BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

In the Matter of the Application of SOUTHERN	)	Application No._____
CALIFORNIA EDISON COMPANY (U 338-E)	)	
for a Permit to Construct Electrical Facilities	)	
With Voltages Between 50 kV and 200 kV:	)	
Valley South Subtransmission Project	)	

PROPONENT'S ENVIRONMENTAL ASSESSMENT: VALLEY SOUTH 115 kV SUBTRANSMISSION PROJECT

VOLUME 4 of 4 (Part 1 of 5)

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Appendices (Volume 4)

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Appendix A: CEQA Checklist
Appendix B: List of Preparers
Appendix C: Agency Consultation
Appendix D: Public Involvement (SCE's public involvement documentation)
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CEQA Checklist

1. Project Title

Valley South 115 kilovolt (kV) Subtransmission Project

2. Lead Agency Name and Address

California Public Utilities Commission (CPUC)
505 Van Ness Avenue
San Francisco, California 94102-3298

3. Contact Person and Phone Number

Tom Diaz
Regulatory Affairs
Phone 626.302.1164

4. Project Location

The Valley South 115 kV Subtransmission Project (Proposed Project) would be located within the cities of Menifee, Murrieta, Temecula, and portions of unincorporated communities of southwestern Riverside County.

5. Project Sponsor's Name and Address

Southern California Edison (SCE)
2244 Walnut Grove Avenue
Rosemead, California 91770

6. General Plan Designation

The California Public Utilities Commission (CPUC) has sole and exclusive state jurisdiction over the siting and design of the Proposed Project. Pursuant to CPUC General Order (G.O.) 131-D, Section XIV.B, "Local jurisdictions acting pursuant to local authority are preempted from regulating electric power line projects, distribution lines, substations, or electric facilities constructed by public utilities subject to the CPUC's jurisdiction. However, in locating such projects, the public utilities shall consult with local agencies regarding land use matters." Consequently, public utilities are directed to consider local regulations and consult with local agencies, but the county and cities' regulations are not applicable as the county and cities do not have jurisdiction over the Proposed Project. Accordingly, a discussion of local land use regulations is provided for informational purposes only.

A summary of the planned land use designations of the Proposed Project is provided in Table A-1 Planned Land Use Designations and Zoning by Proposed Project Component.

Table A-1 Planned Land Use Designations and Zoning by Proposed Project Component

Proposed Project Component Location	Jurisdiction	General Plan Land Use Designation	Zoning
Valley 500/115 kV Substation			
Valley 500/115 kV Substation, located on Menifee Road immediately south of State Route (SR) 74 in the City of Menifee	City of Menifee	City of Menifee General Plan —Public/Quasi Public Facilities	Riverside County Zoning —Rural Residential
Segment 1 of the Proposed Project			
From the south side of the existing Valley 500/115 kV Substation, extending easterly on McLaughlin Road to Briggs Road	City of Menifee	City of Menifee General Plan —Public/Quasi Public Facilities —Business Park —Specific Plan	Riverside County Zoning Code[1] —Manufacturing - Service Commercial —Rural Residential —Specific Plan Zone
From the intersection of McLaughlin Road and Briggs Road, extending south on Briggs Road to Matthews Road	City of Menifee; Riverside County	City of Menifee General Plan —Specific Plan Riverside County General Plan —Medium Density Residential —Open Space–Recreation —Public Facility	Riverside County Zoning Code[1] —Specific Plan Zone
From the intersection of Briggs Road and Matthews Road, extending southeasterly and adjacent to Matthews Road to Grand Avenue	Riverside County; Burlington Northern Santa Fe Railway (BNSF)[4]	Riverside County General Plan —Medium Density Residential —Light Industrial —Commercial Retail–Public Facilities	Riverside County Zoning —Specific Plan Zone —Light Agriculture with Poultry —Rural Residential

Proposed Project Component Location	Jurisdiction	General Plan Land Use Designation	Zoning
From the intersection of Grand Avenue and Leon Road, extending south on Leon Road to Scott Road	Riverside County; BNSF[4]	Riverside County General Plan —Light Industrial —Public Facilities —Open Space–Recreation —Commercial Retail —High Density Residential —Medium Density Residential —Medium High Density Residential —Rural Mountainous —Rural Community–Estate Density Residential —Rural Residential	Riverside County Zoning —Rural Residential —Manufacturing–Medium —One-Family Dwellings —Specific Plan Zone —Light Agriculture
From the intersection of Scott Road and Leon Road, continuing south on Leon Road to Keller Road	City of Menifee; Riverside County; City of Murrieta Sphere of Influence (SOI)[2]	City of Menifee General Plan —Rural Residential 2 Acre Minimum Riverside County General Plan —Rural Community–Estate Density Residential	Riverside County Zoning[1] —Rural Residential
From the intersection of Keller Road and Leon Road, continuing south to SR-79	Riverside County; City of Murrieta SOI[2]	Riverside County General Plan —Low Density Residential —Rural Residential —Medium Density Residential —Open Space–Conservation —Commercial Retail	Riverside County Zoning —Rural Residential —Specific Plan Zone —One-Family Dwellings —Open Area Combining Zone–Residential Developments —Light Agriculture —Scenic Highway Commercial

Proposed Project Component Location	Jurisdiction	General Plan Land Use Designation	Zoning
From the intersection of SR-79 and Leon Road, continuing south on Leon Road to a TSP, located at the southeast corner of Leon Road and Benton Road	Riverside County; City of Murrieta; City of Temecula SOI[3]; Caltrans[5]	Riverside County General Plan —Commercial Retail —Open Space–Recreation —Medium High Density Residential —Business Park City of Murrieta General Plan —Commercial	Riverside County Zoning —Specific Plan Zone —Scenic Highway Commercial City of Murrieta Zoning —Regional Commercial
Segment 2 of the Proposed Project			
From a TSP located at the southeast corner of Leon Road and Benton Road, continuing south along Valley-Auld-Triton 115 kV Subtransmission Line (parallel to a trail) to the intersection of Auld Road and Leon Road	Riverside County; City of Temecula SOI[6]	Riverside County General Plan —Business Park —Open Space-Conservation —Light Industrial —Commercial Retail	Riverside County Zoning —Specific Plan Zone —Open Area Combining Zone –Residential Developments —Scenic Highway Commercial
From the intersection of Auld Road and Leon Road, continuing south along Valley-Auld-Triton 115 kV Subtransmission Line (parallel to Leon Road and trails) to the intersection of Murrieta Hot Springs Road and Chandler Lane	Riverside County; City of Temecula SOI[6]	Riverside County General Plan —Commercial Office —Business Park —Medium Density Residential —Medium High Density Residential —Open Space-Conservation	Riverside County Zoning —Scenic Highway Commercial —Light Agriculture —Specific Plan Zone

Proposed Project Component Location	Jurisdiction	General Plan Land Use Designation	Zoning
From the intersection of Murrieta Hot Springs Road and Chandler Lane, continuing south along Valley-Auld-Triton 115 kV Subtransmission Line (parallel to Chandler Lane and trail) to the Terminal TSP located on the south side of Nicolas Road, approximately 250 feet west of Los Chorus Ranch Road	City of Temecula	City of Temecula General Plan —Low Medium Residential (3–6 dwelling units per acre maximum) —Open Space —Very Low Residential (0.2-0.4 dwelling units per acre maximum)	City of Temecula Zoning —Public Park and Recreation —Specific Plan Zone —Very Low Density Residential
Material Staging Yards			
Material Staging Yard 1, located at the southwest corner of McLaughlin Road and Menifee Road	City of Menifee	City of Menifee General Plan —Business Park	Riverside County Zoning —Rural Residential
Material Staging Yard 2, located approximately 700 feet west of Van Gaale Lane on the south side of Benton Road	Riverside County; City of Temecula SOI[3]	Riverside County General Plan —Light Industrial	Riverside County Zoning —Manufacturing–Service Commercial
Material Staging Yard 3, located approximately 150 feet north of Commercial Road, 250 feet east of G Street on Walker Avenue	City of Perris	City of Perris General Plan —Downtown Specific Plan	City of Perris Zoning —Downtown Specific Plan
Material Staging Yard 4, located approximately 350 feet south of Ethanac Road on the west side of Antelope Road	City of Menifee	City of Menifee General Plan —Heavy Industrial	Riverside County Zoning —Rural Residential
Material Staging Yard 5, located on the east side of Menifee Road just south of SR-74	City of Menifee	City of Menifee General Plan —Public/Quasi Public Facilities	Riverside County Zoning —Rural Residential
Material Staging Yard 6, located within the existing Valley 500/115 kV Substation property on Menifee Road immediately south of SR-74	City of Menifee	City of Menifee General Plan —Public/Quasi Public Facilities	Riverside County Zoning —Rural Residential

Proposed Project Component Location	Jurisdiction	General Plan Land Use Designation	Zoning

Notes:

1. Although the City of Menifee is an incorporated city and recently adopted a General Plan, it defers to Riverside County's Zoning Code.
2. This portion of Segment 1 of the Proposed Project is located within the City of Murrieta's SOI. Although Riverside County is responsible for administration of land use decisions within the SOI (see page 3-2 of the City of Murrieta's General Plan Land Use Element), it still is considered part of the City of Murrieta's "Planning Area," and thus is acknowledged accordingly.
3. This portion of Segment 1 of the Proposed Project is located within the City of Temecula's SOI. Although Riverside County is responsible for administration of land use decisions within the SOI (see page LU-38 of the City of Temecula's General Plan Land Use Element), it still is considered part of the City of Temecula's "Planning Area," and thus is acknowledged accordingly. According to the City of Temecula's General Plan Land Use Element, the City of Temecula must be consulted regarding any proposed development projects within their SOI.
4. Although this portion of Segment 1 of the Proposed Project is located within the jurisdiction of BNSF where it crosses a BNSF railroad, BNSF does not designate land use or zoning designations. These designations are designated and regulated by the applicable city and/or county.
5. Although SR-79 is within the jurisdiction of the California Department of Transportation (Caltrans), Caltrans does not designate land use or zoning designations. These designations are assigned by the applicable city and/or county.
6. This portion of Segment 2 of the Proposed Project is located within the City of Temecula's SOI. Although Riverside County is responsible for administration of land use decisions within the SOI (see page LU-38 of the City of Temecula's General Plan Land Use Element), it still is considered part of the City of Temecula's "Planning Area," and thus is acknowledged accordingly. According to the City of Temecula's General Plan Land Use Element, the City of Temecula must be consulted regarding any proposed development projects within their SOI.
7. The City of Perris (including Material Staging Yard 3) is located within Riverside County's Mead Valley Area Plan. However, the City has jurisdiction because it is incorporated and has an adopted General Plan and Zoning Code. Thus, there are no Area Plan Land Use designations where Mead Valley Area Plan overlaps with the City of Perris because the City has jurisdiction and its planning designations and zoning therefore apply. The Mead Valley Area Plan policies would also not apply because Riverside County does not have jurisdiction.
8. This information was taken from Section 4.10, Land Use and Planning, of the Valley South 115 kV Subtransmission Project PEA. Refer to Section 4.10-1, Land Use and Planning, for the list of references.

7. Z oning

A summary of the planned zoning designations of the Proposed Project is provided above in Table A-1 Planned Land Use Designations and Zoning by Proposed Project Component.

8. Project Description

The Proposed Project includes the following elements:

- Modification of SCE's existing Valley 500/115 kV Substation would include equipping an existing 115 kV line position and providing protection equipment as required
- Construction of a new 115 kV subtransmission line originating at SCE's existing Valley 500/115 kV Substation and connecting at a TSP, which is located at the southeast corner of Leon Road and Benton Road. The TSP is the common point of the three-terminal existing Valley-Auld-Triton 115 kV Subtransmission Line. The new construction and associated reconfiguration would result in the formation of the Valley-Auld No. 2 and Valley-Triton 115 kV Subtransmission Lines. The new 115 kV subtransmission line would be approximately 12 miles in length and is referred to as Segment 1 of the Proposed Project
- Replacement of a segment of overhead conductor of the existing Valley-Auld-Triton 115 kV Subtransmission Line beginning at the TSP located at the southeast corner of Benton

Road and Leon Road continuing south to the Terminal TSP located on the south side of Nicolas Road, approximately 250 feet west of Los Chorus Ranch Road in the City of Temecula. This reconductor segment is approximately 3.4 miles in length and is referred to as Segment 2 for the Proposed Project

- Relocation of existing distribution and telecommunication lines would be required to support the installation of Segments 1 and 2 for the new 115 kV subtransmission line
- Installation of telecommunication equipment at Triton and Valley Substations would support Segments 1 and 2 for the new 115 kV subtransmission line

9. Surrounding Land Uses and Setting

The Proposed Project would run adjacent to existing roadways, mostly located within existing and newly acquired easements and franchise rights. Several land uses on and immediately adjacent to the Proposed Project include electrical infrastructure (e.g., power poles), vacant land, agriculture, drainage basin, residential, schools, daycares, religious facilities, open space, recreation, public utilities, railroad, and commercial/retail.

Numerous 115 kV subtransmission lines are present within and surrounding the Proposed Project area. These 115 kV subtransmission lines supply power from Valley 500/115 kV Substation to distribution substations throughout the Proposed Project area. Along with 500 kV transmission line structures to the south, east, and northeast of Valley 500/115 kV Substation and communication tower structures, 115 kV subtransmission line structures define the region's visual character. The Proposed Project would follow portions of existing SCE facilities.

ENVIRONMENTAL RESOURCES POTENTIALLY AFFECTED

The environmental factors checked below would be potentially affected by the Proposed Project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

☒ Aesthetics	☐ Agriculture and Forestry Resources	☐ Air Quality
☐ Biological Resources	☐ Cultural Resources	☐ Geology/Soils
☐ Greenhouse Gas Emissions	☐ Hazards & Hazardous Materials	☐ Hydrology/Water Quality
☐ Land Use/Planning	☐ Mineral Resources	☐ Noise
☐ Population/Housing	☐ Public Services	☐ Recreation
☐ Transportation/Traffic	☐ Utilities/Service Systems	☒ Mandatory Findings of Significance

DETERMINATION (To be completed by the Lead Agency)

On the basis of this initial evaluation:

☐ I find that the proposed project Could Not have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☐ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier ENVIRONMENTAL IMPACT REPORT or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier ENVIRONMENTAL IMPACT REPORT or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Signature	Date
Title	Agency

EVALUATION OF ENVIRONMENTAL IMPACTS

1) A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).

2) All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.

3) Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.

4) "Negative Declaration: Less Than Significant With Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from earlier analyses may be cross-referenced as discussed below).

5) Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an affect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063 (c)(3)(D). In this case, a brief discussion should identify the following:

   a) Earlier Analysis Used. Identify and state where they are available for review.

   b) Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.

   c) Mitigation Measures. For effects that are "Less than Significant with Mitigation Measures Incorporated," describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.

6) Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a

previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.

7) Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.

8) This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.

9) The explanation of each issue should identify:

   a) the significance criteria or threshold, if any, used to evaluate each question; and

   b) the mitigation measure identified, if any, to reduce the impact to less than significance

CEQA ENVIRONMENTAL CHECKLIST

Please note: explanatory text that accompanies these checkbox findings is provided at the end of this table.

