attended, including representatives from the Colorado River Indian Tribes, Fort Yuma Quechan Tribe, Gila River Indian Community, USFWS, U.S. Department of Energy/Western Area Power Administration, U.S. House of Representatives, ASLD, AGFD, Arizona State Parks, CPUC, CDFW, and Maricopa County (BLM 2016b).

5.4.2.2 Economic Strategies Workshop

An Economic Strategies Workshop 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. The workshop provided an opportunity for local and regional businesses, tribes, governments, individuals, and community organizations to identify, clarify, and discuss economic and social effects that could result from the Project. Forty people from 22 organizations attended the workshop.

5.4.2.3 Public Notification of DEIS Availability

BLM sent notification of availability of the DEIS to the project mailing list, publicized availability of the DEIS via news releases, and published a NOA in the *Federal Register*, 83 FR 44625, on August 31, 2018. Three public meetings were held in Phoenix, Arizona, Quartzsite, Arizona, and Blythe, California between October 9 - 11, 2018, to discuss the proposed Project and solicit feedback and comments on the DEIS. The DEIS was available online at <https://go.usa.gov/xU6Be> for a 90-day public comment period. Hardcopies were available for review at associated BLM offices and at other select locations such as libraries (Appendix 5, Table 5.4-7). The formal comment period ended November 29, 2018. A total of 50 comment letters and emails were received from the public. Comments and responses are provided in Appendix 8 of this FEIS.

5.5 CONSULTATION PROCESS FOR ESA SECTION 7 AND NHPA SECTION 106

5.5.1 ESA Section 7 Compliance

Pursuant to Section 7(c)(1) of the ESA the BLM prepared a draft BA based on the Agency Preferred Alternative and provided it to the USFWS and cooperating agencies for a courtesy review in February 2019. The draft BA was updated based on agency comments and coordination from February to March 2019. The final BA was submitted to the USFWS in June 2019.

Portions of the Project in California that are not within the Colorado River corridor are subject to a 2017 Programmatic Biological Opinion (BO) completed in conjunction with adoption of the DRECP. Future projects in conformance with all applicable CMAs addressed in the DRECP are covered for activities pertaining to the Mojave desert tortoise and its critical habitat. Incidental take would be requested, as appropriate, using the 2017 Programmatic BO Activity Request Form and covered under the 2017 CDCA Programmatic BO for Mojave Desert Tortoise. 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 were not included in past consultations.

5.5.2 NHPA Section 106 Compliance

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 State Historic Preservation Offices (SHPOs) participated in drafting the PA.

Federal agencies must demonstrate compliance with the NHPA (54 U.S.C. 300101). 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), as well as cultural resources departments and tribal cultural specialists, 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.

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 (54 U.S.C. § 306108). The PA covers a considerable amount of policies, procedures, 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; 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 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 was included for public comment in the DEIS as Appendix 2D. Based upon the comments received during the DEIS comment review period and further discussion among the consulting parties, revisions have been made to the PA. A revised draft PA is included as an appendix in this FEIS.

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 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 record.

5.6 LIST OF PREPARERS

Preparers and contributors involved in the EIS and other aspects of the Project included staff from BLM, the CPUC, Dudek (CPUC's consultant), Stantec (BLM's NEPA consultant), Galileo Project, LLC (BLM's administrative/project management consultant), and HDR Inc. (DCRT's environmental consultant). The actual personnel who contributed to the preparation, and how they contributed, are provided in Appendix 5, Table 5.6-1 through Table 5.6-4.

**Bureau of Land Management
Bureau of Reclamation
Department of Defense
Environmental Protection Agency
United States Fish and Wildlife Service
United States Army Corps of Engineers
Western Area Power Administration
Arizona Game and Fish Department
Arizona State Land Department
California Public Utilities Commission
La Paz County (Arizona)
Maricopa Association of Governments
Town of Quartzsite (Arizona)**