Issues:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
I. AESTHETICS: Would the project:				
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☒
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	☒	☐	☐	☐
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☒	☐
II. AGRICULTURE AND FORESTRY RESOURCES: In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☒	☐
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☒	☐
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to nonagricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

Issues:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
III. AIR QUALITY: Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project**:**				
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☐	☒
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☐	☒	☐
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☐	☐	☒	☐
d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
e) Create objectionable odors affecting a substantial number of people?	☐	☐	☒	☐
IV. BIOLOGICAL RESOURCES: Would the project**:**				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☒	☐
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☒	☐
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☒	☐	☐
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

Issues:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
V. CULTURAL RESOURCES: Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in § 15064.5?	☐	☐	☐	☒
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☐	☐	☒
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☒	☐	☐
d) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☐	☒	☐
VI. GEOLOGY AND SOILS: Would the project:				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☒	☐
ii) Strong seismic ground shaking?	☐	☐	☒	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv) Landslides?	☐	☐	☒	☐
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☒	☐
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☐	☐	☒	☐
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☒
VII. GREENHOUSE GAS EMISSIONS: Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

Issues:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
VIII. HAZARDS AND HAZARDOUS MATERIALS: Would the project**:**				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☒	☐
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☒	☐
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☒	☐
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☒	☐
IX. HYDROLOGY AND WATER QUALITY: Would the project**:**				
a) Violate any water quality standards or waste discharge requirements?	☐	☐	☒	☐
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☒	☐
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in a substantial erosion or siltation on- or off-site?	☐	☐	☒	☐

Issues:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	☐	☐	☒	☐
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☒	☐
f) Otherwise substantially degrade water quality?	☐	☐	☒	☐
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☐	☒
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	☐	☐	☒	☐
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☒	☐
j) Inundation by seiche, tsunami, or mudflow?	☐	☐	☒	☐
X. LAND USE AND PLANNING: Would the project:				
a) Physically divide an established community?	☐	☐	☐	☒
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☒
XI. MINERAL RESOURCES: Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☒
XII. NOISE: Would the project result in:				
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☒	☐
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐

Issues:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒
XIII. POPULATION AND HOUSING: Would the project:				
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	☒
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
XIV. PUBLIC SERVICES: Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
a) Fire Protection?	☐	☐	☒	☐
b) Police Protection?	☐	☐	☒	☐
c) Schools?	☐	☐	☒	☐
d) Parks?	☐	☐	☒	☐
e) Other Public Facilities?	☐	☐	☐	☒
XV. RECREATION:				
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☒	☐
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☐	☒
XVI. TRANSPORTATION/TRAFFIC: Would the project:				
a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the	☐	☒	☐	☐

Issues:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including by not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?				
b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	☐	☐	☒	☐
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☒	☐
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g. farm equipment)?	☐	☒	☐	☐
e) Result in inadequate emergency access?	☐	☐	☒	☐
f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	☐	☒	☐	☐
XVII. <u>UTILITIES AND SERVICE SYSTEMS</u>: Would the project**:**				
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☐	☒
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
c) Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☒	☐
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☒	☐
e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	☒
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☒	☐
g) Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☒	☐

Issues:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
XVIII. MANDATORY FINDINGS OF SIGNIFICANCE:				
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☒	☐	☐	☐
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☐	☒

Sources and Explanation of Answers

This section contains a brief explanation for answers provided in the CEQA environmental checklist form.

Aesthetics

As discussed in Section 4.1, Aesthetics, construction of the Proposed Project would have a less than significant impact on scenic vistas or scenic resources of a state scenic highway. In addition, construction of the Proposed Project would not create a new source of substantial light or glare that would adversely affect day or nighttime views in the Proposed Project area. While construction of the Proposed Project could degrade the existing visual character and quality of the Proposed Project area due to the visibility of construction-related heavy equipment from roadways, nearby residences and recreational facilities, and businesses, construction activities are expected only to last approximately 16 months, and any construction impacts to visual character and quality of the Proposed Project area would be temporary; impacts would thus be less than significant.

Operations and Maintenance (O&M) of the Proposed Project would have no impact on scenic vistas or scenic resources of a state scenic highway. In addition, O&M of the Proposed Project would not create a new source of substantial light or glare that would adversely affect day or nighttime views in the Proposed Project area. However, as discussed in Section 4.1, there is one location along Segment 1 of the Proposed Project where O&M of the Proposed Project would substantially change and degrade the visual character and quality the view. Specifically, at a neighborhood trail in unincorporated Riverside County along Leon Road at Lantana Way,

looking north (Key Observation Point [KOP] 8), the Proposed Project would result in a substantial change to views from a neighborhood trail and residences along Leon Road from this location as it would install new wood poles where no above ground electrical poles currently exist. The new wood poles would be taller than street lamps and trees and would dominate the center portion of the view. Given the height and scale of the new wood poles, the new wood poles would be noticeable to trail users, residents, and motorists, and would obstruct the views of the open sky and Double Butte Mountain to the north from the neighborhood trail (on which the KOP is located) and from nearby residences. Overall, impacts from O&M of the Proposed Project to visual quality and character are less than significant. However, impacts associated with KOP 8 are considered significant and unavoidable, and no feasible avoidance or minimization measures are available to reduce this finding to a less than significant level.

Agriculture and Forestry Resources

The Proposed Project would cross lands designated as Prime Farmland, Unique Farmland, Farmland of Statewide Importance, and Farmland of Local Importance (collectively referred to hereafter as "Farmland"). Construction of the Proposed Project would cause temporary disturbance to Farmland, resulting from site preparation associated with construction activities. After the completion of construction, temporarily disturbed areas would be restored and returned to agricultural use. No forest land, timberland, or timberland zoned Timberland Production is located within or along the Proposed Project.

O&M of the Proposed Project would permanently convert 11.9 acres of Farmland to nonagricultural use because of the installation of anchors, the use and maintenance of a permanent unpaved access road, access to pole site locations, and installation of subtransmission structures. The conversion of 11.9 acres of lands identified as Farmland would represent a loss of 0.0027 percent of the approximately 433,859 acres of Farmland identified in Riverside County. The impact from converting such a small percentage of the Farmland identified in Riverside County to non-agricultural use would be less than significant.

In addition, as described in Section 4.2, Agriculture and Forestry Resources, the Proposed Project would cross three Agricultural Preserve parcels that carry active Williamson Act – Prime Agricultural Land status, known as Sites 1, 2 and 3. The permanent disturbance from installing new structures within Site 1 and Site 2 would be approximately 0.74 of an acre, or approximately 0.5 percent of the total area of both parcels. The reconductoring of approximately 12 existing light weight steel (LWS) poles within Site 3 would not result in any permanent disturbance within this parcel. Because the Proposed Project would convert such a small percentage of Williamson Act land to non-agricultural use, and would not impair continuing agricultural activities within each parcel, impacts would be less than significant. Furthermore, electrical transmission facilities are recognized as a compatible use within any agricultural preserve according to California Government Code 51238(a)(1).

Air Quality

As presented in Section 4.3, Air Quality, criteria pollutant emissions generated during construction of the Proposed Project have the potential to exceed the South Coast Air Quality

Management District's (SCAQMD's) regional mass-based daily thresholds for nitrogen oxides (NO_X) and particulate matter smaller than 10 microns (PM_{10}). With implementation of Applicant Proposed Measures (APM) AIR-1, APM AIR-2 and APM AIR-3, emissions of NO_X and PM_{10} would be reduced below a level of significance. The SCAQMD established the regional mass-based daily thresholds in consideration of cumulative air pollution in the South Coast Air Basin. Thus, projects that do not exceed these thresholds do not significantly contribute to cumulative air quality impacts. The Proposed Project and other projects listed in Table 4.18-1 Cumulative Projects within 1 Mile of the Proposed Project may contribute to adverse air quality; however, the Proposed Project is located in an area designated as nonattainment for ozone and particulate matter and therefore existing air quality conditions are already considered adverse and significant. Since the Proposed Project would not exceed the established thresholds with implementation of APM AIR-1, APM AIR-2, and APM AIR-3, it is anticipated that the Proposed Project will not contribute to a cumulatively considerable net increase of any criteria pollutants for which the Proposed Project region is nonattainment and would not result in cumulatively considerable air quality impacts.

Emissions generated during O&M of the Proposed Project would be limited to those produced from biennial aerial inspections and annual maintenance trips to the Proposed Project area. As presented in Section 4.3, Air Quality, the impact on air quality resulting from O&M of the Proposed Project would be less than significant. Therefore, infrequent and intermittent inspections and maintenance trips associated with O&M of the Proposed Project would not contribute to a cumulatively considerable impact related to air quality.

Biological Resources

As discussed in Section 4.4, Biological Resources, potential direct and indirect impacts of the Proposed Project would predominantly be associated with construction activities, such as road grading and construction, pole site preparation and line stringing activities, vegetation removal to facilitate line/pole placement, and movement of equipment and project materials. These activities have the potential to result in significant impacts to biological resources. However, the Proposed Project occurs entirely within the coverage area of the Western Riverside Multi-Species Habitat Conservation Plan (WRCMSHCP). In addition, the Proposed Project occurs within the Stephens' Kangaroo Rat Habitat Conservation Plan (SKRHCP) area, as noted in Section 4.4, Biological Resources.

Each of these resource management plans provide specific requirements for projects that occur within their planning area. SCE will specifically comply with all regulations and policies outlined in the WRCMSHCP and SKRHCP. In addition to the compliance with these resources management plans requirements, SCE will also implement APMs, which would further avoid and reduce potential impacts to a level below significance.

Cultural Resources

As discussed in Section 4.5, Cultural Resources, SCE has designed the Proposed Project to avoid impacts on all known cultural resources. As such, while other planned projects that may impact

cultural resources are known in the region, the Proposed Project would not contribute to a cumulatively considerable impact.

Portions of Segment 1 of the Proposed Project are within geologic units of "High B" potential and portions of Segment 2 of the Proposed Project are within geologic units with a "High A" sensitivity rating, as determined by the Riverside County General Plan's Paleontological Resources Sensitive Map. All associated material staging yards and access roads to these yards lie within units of "High B" sensitivity (approximately 11 acres), and any earthmoving of undisturbed sediments within these material staging yards would have the potential for direct impacts on paleontological resources during construction. Since geologic units of "High A" and/or "High B" potential are areas that could contain paleontological resources, construction of the Proposed Project could have the potential to directly impact paleontological resources. However, with implementation of APM CUL-1, potential impacts to paleontological resources would be reduced to a less than significant level.

O&M activities associated with the Proposed Project are not expected to result in impacts to cultural or paleontological resources. Although it is possible that additional fossils would erode onto the surface over time during the lifetime of the Proposed Project, they are not expected to erode out of the relatively flat-lying, populated areas, and would, therefore, be protected by virtue of the fact that they would be difficult to locate for the purpose of vandalism or unauthorized collection.

Geology and Soils

Geology and soils impacts are generally localized and site specific. The impacts to geology and soils associated with the Proposed Project would be site specific and would consist of the potential for erosion due to soil disturbance and alteration of natural drainages during construction activities. Portions of the Proposed Project travel through or near potentially active faults, but no defined active faults cross beneath the Proposed Project, and therefore the potential for ground rupture hazard is considered very low. The relatively flat topography along the majority of the Proposed 115 kV subtransmission line indicates little to no potential for landslides to occur. Although liquefaction potential is moderate to high near Salt Creek and the Terminal Tubular Steel Pole, based on existing conditions and location, construction activities associated with the Proposed Project are not anticipated to encounter unstable soil or geologic units, cause landslides, or create unstable conditions.

By implementing standard practices, and conducting a geotechnical investigation, information would be available to provide design criteria to mitigate potential effects of construction of the Proposed Project. If unstable soil conditions are identified during the geotechnical evaluation, SCE would design relevant project components to address these conditions. Therefore, with appropriate project design and compliance with current building codes and regulations, potential construction and O&M impacts related to geology and soils would be less than significant.

Greenhouse Gas Emissions

Construction and O&M of the Proposed Project would not result in significant impacts from greenhouse gas (GHG) emissions. As discussed in Section 4.7, Greenhouse Gas Emissions, the total amortized construction emissions and annual operational GHG emissions associated with the Proposed Project would be 68 metric tons of carbon dioxide-equivalent per year. This estimate is less than one percent of the 10,000 metric ton per year threshold that has been adopted by the SCAQMD and only about 1 percent of the California Air Resources Board's (CARB's) 7,000 metric tons per year draft threshold.

Hazards and Hazardous Materials

Construction and O&M of the Proposed Project would not result in significant impacts associated with hazards and hazardous materials. The Proposed Project would require the use of hazardous materials, such as fuels, lubricants, and solvents, during construction and O&M. The transport, use, and disposal of hazardous materials during construction and O&M would be conducted in accordance with applicable regulatory requirements. Site-specific best management practices (BMP), as part of the SWPPP(s), and implementation of the Worker Environmental Awareness Plan (WEAP) would reduce potential impacts from hazardous material incidents to a less than significant level.

Hydrology and Water Quality

Hydrology and water quality impacts generally are site specific because each project site has a different set of physical considerations. As described in Section 4.9, Hydrology and Water Quality, construction of the Proposed Project would result in temporary ground disturbance that could cause a temporary degradation of water quality. The Proposed Project would have a less than significant impact on increasing stormwater runoff or erosion, depleting groundwater supplies or interfering with groundwater recharge, putting a greater number of people and structures within areas at risk of dam or levee inundation, or resulting in degraded water quality. Implementation of SWPPP(s) and associated BMPs and the WEAP would minimize impacts on water quality from erosion, accidental spills, and other potential water quality impacts during construction.

O&M of the Proposed Project would result in an increase in the total impermeable surfaces within the Proposed Project area; however, this increase would represent an insignificant portion of the entire right of way and would not substantially interfere with groundwater recharge. The increase in net impervious surface would, therefore, not substantially interfere with groundwater recharge to the extent that a net deficit in aquifer volume or a lowering of the local ground water table would occur.

Land Use and Planning

Construction and O&M of the Proposed Project would not create new physical barriers or physically divide an established community, or conflict with applicable plans, policies, or

regulations of an agency with jurisdiction over the Proposed Project. No land use impacts would occur.

Mineral Resources

As discussed in Section 4.11, Mineral Resources, there no locally important mineral resource recovery sites are delineated in any local general plan, specific plan, or other land use plan governing the Proposed Project area. The majority of Segment 1 of the Proposed Project is located within the SMGB MRZ-4 classification zone. This designation is assigned to areas where insufficient information is available regarding the presence or absence of mineral deposits. Segment 2 of the Proposed Project is within the SMGB MRZ-3a classification zone. This designation is assigned to areas where there is the potential for unknown mineral resources. However, potential impacts associated with temporary construction activities for the Proposed Project would affect a very small area in a narrow strip along the Proposed Project. No active mining locations are in the vicinity of the Proposed Project, and no mining of metallic or non-metallic deposits are within 1,000 feet on either side of the Proposed Project. Construction activities associated with the Proposed Project would not result in the loss of known mineral resources, nor would it result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan. Therefore, no impact would occur.

O&M of the Proposed Project would include routine inspection and maintenance of the Proposed 115 kV subtransmission line. No active mining locations are in the vicinity of the Proposed Project, and no mining of metallic or non-metallic deposits are within 1,000 feet on either side of the Proposed Project. Therefore, O&M of the Proposed Project would not result in the loss of known mineral resources, nor would it result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan. No impact would occur.

Noise

As discussed in Section 4.12, Noise, construction and O&M of the Proposed Project would not result in significant impacts related to noise. Other projects considered in the cumulative analysis, listed in Table 4.18-1 Cumulative Projects within 1 Mile of the Proposed Project, may generate noise during construction; however, the noise generated by the Proposed Project would occur intermittently over 16 months and typically would not exceed 10 days at any given location. Therefore, construction of the Proposed Project would not contribute to a cumulatively considerable impact related to noise.

Operation of the cumulative projects may result in an increase in ambient noise levels resulting from increased traffic levels. However, the noise resulting from O&M of the Proposed Project would be less than significant and would be generated by routine, short-term inspection and maintenance of its facilities. Therefore, O&M of the Proposed Project would not contribute to a cumulatively considerable impact related to noise.

Population and Housing

Construction and O&M of the Proposed Project would have no impact on population and housing. The Proposed Project would not include building new homes or businesses, or any increase in infrastructure in a manner that would lead to substantial population growth in the area. As described in Section 4.13, Population and Housing, construction workers would be drawn from the local labor pool. The Proposed Project may require temporary accommodations for construction workers during construction, and this need is anticipated to be met by hotels and motels in the vicinity of the Proposed Project. The Proposed Project would be unattended and remotely operated, requiring only occasional visits for routine maintenance and emergency repair. No new housing would need to be constructed for temporary construction workers or for personnel during Proposed Project O&M.

Public Services

Construction of the Proposed Project would be temporary and short term in nature and would not affect the provision of existing emergency services or require the provision of public services beyond existing capabilities.

O&M of the Proposed Project would not directly induce growth or create a need for the expansion or construction of new fire and police protection, schools, libraries, hospitals, or other public facilities.

Recreation

Construction and O&M of the Proposed Project would not include recreational facilities or require the construction or expansion of recreational facilities. However, during construction and O&M, the Proposed Project would result in a minor increase in use of existing parks and recreation facilities by construction personnel within the Proposed Project area. Existing parks and recreation facilities within the Proposed Project area have sufficient capacity to accommodate this potential minor increase in use. Therefore, no physical deterioration of recreational amenities would result, and the impact would be a less than significant.

During construction, the Proposed Project could result in temporary interruption in the flow of traffic where the alignment would cross over existing trails, Class I Bike Paths and Class II Bike Lanes, and pedestrian sidewalks during construction installation. Because construction work would be of limited duration, effects on trails would be temporary and would not cause substantial deterioration. SCE would implement Applicant Proposed Measure TRA-1 to reduce potential impacts related to Class I Bike Paths, Class II Bike Lanes, pedestrian sidewalks, and trails; therefore, the impacts would be less than significant.

O&M of the Proposed Project would not block or hinder the flow of traffic along existing trails. Subtransmission lines are generally compatible with trails because the components would be located at an elevated height that does not interfere with ground activities such as trail use. Where the Proposed Project would cross over the top of trails, bike paths and lanes, pedestrians and bicyclists would be able to pass between the poles and underneath the circuits. No physical

barriers would prevent access and movement along these trails, bike paths, and lanes. Thus, the impact to these recreational amenities would be less than significant.

Transportation and Traffic

The addition of Proposed Project traffic may have a significant impact on local streets, highways (SR-74 and SR-79), Class I Bike Paths, Class II Bike Lanes, pedestrian sidewalks, and trails. SCE would implement APM TRA-1 and APM TRA-2 to reduce potential impacts due to construction traffic and disruption. The cumulative projects listed in Table 4.18-1 Cumulative Projects within 1 Mile of the Proposed Project, could generate traffic during construction similar to the Proposed Project (such as road or lane closures); however, construction traffic would occur for a short period of time. Therefore, construction of the Proposed Project would not contribute to a cumulatively considerable impact related to transportation and traffic.

Operation of the cumulative projects may result in an increase in traffic from their development. However, traffic associated with the Proposed Project for O&M activities would generate negligible vehicle trips and would be less than significant. Therefore, O&M of the Proposed Project would not contribute to a cumulatively considerable impact related to transportation and traffic.

Utilities and Service Systems

Construction of the Proposed Project would not require the construction or expansion of existing utilities and service systems; impacts on utilities and service systems would be less than significant. O&M of the Proposed Project would not directly induce growth or create a need for the expansion or construction of new wastewater treatment, stormwater drainage, sanitary landfill, or other utility and service systems facilities.

Mandatory Findings of Significance

As presented in Chapter 4, Environmental Impact Assessment, construction and O&M of the Proposed Project would not degrade the quality of the environment. The impacts on biological resources are discussed in Section 4.4.5, Biological Resources Impact Analysis. Construction and O&M of the Proposed Project would not require substantial clearing of vegetation or impacts on wildlife habitat. Any placement of fill in waterways would comply with federal and state wetlands and waterways regulations, and no discharges of domestic or industrial effluent would occur that could threaten the survival of a species. In addition, the Proposed Project would not involve construction of a highway, levee, or other major infrastructure that could restrict the range of a species. Therefore, the Proposed Project would not substantially reduce the habitat of a fish or wildlife species, would not cause a fish or wildlife population to drop below self-sustaining levels, would not threaten to eliminate a plant or animal community, and would not reduce the number or restrict the range of a rare or endangered plant or animal. The impacts on cultural resources resulting from construction and O&M of the Proposed Project are discussed in Section 4.5.5, Cultural Resources Impact Analysis. Construction of the Proposed Project may affect paleontological resources, but the construction activities would not eliminate important examples of any major periods of California history or prehistory. No impact would occur.

As discussed in Section 4.18, Cumulative Analysis, the Proposed Project could have cumulatively considerable agricultural impacts. As described in Section 4.2, Agriculture and Forestry Resources, the Proposed Project would convert 11.9 acres of Farmland to nonagricultural use because of the installation of anchors, the use and maintenance of a permanent unpaved access road, access to pole site locations, and installation of subtransmission structures. The conversion of Farmland would represent a loss of 0.0027 percent of the approximately 433,859 acres of Farmland identified in Riverside County, and the impact would be less than significant. The Proposed Project would cross three Agricultural Preserve parcels that carry active Williamson Act – Prime Agricultural Land status, known as Sites 1, 2 and 3. The permanent disturbance from installing new structures within Sites 1 and 2 would be approximately 0.74 of an acre, or approximately 0.5 percent of the total area of both parcels. The reconductoring of approximately 12 existing light weight steel poles within Site 3 would not result in any permanent disturbance within this parcel. Because the Proposed Project would convert such a small percentage of Williamson Act land to non-agricultural use, and would not impair continuing agricultural activities within each parcel, impacts would be less than significant. Based on a review of the California Department of Conservation FMMP in conjunction with Figure 4.18-1, Planned and Proposed Projects, several large projects would be located in Farmland and would, therefore, have the potential to convert Farmland to non-agricultural use. Although the Proposed Project itself would not create a significant impact to agricultural resources, when viewed in combination with other regional projects, it may potentially create a cumulatively considerable impact. There is no feasible mitigation to reduce cumulative impacts to Farmland. Therefore, the cumulative agricultural impacts from O&M of the Proposed Project and other projects have the potential to contribute to a cumulatively considerable agricultural impact.

In addition, as discussed in Section 4.18, Cumulative Analysis, the Proposed Project could have cumulatively considerable aesthetics impacts. There is one location along Segment 1 of the Proposed Project where O&M of the Proposed Project would substantially change and degrade the visual character and quality the view. Specifically, at a neighborhood trail in unincorporated Riverside County along Leon Road at Lantana Way, looking north (Key Observation Point [KOP] 8), the Proposed Project would result in a substantial change to views from a neighborhood trail and residences along Leon Road from this location as it would install new wood poles where no above ground electrical poles currently exist. The new wood poles would be taller than street lamps and trees and would dominate the center portion of the view. Given the height and scale of the new wood poles, the new wood poles would be noticeable to trail users, residents, and motorists, and would obstruct the views of the open sky and Double Butte Mountain to the north from the neighborhood trail (on which the KOP is located) and from nearby residences. Overall, impacts from O&M of the Proposed Project to visual quality and character are less than significant. However, impacts associated with KOP 8 are considered significant and unavoidable, and no feasible avoidance or minimization measures are available to reduce this finding to a less than significant level. Therefore, O&M of the Proposed Project would contribute to a cumulatively considerable impact related to aesthetics.

Construction and O&M of the Proposed Project would not cause substantial adverse effects on human beings. The Proposed Project would serve projected demands for electricity. Access to a

reliable source of electricity would directly enhance the lives of human beings by supporting the wide range of individual lifestyles that depend on the predictability of electrical service, and indirectly, by providing the region with reliable electrical service to allow local decision makers flexibility as to what types of development could occur in the region. No impact would occur.

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Thomas Diaz, Project Manager-Regulatory Policy & Affairs, B.S., Electrical & Electronic Engineering, California State Polytechnic University, Pomona, and JD, University of La Verne, College of Law; 28 years utility experience in engineering and regulatory policy

Victorio R. Florendo, Substation Engineering and Design, B.S., Electrical Engineering; licensed Professional Electrical Engineer, with over 45 years of experience in the design, construction and operation of utility substation facilities in the U.S., Middle East, and Asia

Warnetta Logan, Project Manager, Major Projects Organization, M.P.O., B.S., Civil Engineering, Loyola Marymount University

AECOM

Alia Hokuki, Senior Environmental Planner, AICP, B.A., Development Studies, University of California, Los Angeles, and Master of Urban and Regional Planning (M.U.R.P.), University of California, Irvine (Provided QA/QC of PEA Section 4.1, Aesthetics, Section 4.2, Agriculture and Forestry Resources, Section 4.10, Land Use and Planning, Section 4.13, Population and Housing, Section 4.14, Public Services, Section 4.15, Recreation, Section 4.17, Utilities and Service Systems, and Section 4.19, Growth-Inducing Impacts)

Andrew Fisher, Wildlife Biologist, B.S., Wildlife, Fish and Conservation Biology, University of California, Davis (Conducted vernal pool fairy shrimp surveys and listed-species habitat assessments for PEA Biological Resources Assessment)

Anne McDonnell, Senior Technical Editor, B.S., Communications, Northwestern University (Provided technical editing of the PEA)

Anne Pietro, Senior Project Manager, B.A., Sociology, University of Colorado, and M.S., Landscape Architecture, California State Polytechnic University, Pomona (Provided QA/QC of PEA Section 4.1, Aesthetics)

Barbra Calantas, Senior Wildlife Biologist, B.S., Biology, University of San Diego (Primary author of PEA Biological Resources Assessment Addendum; and prepared PEA Section 4.4, Biological Resources)

Beth Duffey, Technical Editor, B.A., Monmouth College, Illinois (Provided technical editing of PEA)

Brennan Mulrooney, Wildlife Biologist, B.S., Wildlife and Fisheries Biology, University of California, Davis (Prepared Least Bell's Vireo/Southwestern Willow Flycatcher 45-day Report for PEA Biological Resources Assessment)

Brent Miyazaki, Senior Project Manager, PG, CHG, B.S., Geology, California State University, Northridge, and M.S., Geology, University of California, Davis (Provided QA/QC of PEA Chapter 4 Sections; and contributed to PEA Section 4.6, Geology and Soils, 4.8, Hazards and Hazardous Materials, 4.9, Hydrology and Water Quality, and Chapter 5, Significant Impacts)

Brock Treece, Staff Scientist, B.A., Philosophy, Hillsdale College, and M.E.S.M., University of California, Santa Barbara (Prepared PEA Section 4.8, Hazards and Hazardous Materials; and contributed to PEA Section 4.9, Hydrology and Water Quality, and Section 4.14, Public Services)

Brynne Mulrooney, Biologist, B.S., Wildlife Ecology and Conservation, University of Florida (Contributed to PEA Biological Resources Assessment)

Carmen Caceres-Schnell, P.G., Senior Geologist, B.S., Geology, California State University, Northridge, and M.S., Geology, California State University, Northridge (Technical Lead for PEA Section 4.6, Geology and Soils and provided QA/QC)

Carol Shariat, T.E., Project Manager, B.S., Civil Engineering, University of California, Berkeley (Prepared PEA Section 4.16, Transportation and Traffic)

Charisse Case, Document Specialist, Graphics Communication Certificate, Sacramento City College; and Business Office Administration Certificate, Sierra College (Provided word processing of the PEA)

Christy Dolan, Senior Archaeologist, B.A., Anthropology and History, University of New Hampshire, and M.A., Anthropology (concentration Historical Archaeology), College of William and Mary (Provided QA/QC of PEA Section 4.5, Cultural Resources)

Dan Brady, Senior Graphic Artist, B.A., Fine Art, San Diego State University, and Graphic Design/Multimedia Design, Platt College, San Diego (Created graphics for PEA Biological Resources Assessment figures)

David Reel, Project Manager, B.S. Architecture, University of Wisconsin Milwaukee; and M.Arch., Architecture, and M.U.P., Urban Planning (Provided QA/QC of PEA Chapter 4 Sections)

Elliott Schwimmer, Environmental Planner/GIS Analyst, B.S., Conservation and Resource Studies, University of California, Berkeley (Prepared PEA Figures)

Erin Riley, Senior Biologist, B.S., Biology, University of Maryland, College Park (Provided QA/QC of PEA Section 4.4, Biological Resources, and PEA Biological Resources Assessment)

Hallie Fitzpatrick, Environmental Planner/Environmental Scientist III, AICP, B.A., Environmental Analysis and Design, B.A., European Studies (Modern Europe Emphasis), University of California, Irvine, and M.A., English, Chapman University (Prepared PEA Section 4.1, Aesthetics, Section 4.10, Land Use and Planning Section, and Section 4.15, Recreation; provided QA/QC of PEA; and acted as a Deputy Project Manager for the PEA)

Issa Mohammad Mahmodi, Scientist (Contributed to PEA Section 4.12, Noise)

Jane Chang, Environmental Analyst, B.A., Environmental Analysis & Design, University of California, Irvine, Masters, Urban and Regional Planning, University of California, Irvine (Contributed to PEA Section 4.13, Population and Housing, and Section 4.17, Utilities and Service Systems)

James McAninch, GIS/CADD Specialist (Prepared KOP Google Earth Exhibit and took photos for PEA Visual Simulations)

James Wallace, GIS Specialist II, M.A., Anthropology, California State University, Fullerton (Provided GIS support for PEA Section 4.4, Biological Resources Figures, and PEA Biological Resources Assessment Figures)

Jason Mirise, Senior Acoustician, B.S., Electrical Engineering, Loyola Marymount University, Los Angeles, CA; and M.Eng., Acoustics, The Pennsylvania State University, University Park, PA (Contributed to PEA Section 4.12, Noise)

Jason Paukovits, Air Quality Specialist, B.A., Psychology, B.S., Environmental Resource Management, Pennsylvania State University, and Master of Environmental Management and Master of Public Policy, Duke University (Contributed to PEA Section 4.3, Air Quality and PEA Section 4.7, Greenhouse Gas Emissions)

Jeff Goodson, Senior Air Quality and Noise Specialist, B.S., Civil Engineering, Clemson University, and B.S., Geology, College of Charleston (Prepared PEA Section 4.12, Noise)

Jeremy Siew, Visualization Specialist II, B.Arch and B.F.A., Rhode Island School of Design, Providence, RI (Prepared PEA Visual Simulations and contributed to Chapter 3 Figures)

Jerry Flores, Senior Project Manager, B.S., Urban and Regional Planning, California State Polytechnic University, Pomona (Provided QA/QC of PEA Section 4.2, Agriculture and Forestry Resources)

Juliana Lehnen, Environmental Planner, B.S., Environmental Management and Protection, California Polytechnic State University, San Luis Obispo (Prepared GIS mapping for PEA Biological Resources Assessment)

Julie Nichols, Technical Editor, B.A., Political Science (with honors), Occidental College, Los Angeles, and M.S., Journalism, Northwestern University, Evanston, IL (Provided technical editing of PEA Confidential Paleontological Survey Report)

Justin Sorensen, GIS Specialist, A.A., Geographic Information Systems, Mt. San Jacinto College, and B.A., Anthropology, San Diego State University (Provided GIS support for PEA Section 4.4, Biological Resources figures)

Kara Baker, Water Resources Planner, B.A., Environmental Sciences and Political Science, Northwestern University, and M.S., Environmental Engineering, Stanford University (Prepared PEA Section 4.9, Hydrology and Water Quality)

Katherine Probert, Technical Editor, B.A., Fine Arts & French, Whitworth College (Provided technical editing of PEA Chapter 4 Sections)

Keoni Calantas, Biologist, B.A., Biology, University of San Diego (Provided GIS support for PEA Section 4.4, Biological Resources figures and PEA Biological Resources Assessment figures)

Kimberly Olsen, Technical Editor, B.S., Journalism, California Polytechnic University San Luis Obispo (Provided technical editing, word processing, and QA/QC of the PEA)

Lance Woolley, Senior Biologist, M.S., Botany, Humboldt State University (Prepared vegetation and plant sections and Fairy Shrimp 90-Day Report for PEA Biological Resources Assessment)

Lanika Cervantes, Biologist II, B.S., Biology, California State University, San Marcos, and M.S., Biology, California State University, San Marcos (Prepared PEA JDR; and contributed to PEA Section 4.4, Biological Resources)

Laura Kaufman, Technical Leader, Environment, AICP, B.S., Urban Planning, Michigan State University (Provided QA/QC of PEA Section 4.10, Land Use and Planning)

Lauren Inglish, Technical Editor, B.A., University of California, Santa Barbara (Provided Technical editing of PEA Chapters)

Madonna Marcelo, Senior Project Manager, B.S., Environmental Science, University of California, Riverside (Provided QA/QC of PEA Chapter 4 Sections)

Marisa Alvaro-Fabrigas, Word Processor II, B.S., Business Management, University of Phoenix, San Diego (Provided word processing of PEA Section 4.4, Biological Resources and PEA Biological Resources Assessment)

Matt Kedziora, Ecologist, B.A., Political Science, Seton Hall University, and M.E.S., Resource Management, University of Pennsylvania (Provided field survey effort for burrowing owls for PEA Biological Resources Assessment)

Megan Keith, Urban Planner, B.S., City and Regional Planning, California Polytechnic State University, San Luis Obispo (Provided QA/QC of PEA Biological Resources Assessment)

Merrill Norrdin, CEQA Project Manager, B.S., Anthropology, University of California, Riverside (Provided QA/QC to PEA Section 4.4, Biological Resources)

Michael Amodeo, GIS Manager, PE, B.S., Civil and Environmental Engineering, Duke University (Prepared PEA Figures; and contributed to PEA Section 4.2, Agriculture and Forestry Resources and Section 4.18, Cumulative Impacts)

Michael Anguiano, Senior Biologist, B.A., Wildlife Biology, Kansas State University, and M.S., Ecology, San Diego State University (Provided survey data collection and management for the PEA Biological Resources Assessment)

Mike Arizabal, Senior Transportation Planner, B.S., Civil Engineering, University of California, Irvine (Prepared PEA Section 4.16, Transportation and Traffic)

Michael D. Smith, Senior Program Manager, B.A., Environmental Studies, University of California, Santa Cruz, M.A., Geography, University of Wyoming, and Ph.D., Sociology, Utah

State University (Contributed to and provided QA/QC review for PEA Section 4.2, Agriculture and Forestry Resources; Section 4.13, Population and Housing; and Section 4.14, Public Services)

Mike Arvidson, Project Director, B.S., Civil Engineering, University of California, Los Angeles, and M.B.A., Pepperdine University (Provided QA/QC of PEA Chapter 4 Sections)

Natalie O'Toole, Engineer I, B.E., Environment, University of Wollongong, Australia (Contributed to PEA Section 4.6, Geology and Soils, and Section 4.11, Mineral Resources)

Nathan Counts, Scientist II, B.A., History, University of California, Irvine, and M.S., Environmental Studies, California State University, Fullerton (Prepared PEA Section 4.19, Growth-Inducing Impacts; and contributed to PEA Section 4.18, Cumulative Impacts)

Pete Choi, Environmental Planner, M.E.S.M., University of California, Santa Barbara (Contributed to PEA Section 4.13, Population and Housing and Section 4.14, Public Services)

Peter Augello, GIS Specialist, B.A., Geography, Dartmouth College, and M.S., Cartography/GIS, University of Wisconsin-Madison (Contributed GPS support for field operations and helped with GIS data and maps for PEA Biological Resources Assessment)

Robin Rice, Word Processor, Course Work at San Diego State University (Provided word processing of PEA Section 4.4, Biological Resources, PEA Biological Resources Assessment, and PEA Cultural and Paleontological Technical Reports)

Roy Hauger, Program Manager, B.S., Civil Engineering, Rice University (Contributed to and provided QA/QC of PEA Section 4.9, Hydrology and Water Quality)

Sally Bilodeau, Senior Program Manager, P.G., C.E.G., C.HG., B.A., Earth Science, California State College Fullerton; and M.S., Applied Earth Science, Stanford University (Provided QA/QC of PEA Section 4.6, Geology and Soils, and Section 4.11, Mineral Resources)

Sarah Esterson, Air Quality Specialist/Deputy Project Manager, B.S., Environmental Management, Indiana University, and M.P.A., Environmental Management, Policy, and Law, University of Colorado (Prepared PEA Section 4.3, Air Quality, and Section 4.7, Greenhouse Gas Emissions; and acted as Deputy Project Manager for the PEA)

Shelly Dayman, Wildlife Biologist, B.S., Ecology, University of Calgary (Prepared Section 7 of the PEA Biological Resource Assessment; and contributed to other sections of the PEA Biological Resources Assessment)

Stacey Jordan-Connor, Principal, R.P.A., B.A., Anthropology, University of California, Berkeley; M.A, M.Phil. and Ph.D., Anthropology, Rutgers University (Provided QA/QC of PEA Section 4.5, Cultural Resources)

Stacie Wilson, Archaeologist, R.P.A., B.A., Anthropology, University of California, San Diego, and M.S., Applied Geographical Information Science, Northern Arizona University (Prepared PEA Section 4.5, Cultural Resources)

Stephanie Klock, Project Manager, B.A., Biology (Project Manager of PEA; and provided QA/QC of PEA)

Steven L. Heisler, Senior Program Manager, B.S., Chemical Engineering, California Institute of Technology, M.S. and Ph.D., Environmental Engineering Science, California Institute of Technology (Provided QA/QC of PEA Section 4.3, Air Quality, Section 4.7, Greenhouse Gas Emissions, and Section 4.12, Noise)

Susan Yogi, Project Manager and Environmental Planner, B.A., Urban Studies and Planning, University of California, San Diego (Prepared PEA Section 4.15, Recreation; and contributed to PEA Section 4.1, Aesthetics, Section 4.18, Cumulative Impacts, and Chapter 5, Significant Impacts)

Whitney Broeking, Environmental Planner, B.A., Global Studies, University of California, Santa Barbara (Prepared PEA Section 4.2, Agriculture and Forestry Resources, and Section 4.17, Utilities and Service Systems)

Logan Simpson Design Inc.

Jeremy Palmer, Landscape Designer II, A.A.S. Computer Animation, Art Institute of Phoenix, and B.S., Design Studies Management, Arizona State University (In Progress) (Prepared PEA Visual Simulations and Visual Simulation Methodology Appendix)

Mark Kieser, Landscape Designer, M.L.A., Landscape Architecture, University of Pennsylvania, M.C.P., City Planning, University of Pennsylvania, and B.S., Landscape Architecture, Arizona State University (Prepared PEA Visual Simulations)

Paleo Solutions Inc.

Geraldine L. Aron, Principal Investigator (Paleontology), B.S., Geological Sciences and M.S., Geological Sciences, California State University, Long Beach (Prepared PEA Section 4.5, Cultural Resources [Paleontological Resources section])

Jennifer C. Kelly, Assistant Project Manager, B.A., and M.S. Geological Sciences, California State University, Long Beach, (Prepared PEA Section 4.5, Cultural Resources [Paleontological Resources section])

Sarah Siren, Assistant Principal Investigator (Paleontology), B.S., Geology, George Washington University, and M.S., Paleontology, South Dakota School of Mines and Technology (Prepared PEA Section 4.5, Cultural Resources [Paleontological Resources section])

Paul C. Murphey, Principal Investigator (Paleontology), Ph.D., Geological Sciences (Paleontology emphasis), University of Colorado (Provided QA/QC of PEA Section 4.5, Cultural Resources [Paleontological Resources section])

Ricon Consultants Inc.

Amber Bruno, Consulting Biologist, B.S., Botany and Plant Science, University of California, Riverside

Sanberg Group

Bruce Eilerts, Biological Resources Manager, B.S., Zoology, College of Idaho; (Principal Author of Burrowing Owl Report for the PEA Biological Resources Assessment)

Christopher Rogers, Crustacean Taxonomist / Ecologist (Principal Author of Dry Season Fairy Shrimp Analysis Report for PEA Biological Resources Assessment)

Dale Schneeberger, Vice President Environmental Services, B.A., Biology, California State University, Long Beach, B.S., Geology, California State University, Long Beach, and M.S., Geology, California State University, Long Beach (Technical Editor of Burrowing Owl Report for the PEA Biological Resources Assessment)

David Lohr, Wildlife Biologist (Technical Editor of Burrowing Owl Report for PEA Biological Resources Assessment)

Kyle Petersen, Project Manager, B.S., Environmental Engineering, Oregon State University (Technical Editor of Burrowing Owl Report for PEA Biological Resources Assessment)

Onkar Singh, Wildlife Biologist, B.S., Biology, Fresno State University (Principal Author of Vegetation Mapping and Rare Plant Surveys for PEA Biological Resources Assessment)

Stephen Montgomery, Wildlife Biologist, B.S., Wildlife Biology, Utah State University, and M.S., Biology/Ecology, Utah State University (Principal Author of Small Mammal Habitat Assessment and Survey Report for the PEA Biological Resources Assessment)

Zachary Cava, Wildlife Biologist, B.S., Biology, Ithaca College (GIS Technician of Burrowing Owl Report for PEA Biological Resources Assessment)

TRC

Elisha Back, Principal, B.A., California State University, Fullerton (Contributed to PEA Section 4.4, Biological Resources, and PEA Biological Resources Assessment)

Ileana Bradford, GIS Specialist, M.A., Anthropology, California State University, Long Beach (Contributed to PEA Section 4.4, Biological Resources, and PEA Biological Resources Assessment)

John Lovio, Senior Biologist, M.S., Biology-Ecology, San Diego State University (Contributed to PEA Section 4.4, Biological Resources, and PEA Biological Resources Assessment)

Michael Landers, Senior Biologist, B.S., Environmental Science, Washington State University (Contributed to PEA Section 4.4, Biological Resources, and PEA Biological Resources Assessment)

Agency Consultations

Dennis Watts, City of Murrieta Planning Department (provided information regarding the City of Murrieta's cumulative projects)

Georgann Rauch, City of Temecula Records Management Division (provided information regarding the City of Temecula's cumulative projects and GIS data)

Ilene Paik, City of Perris Planning Division (provided information regarding the City of Perris' cumulative projects)

Jon Braginton, City of Menifee Planning Division (provided information regarding the City of Menifee's cumulative projects and GIS data status)

Lisa Gordon, City of Menifee Planning Division (provided information regarding the City of Menifee's cumulative projects and GIS data status)

Marc Brewer, Riverside County Parks (provided information regarding Double Butte County Regional Park)

Sandra Alarcón-Lopez, Aspen Environmental Group, consultant to California Public Utilities Commission (provided recommendations of additional and revised Key Observation Points for the PEA visual analysis)

Rob Firmes. Lieutenant, Riverside County Sheriff's Department (provided information regarding the Southwest Station and staffing)

Valley-Wide Recreation and Park District staff (clarified that the French Valley Community Center and Park is also referred to as the Rancho Bella Vista Community Center and Park and provided the location of Whispering Heights Park)

NATURAL RESOURCES ASSESSMENT, INC.

3415 Valencia Hill Drive
Riverside, California 92507

T (951) 686-1141
F (951) 686-8418
nrainc@earthlink.net

April 5, 2012

Susie Tharratt
U.S. Fish and Wildlife Service
6010 Hidden Valley Road
Carlsbad, CA 92011

Subject: Fish and Wildlife Permit TE831207-2; Trapping Notification

Dear Ms. Tharratt:

Natural Resources Assessment will be scheduling trapping surveys for a project n the County of Riverside. Southern California Edison (SCE) is proposing the construction of the Valley South Subtransmission Line Project (VSSP) to serve current and projected demand for electricity, and maintain electric system reliability in portions of southern Riverside County. The proposed project entails construction of a new subtransmission line originating at SCE's existing Valley Substation in the City of Menifee and terminating near SCE's existing Auld Substation in the City of Murrieta. The attached map displays the alignment of the Preferred and Alternative Routes. The surveys will be conducted within a 200 to 500-foot corridor depending on if the areas are developed or undeveloped along the routes.

Our work will be focused on trapping for the Los Angeles pocket mouse within the alignment area. Per our permit requirements, we are notifying the Service in writing of our intent to trap on the proposed project.

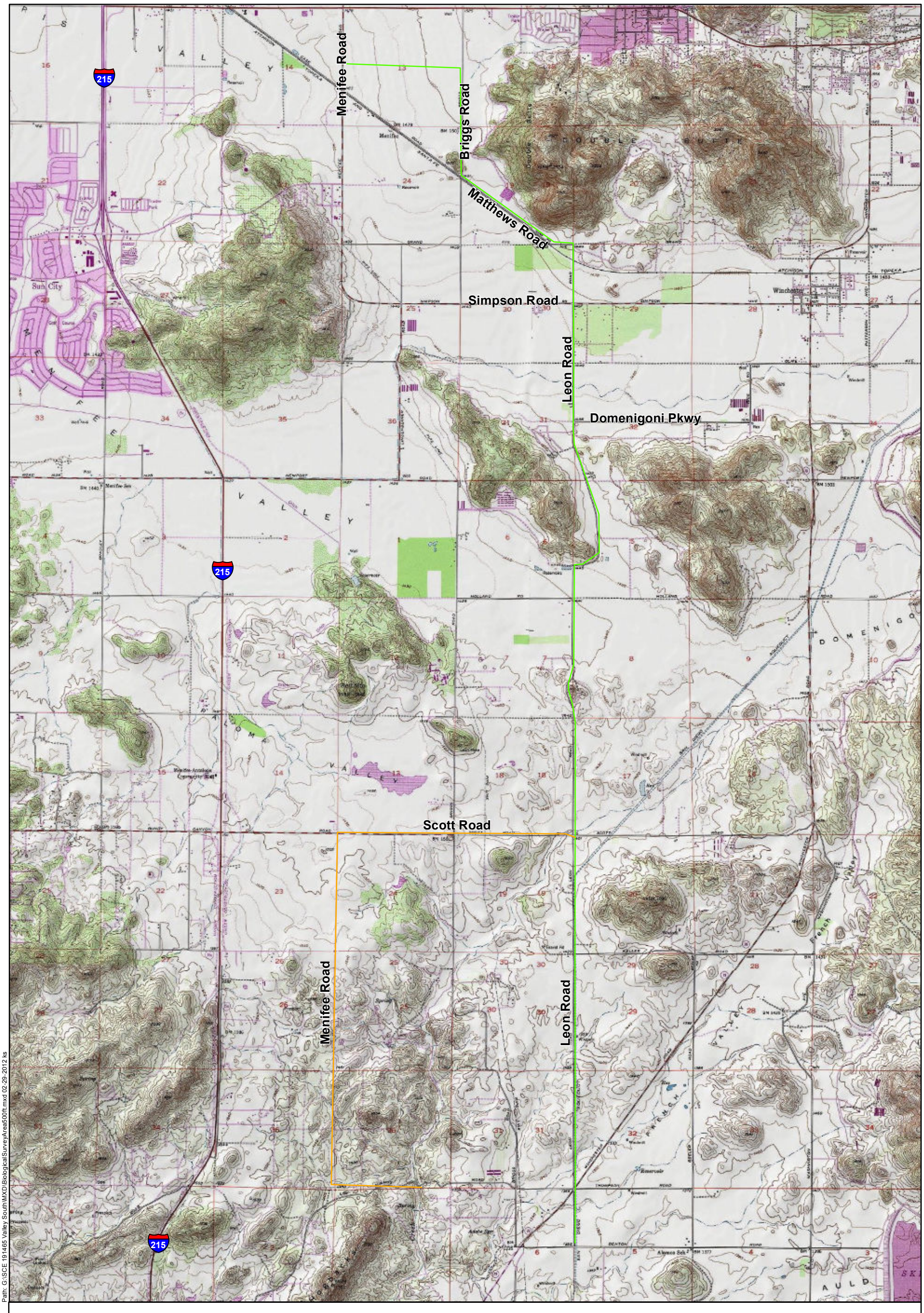
We intend to trap for LAPM to identify potential new localities and to map habitat distribution for the purposes of enhancing survival of this species.

We are requesting authorization to proceed with the trapping. We would like to receive a written authorization by fax or e-mail. If you have any questions or concerns, please feel free to contact me at 951 686 1141 or by e-mail at nrainc@earthlink.net. Thank you for consideration of our request.

Sincerely,

Karen Kirtland
President

Attachment: Map of the project site



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Legend

- Alternative Alignment
- Preferred Alignment

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0 3,375 6,750 Feet

Source: Bing Maps Aerial Imagery

Southern California Edison

Valley South Subtransmission Project

General Biological Survey Area Map

Figure 1

TRC

Bloom Biological, Inc.
Research | Consulting | Conservation

12 April 2012

Ms. Susie Tharratt
U.S. Fish and Wildlife Service
6010 Hidden Valley Road
Carlsbad, California 92009

Subject: 10-day notice of intention to conduct presence/absence surveys for Least Bell's Vireo, Southwestern Willow Flycatcher, Western Yellow-billed Cuckoo, and California Gnatcatcher on a proposed linear project in Riverside County, California

Dear Ms. Tharratt:

At the request of TRC Solutions, Inc., Bloom Biological, Inc. proposes to conduct presence/absence surveys for federal and state endangered Least Bell's Vireo (*Vireo bellii pusillus*) and Southwestern Willow Flycatcher (*Empidonax traillii extimus*), the California endangered Western Yellow-billed Cuckoo (*Coccyzus americana occidentalis*), and the federal threatened California Gnatcatcher (*Polioptila californica*) on an unnamed linear project in western Riverside County. The survey route extends from the Valley Substation near Menifee to Murrieta Hot Springs.

Eight focused surveys for Least Bell's Vireo will be conducted between late April and 31 July in suitable habitat. Each survey will be conducted at least 10 days apart and will consist of thorough coverage of all potential habitat. All surveys will be conducted during morning hours between sunrise and 11:00 a.m. when vireos are most active.

Five focused surveys for Southwestern Willow Flycatcher will be conducted in all suitable habitat, one within the first survey window (15 to 31 May), and two each within the second and third survey windows (1 to 24 June and 25 June to 15 July). Each survey will be conducted at least 5 days apart and will consist of thorough coverage of all potential (i.e., suitable) habitat. All surveys will be conducted between one hour before sunrise and 10:30 a.m. when southwestern willow flycatchers are most active. Most or all Southwestern Willow Flycatcher surveys will be conducted concurrently with Least Bell's Vireo surveys.

Three surveys will be conducted for Western Yellow-billed Cuckoo from mid-June through mid- August in suitable habitats. Each survey will be conducted at least 12 days apart and will consist of thorough coverage of all potential habitat. All surveys will be conducted between sunrise and 12:00 p.m., or between 5:30 p.m. and 7:30 p.m. Two of the three Western Yellow-billed Cuckoo surveys will be conducted concurrently with Least Bell's Vireo and Southwestern Willow Flycatcher surveys. Two additional presence/absence protocol surveys for Yellow-billed Cuckoo will be conducted in August.

For California Gnatcatcher, three planning level presence/absence surveys are proposed. Protocol guidelines require that no more than 80 acres of habitat be covered during each survey day, therefore, each survey is expected to require two days to complete. Each of the three planning level surveys will be spaced at least one week apart between late April and the end of August.

The biologist anticipated to be conducting these surveys is H. Lee Jones (Permit Nos. TE-829204-5 and SC-11641). If you have any questions or comments regarding this letter, please contact me directly at (909) 856-6346.

Sincerely,

H. Lee Jones, Ph.D.
Bloom Biological, Inc.

State of California—The Resources Agency
DEPARTMENT OF FISH AND GAME

NOTIFICATION OF INTENT TO COLLECT FOR SCIENTIFIC PURPOSES

Instructions: Type or print clearly in ink. **It is mandatory to complete all items.**

You must notify the Department of Fish and Game at least 24 hours prior to scientific collecting. Use the fax number listed on back for the office closest to where you will be collecting. If you are unable to fax this form, you must telephone the office directly.

Number of pages (including this form) 2 Date: 27 April 2012

To: Los Alamitos Field Office (Department of Fish and Game Office) Fax No: (562) 342 7214

Permittee's Name: Karen Kirtland ID Number: SC- 004327

School/Institution: Natural Resources Assessment, Inc.

Day Telephone: (951) 686 1141 E-mail Address: nrainc@earthlink.net

Date(s) Collecting: May 14 - May 31, 2012

Time(s) Collecting: Dusk to Dawn

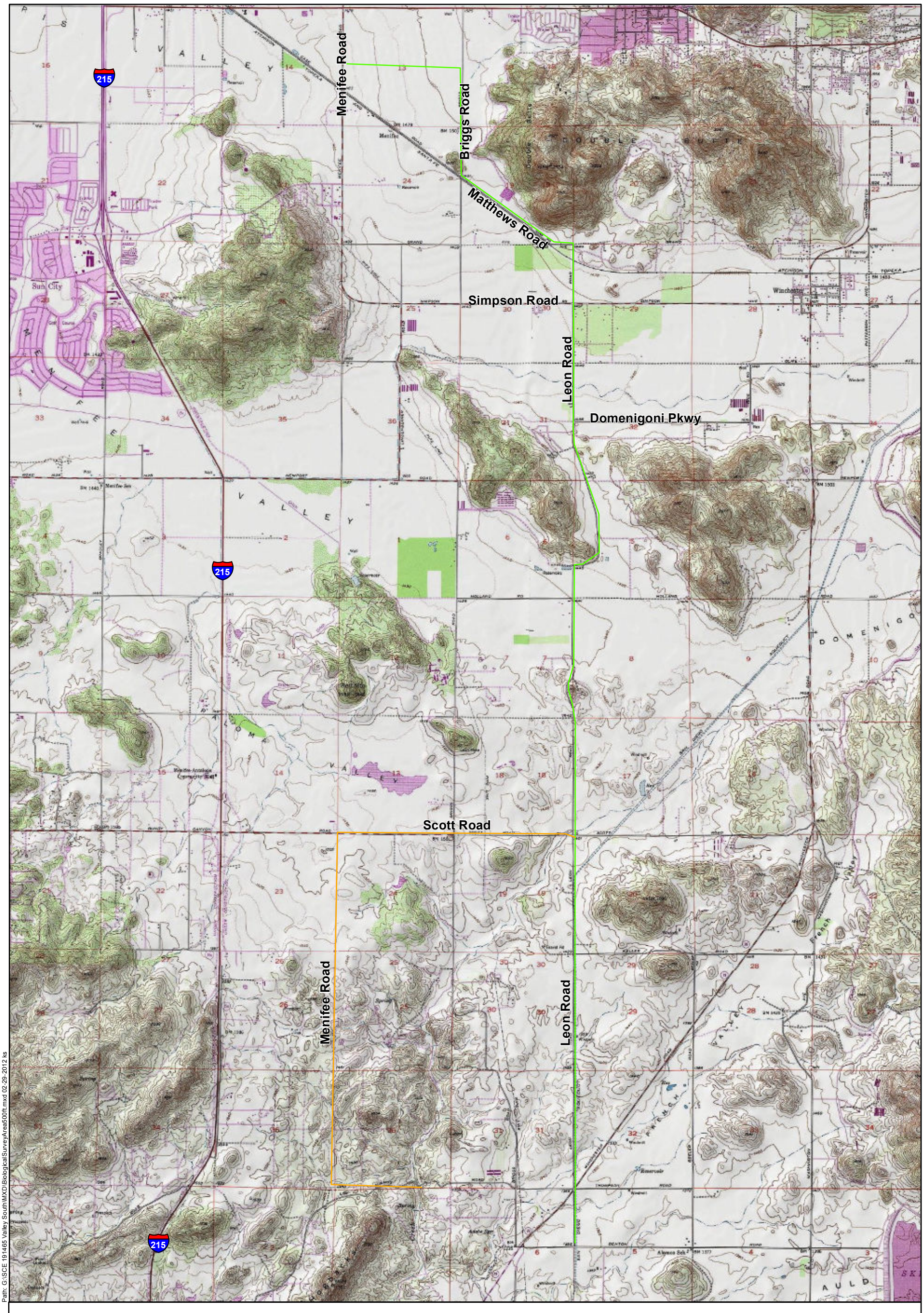
Location(s): See map

Number in Party: 2 Gear Type: Sherman live traps, 12 inches

Year/Make of Vehicle: 1989 Toyota Color: Grey License Plate No: LUT761

Type of Boat: N/A CF No: N/A

Species to be collected: Los Angeles pocket mouse, possibly Stephens kangaroo rat



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Legend

- Alternative Alignment
- Preferred Alignment

N

0 3,375 6,750 Feet

Source: Bing Maps Aerial Imagery

Southern California Edison

Valley South Subtransmission Project

General Biological Survey Area Map

Figure 1

TRC

123 Technology Drive
Irvine, California 92618

949.727.9336 PHONE
949.727.7399 FAX

www.TRCsolutions.com

December 27, 2012

Ms. Susie Tharatt

Endangered Species Permit Coordinator
U.S. Fish and Wildlife Service
Carlsbad Fish and Wildlife Office
6010 Hidden Valley Road, Suite 101
Carlsbad, CA 92011

Dear Ms. Tharatt,

TRC hereby notifies the U.S. Fish and Wildlife Service of its intent to conduct surveys for listed fairy shrimp species adjacent to the proposed Valley South Subtransmission Project (VSSP) in southwestern Riverside County during the 2012-2013 rainfall season. Due to sudden and significant rainfall beginning in mid-December, 2012, we anticipate commencement of survey activities during the first week of January 2013. Fairy shrimp species potentially occurring in this area include *Streptocephalus wootoni* (Riverside Fairy Shrimp) and *Branchinecta lynchi* (Vernal Pool Fairy Shrimp). The proposed survey will be conducted in accordance with guidance provided in the *Interim Survey Guidelines to Permittees for Recovery Permits Under Section 10(a)(1)(A) of the Endangered Species Act for Listed Vernal Pool Branchiopods*, dated 19 April, 1996.

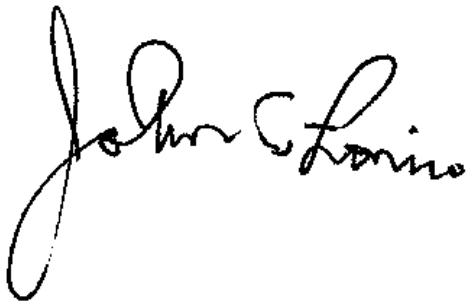
The VSSP is a proposed project of Southern California Edison. It consists of transmission line replacement along approximately 18 miles of existing roads in the vicinities of the communities of Murietta, French Valley, Menifee, and Winchester, as shown on the attached map figure. The project occurs within sections 13 and 24, Township 5 South, Range 3 West; sections 18, 19, 29, 30, 31, and 32, Township 5 South, Range 2 West; sections 5, 6, 7, 8, 17, 18, 19, 20, 29, 30, 31, and 32, Township 6 South, Range 2 West; sections 13 and 24, Township 5 South, Range 3 West; sections 13, 23, 24, 25, 26, 35, and 36, Township 6 South, Range 3 West; section 1, Township 7 South, Range 3 West; and sections 5 and 6, Township 7 South, Range 2 West. The project intersects over 240 undeveloped or partially developed ownership parcels.

Biological surveys other than for fairy shrimp were conducted within 250 feet of the proposed transmission alignment (500-foot buffer) in 2012. These included a detailed survey for jurisdictional wetlands and waters, which resulted in the detection and mapping of approximately 15 features, which are shown in the attached aerial photograph book. Most of these features are flowing drainages, typically disturbed and/or altered from their natural courses, so will likely not provide suitable habitat for fairy shrimp. Therefore, the initial phase

of the proposed survey will include a refined assessment of potential habitat as well as a search for any ephemeral, isolated water features not detected earlier in 2012.

This survey will be conducted under contract by Cardno TEC of San Diego. The biologists who will be performing the survey are Mr. Richard Stolpe, section 10(a)(1)(A) survey permit number TE-25864A-0 and Mr. Clint Scheuerman, permit number TE-44855A-0. Please refer any questions or comments to me at 858-505-8881 x4931 or at jlovio@trcsolutions.com. Thank you.

Sincerely,



John C. Lovio, senior biologist

From:	Calantas, Barbra
To:	Susie_Tharratt (susie_tharratt@fws.gov)
Cc:	amber.bruno@sce.com; Rey.Gonzales@sce.com; Lisa.Gonzales@sce.com; Klock, Stephanie
Subject:	AECOM Pre-activity Notification to Conduct Fairy Shrimp Surveys for VSSP Reconductoring Project (TE-820658)
Date:	Wednesday, December 11, 2013 7:13:00 PM
Attachments:	6024791_USFWS Notification Ltr 2014.pdf

Hi Susie,

Please find attached, the pre-activity notification to conduct fairy shrimp surveys for the VSSP Reconductoring Project, per the requirements of AECOM TE Permit TE-820658. Let me know if you have any questions.

Thanks,
Barbra

Barbra Calantas
Associate Wildlife Biologist
Design + Planning
D + 1 619 764 6821
barbra.calantas@aecom.com

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619.233.0952 fax

December 10, 2013

Ms. Susie Tharratt
Recovery Permit Coordinator
Carlsbad Fish and Wildlife Office
6010 Hidden Valley Road, Suite 101
Carlsbad, California 92011

RE: Pre-Activity Notification to Conduct Protocol Wet Season Surveys for Listed Vernal Pool Branchiopods within the Southern California Edison Valley South Sub-transmission Line Project Area, Riverside County, California

Dear Ms. Tharratt:

In compliance with the Special Terms and Conditions for Endangered and Threatened Wildlife Species Permit TE-820658, AECOM is submitting this pre-activity notification letter to conduct focused surveys for listed vernal pool branchiopods, specifically San Diego fairy shrimp (*Branchinecta sandiegonensis*) and Riverside fairy shrimp (*Streptocephalus woottoni*), within the Southern California Edison (SCE) Valley South Sub-transmission Line Project Area (VSSP), located in western Riverside County, California (Figure 1). Wet season surveys for listed vernal pool branchiopods will be conducted according to the USFWS 1996 *Interim Survey Guidelines to Permittees for Recovery Permits Under Section 10(a)(1)(A) of the Endangered Species Act for the Listed Vernal Pool Branchiopods*. As detailed in the protocol, one wet season survey and one dry season analysis will be conducted.

The VSSP project survey area consists of a 250-foot buffer on either side of an existing 115-kilovolt transmission line for a linear distance of approximately 5 miles. The VSSP project would include reconductoring of the existing 115-kilovolt transmission line.

Four ponded basins have been identified within the survey area by AECOM during habitat assessments (Figure 2). Any additional vernal pools, road ruts, or other ponded features found during surveys that meet the inundation criteria and occur within the survey area will be mapped and sampled.

Listed vernal pool branchiopods will be collected from pools according to the most current USFWS protocol (USFWS 1996) and identified to species in the AECOM laboratory. Each basin will be surveyed until both San Diego and Riverside fairy shrimp are detected within the basin, or the basin dries up and does not inundate again during the remainder of the wet season.

AECOM biologists Erin Bergman, Andrew Fisher, or Lance Woolley will conduct surveys under Endangered Species Permit TE-820658. Listed vernal pool branchiopods will be accessioned at the Natural History Museum of Los Angeles County.

Please call me at (619) 233-1454, extension 6820, if you have any questions or concerns.

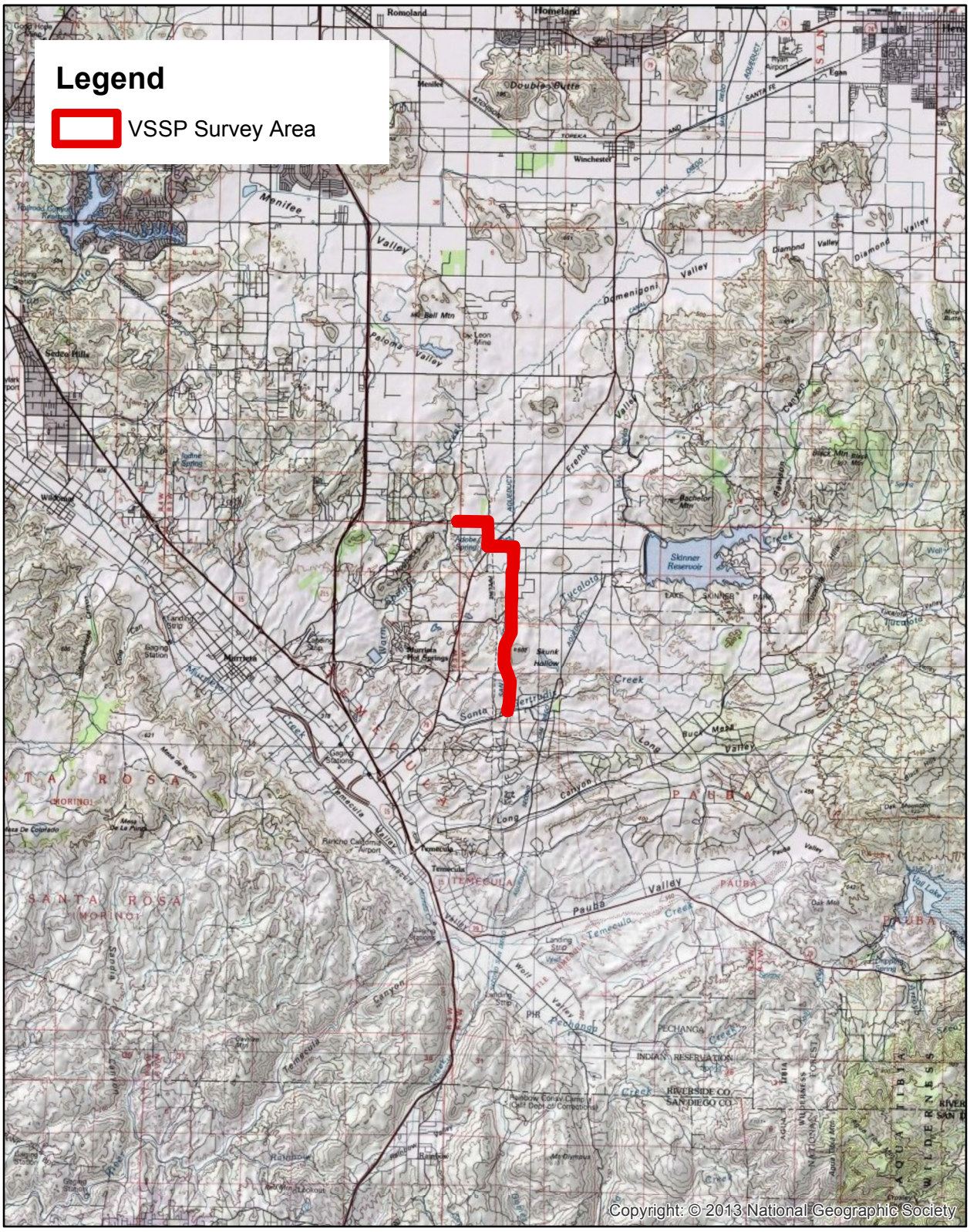
Sincerely,

Lance Woolley
Biologist

Enclosures: Figure 1 – Vicinity Map
Figure 2 – Ponded Basins Map

References

U.S. Fish and Wildlife Service (USFWS). 1996. *Interim Survey Guidelines to Permittees for Recovery Permits under Section 10(a)(1)(A) of the Endangered Species Act for the Listed Vernal Pool Branchiopods*. April 19.



3 1.5 0 Miles

Scale: 1:190,080; 1 inch = 3 miles

Figure 1
Vicinity Map

Path: P:\2009\09080045 VP Quino Monitoring\6.0 GIS\6.3 Layout\Dennery_W_VP_Final_shrimpspecies_USGS24k.mxd, 12/5/2013, woolleyl

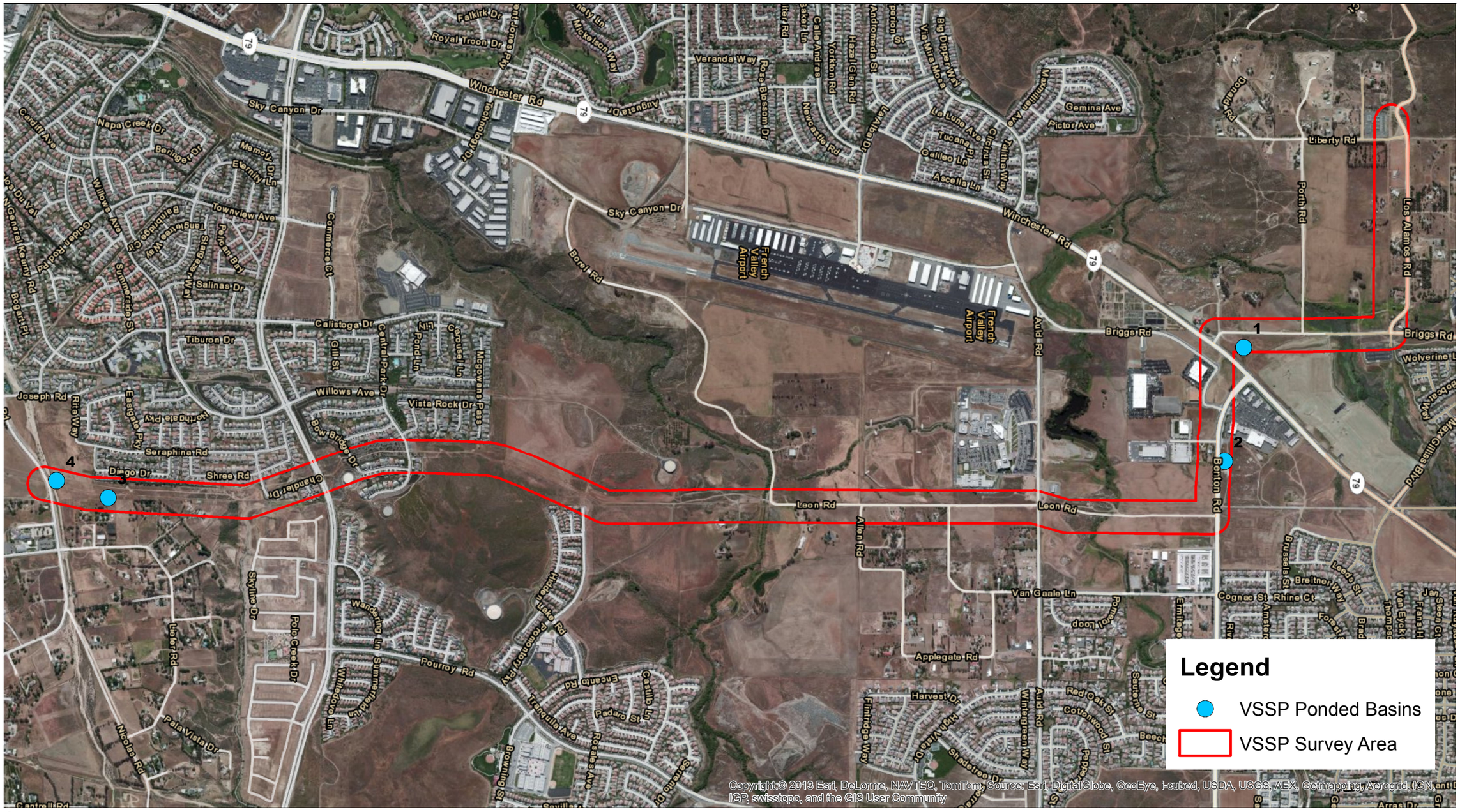


Figure 2
Ponded Basins Map

Path: C:\Users\woolley\Desktop\vssp.mxd, 12/11/2013, woolley,

123 Technology Drive
Irvine, California 92618

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January 21, 2013

Ms. Susie Tharatt

Endangered Species Permit Coordinator
U.S. Fish and Wildlife Service
Carlsbad Fish and Wildlife Office
6010 Hidden Valley Road, Suite 101
Carlsbad, CA 92011

Dear Ms. Tharatt,

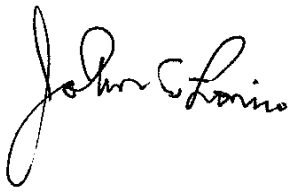
TRC hereby notifies the U.S. Fish and Wildlife Service (USFWS) of its intent to conduct surveys for the federally listed Quino checkerspot (*Euphydryas editha quino*) adjacent to the proposed Valley South Subtransmission Project (VSSP) in southwestern Riverside County during the 2013 flight season. We anticipate initiation of survey as soon as USFWS information from monitoring of reference populations indicates that adults are flying. The proposed survey will be conducted in accordance with guidance provided in the *Quino Checkerspot Butterfly (Euphydryas editha quino) Survey Protocol Information*, dated February, 2002, plus supplemental information.

The VSSP is a proposed project of Southern California Edison. It consists of transmission line replacement along approximately 18 miles of existing roads in the vicinities of the communities of Murietta, French Valley, Menifee, and Winchester, as shown on the attached map figure. The project occurs within sections 13 and 24, Township 5 South, Range 3 West; sections 18, 19, 29, 30, 31, and 32, Township 5 South, Range 2 West; sections 5, 6, 7, 8, 17, 18, 19, 20, 29, 30, 31, and 32, Township 6 South, Range 2 West; sections 13 and 24, Township 5 South, Range 3 West; sections 13, 23, 24, 25, 26, 35, and 36, Township 6 South, Range 3 West; section 1, Township 7 South, Range 3 West; and sections 5 and 6, Township 7 South, Range 2 West.

A habitat assessment for the Quino was conducted within 250 feet of the proposed transmission alignment (500-foot buffer) during the spring of 2012. Approximately 80 acres of potential habitat occurs within this survey buffer, as shown in the attached multiple-page map figure.

This survey will be conducted by TRC senior biologist John Lovio under section 10(a)(1)(A) survey permit number TE-065741-2. Please refer any questions or comments to me at 858-505-8881 x4931 or at jlovio@trcsolutions.com. Thank you.

Sincerely,



John C. Lovio, Senior Biologist

AECOM
1420 Kettner Boulevard
Suite 500
San Diego, CA 92101
www.aecom.com

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619.233.0952 fax

April 23, 2014

Ms. Stacey Love
Recovery Permit Coordinator
Carlsbad Fish and Wildlife Office
2177 Salk Avenue, Suite 250
Carlsbad, California 92008

RE: Pre-Activity Notification to Conduct Protocol Least Bell's Vireo and Southwestern Willow Flycatcher Surveys within the Southern California Edison Valley South Subtransmission Line Project Area, Riverside County, California

Dear Ms. Love:

In compliance with the Special Terms and Conditions for Endangered and Threatened Wildlife Species Permit TE-820658, AECOM is submitting this pre-activity notification letter to conduct focused surveys for least Bell's vireo (*Vireo belli pusillus*) and southwestern willow flycatcher (*Empidonax trailli extimus*), within the Southern California Edison (SCE) Valley South Subtransmission Line Project Area (VSSP), located in western Riverside County, California (Figure 1). Vireo and flycatcher surveys will be conducted according to the U.S. Fish and Wildlife Service (USFWS) 2001 *Least Bell's Vireo Survey Guidelines* and the U.S. Geological Survey 2010 *A Natural History and Survey Protocol for the Southwestern Willow Flycatcher* (adopted by the USFWS as the survey protocol for this species).

The VSSP project survey area consists of a 500-foot buffer on either side of an existing 115 kilovolt transmission line for a linear distance of approximately 5 miles (Figure 2). The VSSP project would include reconductoring of the existing 115 kilovolt transmission line.

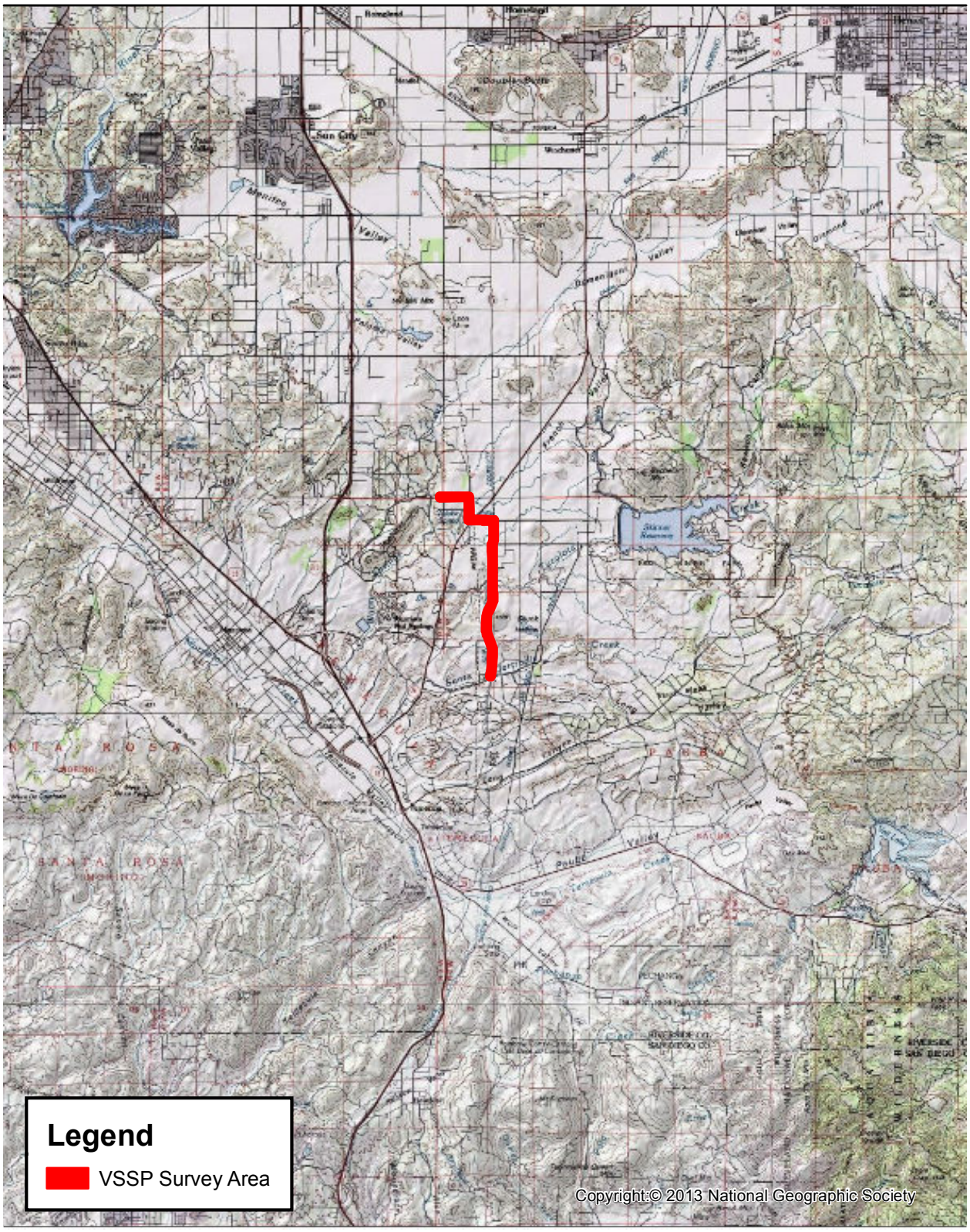
AECOM biologists Brennan Mulrooney, Brynne Mulrooney, Jimmy McMorran, Andrew Fisher, Erin Riley, or Barbra Calantas will conduct surveys under Endangered Species Permit TE-820658. No "take" of the least Bell's vireo will occur through visual or auditory surveys of the species' habitat. No individuals of least Bell's vireo will be captured. The survey activity could potentially "take" the southwestern willow flycatchers through harassment by playback of taped southwestern willow flycatcher vocalizations. No individual southwestern willow flycatchers will be captured.

Please call me at (619) 233-1454 if you have any questions or concerns.

Sincerely,

Brennan Mulrooney
Biologist

Enclosures: Figure 1 – Vicinity Map
Figure 2 – Project Survey Area



Source: Esri 2014

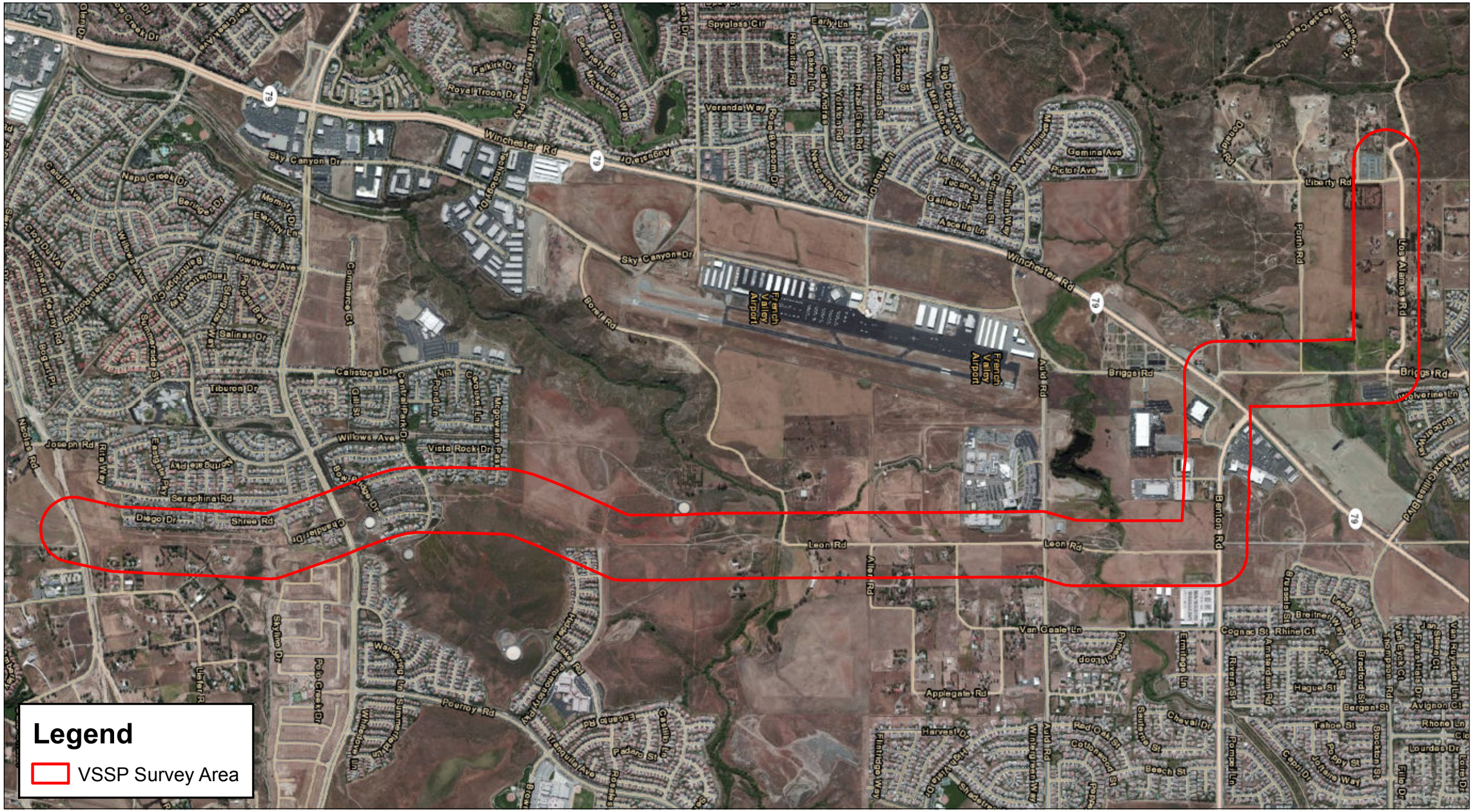
NORTH

Scale: 1:200,000; 1 inch = 3 miles

0 1 2 3 4 Miles

Figure 1
Vicinity Map

Path: C:\Users\wallacerj\Desktop\VSSP_KMZ\ShrimpSpecies\Figure1_Vicinity_MapBirdLetNot.mxd, 4/23/2014, wallacerj



Source: Esri 2014

Scale: 1:18,000;1 inch = 1,500 feet

0 500 1,000 1,500 2,000 Feet

Figure 2
Survey Area

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From:	Calantas, Barbra
To:	Stacey Love
Cc:	Klock, Stephanie; Amber Bruno (abruno@rinconconsultants.com); Rey.Gonzales@sce.com; amber.bruno@sce.com; Lisa.Gonzales@sce.com; Mulrooney, Brennan
Subject:	VSSP LBV/SWFL Preactivity Survey Notification for AECOM Permit TE-820658
Date:	Thursday, April 24, 2014 5:46:00 AM
Attachments:	6024791 USFWS Notification Ltr 2014.pdf

Good Morning Stacey,

Attached is a preactivity survey notification for least Bell's vireo and southwestern willow flycatcher surveys to be conducted for the Valley South Substation Project located in Murrieta, California. Please let me know if you have questions.

Thank you,
Barbra

Barbra Calantas
Senior Biologist
Design + Planning
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barbra.calantas@aecom.com

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April 23, 2014

Ms. Stacey Love
Recovery Permit Coordinator
Carlsbad Fish and Wildlife Office
2177 Salk Avenue, Suite 250
Carlsbad, California 92008

RE: Pre-Activity Notification to Conduct Protocol Least Bell's Vireo and Southwestern Willow Flycatcher Surveys within the Southern California Edison Valley South Subtransmission Line Project Area, Riverside County, California

Dear Ms. Love:

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Biologist

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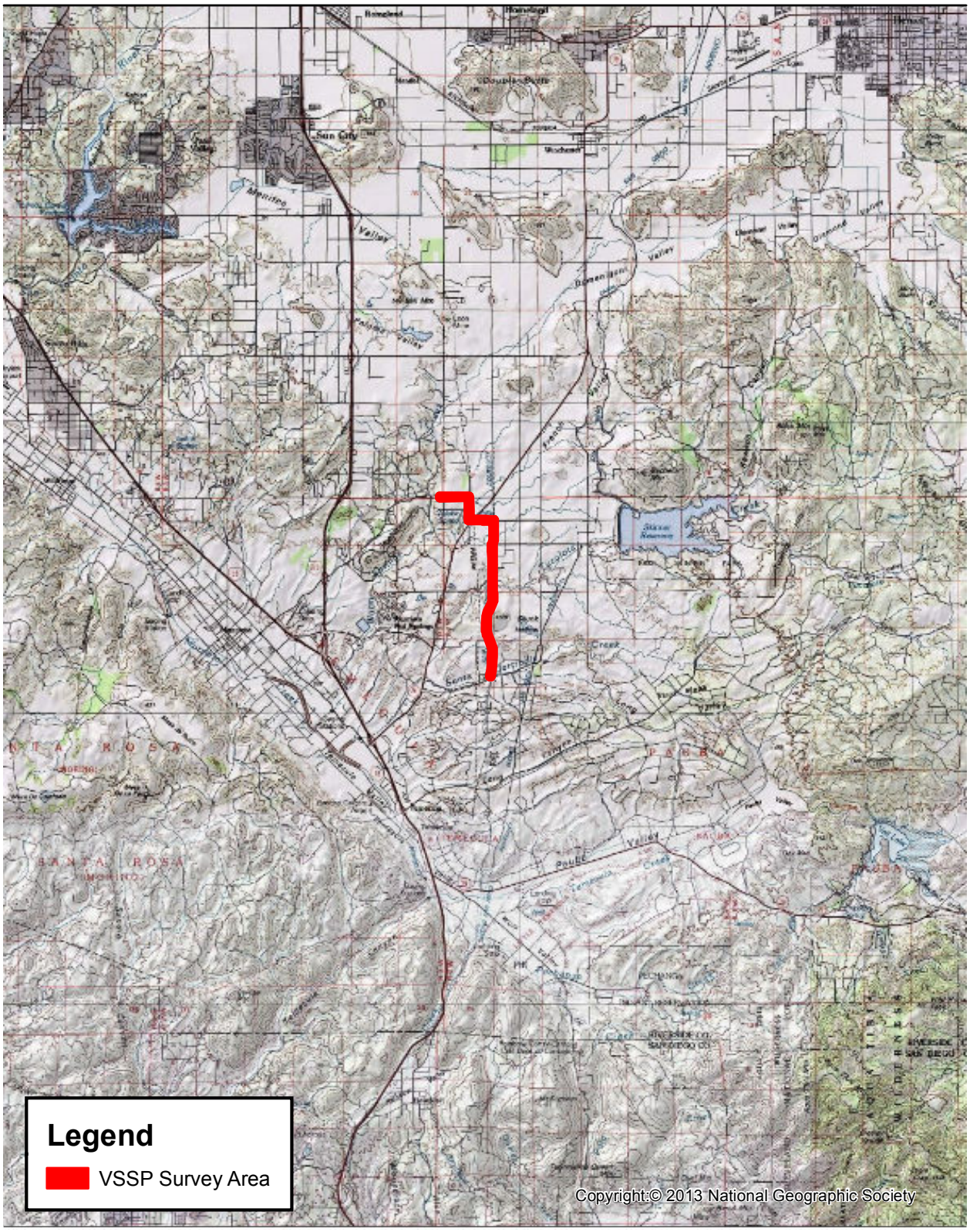


Source: Esri 2014

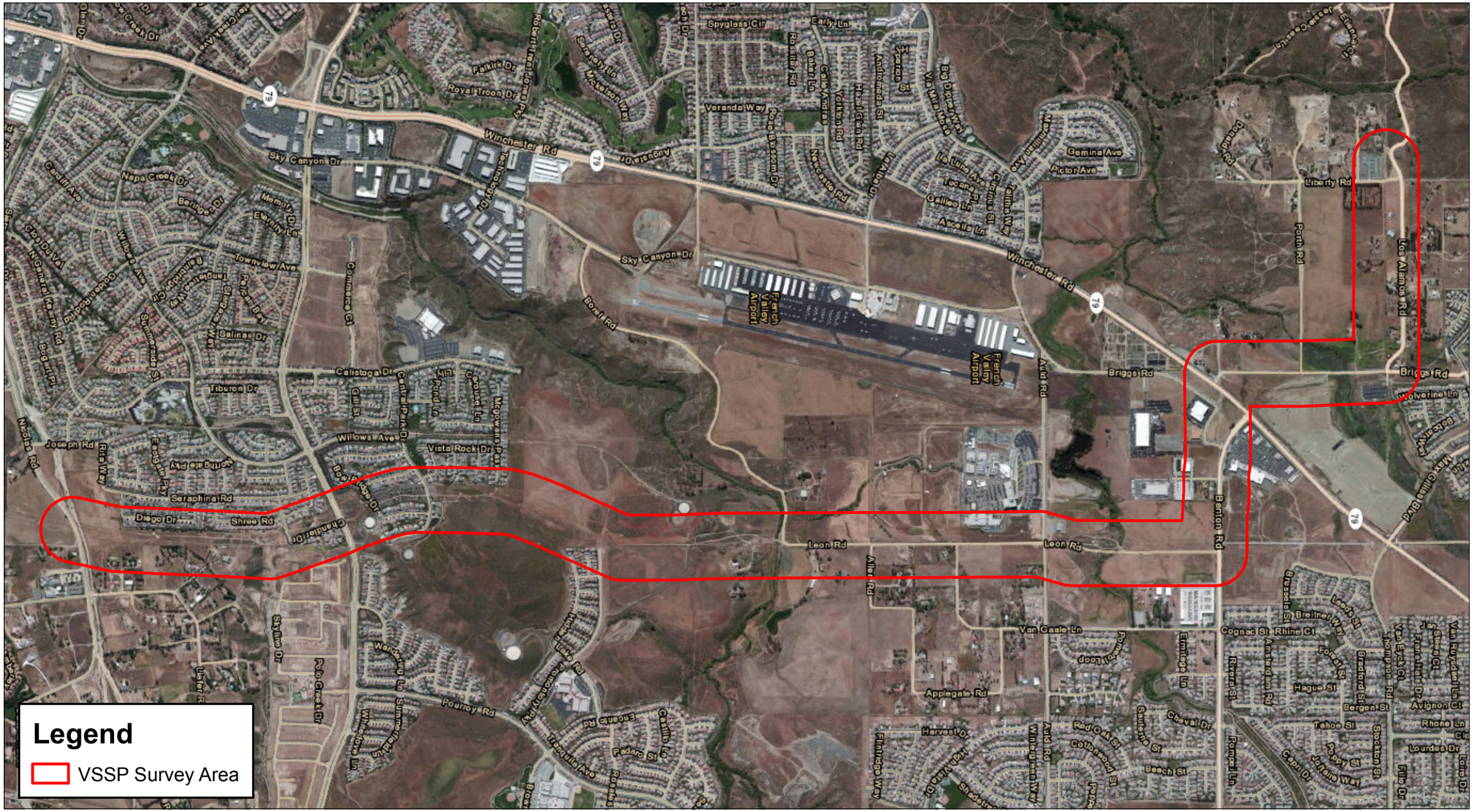
NORTH

Scale: 1:200,000; 1 inch = 3 miles

0 1 2 3 4 Miles

Figure 1
Vicinity Map

Path: C:\Users\wallacerj\Desktop\VSSP_KMZ\ShrimpSpecies\Figure1_Vicinity_MapBirdLetNot.mxd, 4/23/2014, wallacerj



Source: Esri 2014

Scale: 1:18,000;1 inch = 1,500 feet

0 500 1,000 1,500 2,000 Feet

Figure 2
Survey Area

Path: C:\Users\wallacerj\Desktop\VSSP_KMZ\ShrimpSpecies\Figure2_Vicinity_MapLandscape.mxd, 4/23/2014, wallacerj

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May 21, 2014/Version 3

Ms. Stacey Love
Recovery Permit Coordinator
Carlsbad Fish and Wildlife Office
6010 Hidden Valley Road, Suite 101
Carlsbad, California 92011

RE: 90-Day Report of Protocol Wet-Season Fairy Shrimp Surveys for Listed Branchiopod Species within the Southern California Edison Company's (SCE) Valley South 115 kV Subtransmission Project (VSSP) Survey Area, Riverside County, California

Dear Ms. Love:

In compliance with the Special Terms and Conditions for Endangered and Threatened Wildlife Species Permit TE-820658-4, AECOM conducted focused wet-season surveys to determine the presence or absence of listed branchiopod species, including the federally listed endangered San Diego fairy shrimp (*Branchinecta sandiegonensis;* SDFS) and Riverside fairy shrimp (*Streptocephalus woottoni*; RFS) for SCE's Valley South 115kV Subtransmission Project, Riverside County, California (Figure 1)**.**

Project Description

SCE is proposing to replace the overhead conductor along the existing Valley-Auld-Triton 115 kV subtransmission line located in portions of unincorporated Riverside County and the cities of Murrietta and Temecula. The Proposed Project begins at the tubular steel pole (TSP) located at the southeast corner of Benton and Leon Roads, and continues south to the Terminal TSP located on the south side of Nicholas Road, approximately 250 feet west of Los Chorus Ranch Road in the city of Temecula. This reconductor segment is approximately 3.4 miles in length and is referred to as Proposed Project Segment 2.

The Alternative Project Segment 2 begins at an existing TSP located east of Auld Substation. From this location, the Alternative Project Segment 2 connects to the existing Valley-Auld-Triton 115 kV subtransmission line paralleling Los Alamos Road in an easterly direction for approximately 0.5 mile until it reaches Briggs Road and continues in a southerly direction for approximately 0.5 mile. At this point, the Alternative Project Segment 2 then spans State Route 79 in an easterly direction and merges with Proposed Project Segment 2 at the TSP near the intersection of Benton and Leon Roads. It then follows the same 3.4-mile route as Proposed Project Segment 2, travelling south to the TSP near Nicholas Road in the city of Temecula. For purposes of this report, the Alternative Project Segment 2 consists of the unique 1.6-mile segment from the TSP near Auld Substation to the TSP at the intersection of Benton and Leon Roads.

The protocol wet season fairy shrimp surveys were conducted within Proposed Project Segment 2 (3.4 miles) and the Alternative Project Segment 2 (1.6 miles). The total survey

area consists of a 250-foot buffer on either side of the existing 115 kV subtransmission line for a linear distance of approximately 5 miles (Figures 2a and 2b).

Site Description

The VSSP survey area is approximately 300 acres and consists of coastal sage scrub, grassland, riparian areas, agriculture, and urban/developed land. The seven temporary ponded areas occur within areas of grassland and fallow agriculture.

Species Background Information

SDFS and RFS are both federally listed as endangered. The U.S. Fish and Wildlife Service (USFWS) listed SDFS on February 3, 1997 (62 Federal Register 4925). USFWS listed RFS on July 16, 1993 (58 Federal Register 41384). A recovery plan for these species has been issued (USFWS 1998).

SDFS and RFS are small aquatic crustaceans restricted to vernal pool environments. SDFS distribution occurs from Santa Barbara County south to northwestern Baja California, Mexico. SDFS have been detected within vernal pools and ephemeral basins ranging from a depth of 2 to 12 inches (5 to 30 centimeters) (USFWS 2000). SDFS are also known to occur within ditches and road ruts able to support suitable conditions (USFWS 1997). SDFS are typically observable from January through March after winter and spring rains; however, the hatching period may begin earlier or end later with a longer season of rainfall, providing more water for refilling vernal pools. Simovich and Fugate (1992) found that SDFS cysts could hatch in temperatures ranging from 50 degrees Fahrenheit (°F) to 59°F (10 degrees Centigrade [°C] to 15°C). Newly hatched fairy shrimp (nauplii) emerge and develop into adults between mid-December and early May (Eriksen and Belk 1999). Hatching requirements include an aquatic environment with a moderate pH level, and low alkalinity and conductivity levels, which may be due to physiological requirements (Gonzalez et al. 1996). Nauplii mature within 10 to 20 days and may live for approximately 40 days (Hathaway and Simovich 1996), during which time they mate and produce another generation of cysts. During the dry season, cysts are capable of withstanding extreme hot and cold temperatures and prolonged drying.

RFS have a very restricted distribution. RFS have been detected in Riverside County in the vicinity of Temecula (Eng et al. 1990), and in San Diego County on Otay Mesa, Marine Corps Base Camp Pendleton, and Marine Corps Air Station Miramar (Simovich and Fugate 1992). RFS prefer deeper ephemeral waters, and typically occupy vernal pools and temporary ponds where water typically persists into April or May and reaches a minimum depth of 1 foot (30 centimeters) at filling (Eng et al. 1990). The primary threat to both fairy shrimp species is urban and agricultural development of their habitat (Eriksen and Belk 1999).

Survey Methodology

The 2013/2014 wet season was the first year that protocol-level surveys were conducted within the VSSP survey area. Focused protocol surveys for the federally listed SDFS and RFS were performed within the VSSP survey area from December 2013 through April 2014. AECOM biologists Andrew Fisher and Lance Woolley conducted the surveys under Endangered Species Permit TE-820658-4. Seven temporary ponded areas were identified within the survey area. Five of the seven temporary ponded areas met the sampling criteria per the *Interim Survey Guidelines to Permittees for Recovery Permits under Section 10(a)(1)(A) of the Endangered Species Act for the Listed Vernal Pool Branchiopods* (USFWS 1996) and were sampled during the 2013/2014 wet season.

Seven fairy shrimp surveys were conducted following the interim survey guidelines, beginning with inundation on December 13, 2013, and terminating on April 8, 2014. Surveys were conducted to determine the presence of both SDFS and RFS on-site.

Results

Dates, survey personnel, and weather conditions at the time of the surveys are found in Table 1. Temporary ponded areas meeting interim survey guidelines for the proposed project are numbered in Table 2. Observations made during the 2013/2014 protocol surveys are summarized in Table 3. Of the seven temporary ponded areas occurring within the VSSP survey area, two were found to contain Lindahl's fairy shrimp (*Branchinecta lindahli*; LFS), three contained no fairy shrimp, and two never ponded long enough to be sampled (Figure 3).

Field survey data are provided in Appendix A. Representative photographs of the site are provided in Appendix B. A summary of fairy shrimp detected during each survey period is provided in Appendix C.

Table 1
Survey Dates, Personnel, and Weather Conditions

Survey Number**	Date	Survey Personnel	Time	Weather Conditions
1	12/13/2013	Lance Woolley	1044–1148	Start: 66°F, wind 2 mph, 10% cover End: 69°F, wind 3 mph, 10% cover
2	12/27/2013	Lance Woolley	1210–1312	Start: 79°F, wind 2 mph, 20% cover End: 78°F, wind 3 mph, 20% cover
3	1/10/2014	Lance Woolley	2327–1509	Start: 70°F, wind 1 mph, 20% cover End: 68°F, wind 2 mph, 5% cover
4	1/24/2014	Lance Woolley	1232–1314	Start: 71°F, wind 3 mph, 5% cover End: 70°F, wind 3 mph, 5% cover
5	3/12/2014	Andrew Fisher	1135–1408	Start: 74°F, wind 3 mph, 0% cover End: 76°F, wind 2 mph, 0% cover

Survey Number**	Date	Survey Personnel	Time	Weather Conditions
6	3/25/2014	Lance Woolley	1015–1141	Start: 55°F, wind 1 mph, 100% cover End: 55°F, wind 0 mph, 100% cover
7	4/8/2014	Lance Woolley	1343-1507	Start: 72°F, wind 1 mph, 10% cover End: 77°F, wind 4 mph, 0% cover

Table 2
Number of Vernal Pools that Met Interim Survey Guidelines Criteria

Survey Number	Number of Vernal Pools Sampled
1	2
2	2
3	2
4	0
5	5
6	2
7	0

Table 3
Restoration Site Pools with Fairy Shrimp Species Detected
during 2013/2014 Wet Season

Pool Number	Latitude Longitude	Water Depth in Pool (centimeters)							Estimated Population of Fairy Shrimp Present by Species Identified[1]		Number of Individuals Collected[2]
		Survey 1	Survey 2	Survey 3	Survey 4	Survey 5	Survey 6	Survey 7			
1	33.591900 117.126550	9	5	6	Dry	17	Dry	Dry	0	SDFS	0
									0	LFS	0
									0	RFS	0
2	33.591555 117.120630	25	20	8	Dry	100	10	Dry	0	SDFS	0
									0	LFS	0
									0	RFS	0
3	33.545142 117.118381	Dry	Dry	Dry	Dry	Dry	Dry	Dry	0	SDFS	0
									0	LFS	0
									0	RFS	0
4	33.549283 117.119201	Dry	Dry	Dry	Dry	Dry	Dry	Dry	0	SDFS	0
									0	LFS	0
									0	RFS	0
5	33.590710 117.120238	Dry	Dry	Dry	Dry	9	Dry	Dry	0	SDFS	0
									1,000s	LFS	6
									0	RFS	0
6	3.590588 117.120330	Dry	Dry	Dry	Dry	14	Dry	Dry	0	SDFS	0
									1,000s	LFS	7
									0	RFS	0
7	33.586397 117.118125	Dry	Dry	Dry	Dry	38	10	Dry	0	SDFS	0
									0	LFS	0
									0	RFS	0

[1] zero = no fairy shrimp detected
[2] Number of individuals collected over all sampling dates

Other sensitive wildlife species detected during fairy shrimp surveys within the VSSP survey area include western spadefoot toad (*Spea hammondii;* California Department of Fish and Wildlife species of special concern) (State of California 2011) tadpoles were observed in temporary ponded area 1. No other sensitive wildlife species were detected.

Discussion

During the 2013/2014 wet-season surveys, seven temporary ponded areas were identified within the VSSP survey area and met the interim guidelines for fairy shrimp sampling. Rainfall for the 2013/2014 survey season was approximately 4.46 inches, which was 4.05 inches below average. It is possible that below average rainfall conditions affected the ability to detect fairy shrimp species. Overall, the 2013/2014 rainy season permitted five of the seven temporary ponded areas to meet inundation criteria and be sampled at least once.

If you have any comments or questions regarding this letter report, feel free to contact me at (619) 233-1454.

Sincerely,

Lance Woolley
Biologist

Attachments:
Figure 1 – Regional Map
Figure 2a –Vicinity Map – North
Figure 2b – Vicinity Map – South
Figure 3 – Fairy Shrimp Survey Results Map
Appendix A – Field Survey Data Table
Appendix B – VSSP Survey Area Temporary Ponded Area Photographs, March 2014
Appendix C – Summary of Fairy Shrimp Identified per Survey

Certification Statement

Qualified biologists who conducted fairy shrimp surveys for the SCE Valley South 115kV Subtransmission Project certify that the information in this survey report fully and accurately represents the work performed. Signatures of current permitted AECOM biologists (Erin Bergman, Linnea Spears-Lebrun, and Lance Woolley) who conducted the protocol surveys are included below. If you have any questions or require additional information, feel free to contact Lance Woolley at (619) 233-1454.

Lance Woolley
Biologist

Andrew Fisher
Biologist

Literature Cited

Eng, L. L., D. Belk, and C. H. Eriksen. 1990. Californian Anostraca: Distribution, Habitat, and Status. *Journal of Crustacean Biology* 10:247–277.

Eriksen, Clyde, and Denton Belk. 1999. *Fairy Shrimps of California's Puddles, Pools, and Playas*. Mad River Press, California.

Gonzalez, R. J., J. Drazen, S. Hathaway, B. Bauer, and M. Simovich. 1996. Physiological Correlates of Water Chemistry Requirements in Fairy Shrimps (Anostraca) from Southern California. *Journal of Crustacean Biology* 16:15–322.

Hathaway, S. A., and M. A. Simovich. 1996. *Factors Affecting the Distribution and Co-occurrence of Two Southern California Anostracans (Branchiopoda)*, *Branchinecta sandiegonensis*.

Simovich, M. A., and M. Fugate. 1992. Branchiopod Diversity in San Diego County, California, USA. *Transactions of the Western Section of the Wildlife Society* 28:6–14.

State of California (2011). The Natural Resources Agency Department of Fish and Game. Biogeographic Data Branch California Natural Diversity Database. Special Animals. January 2011.

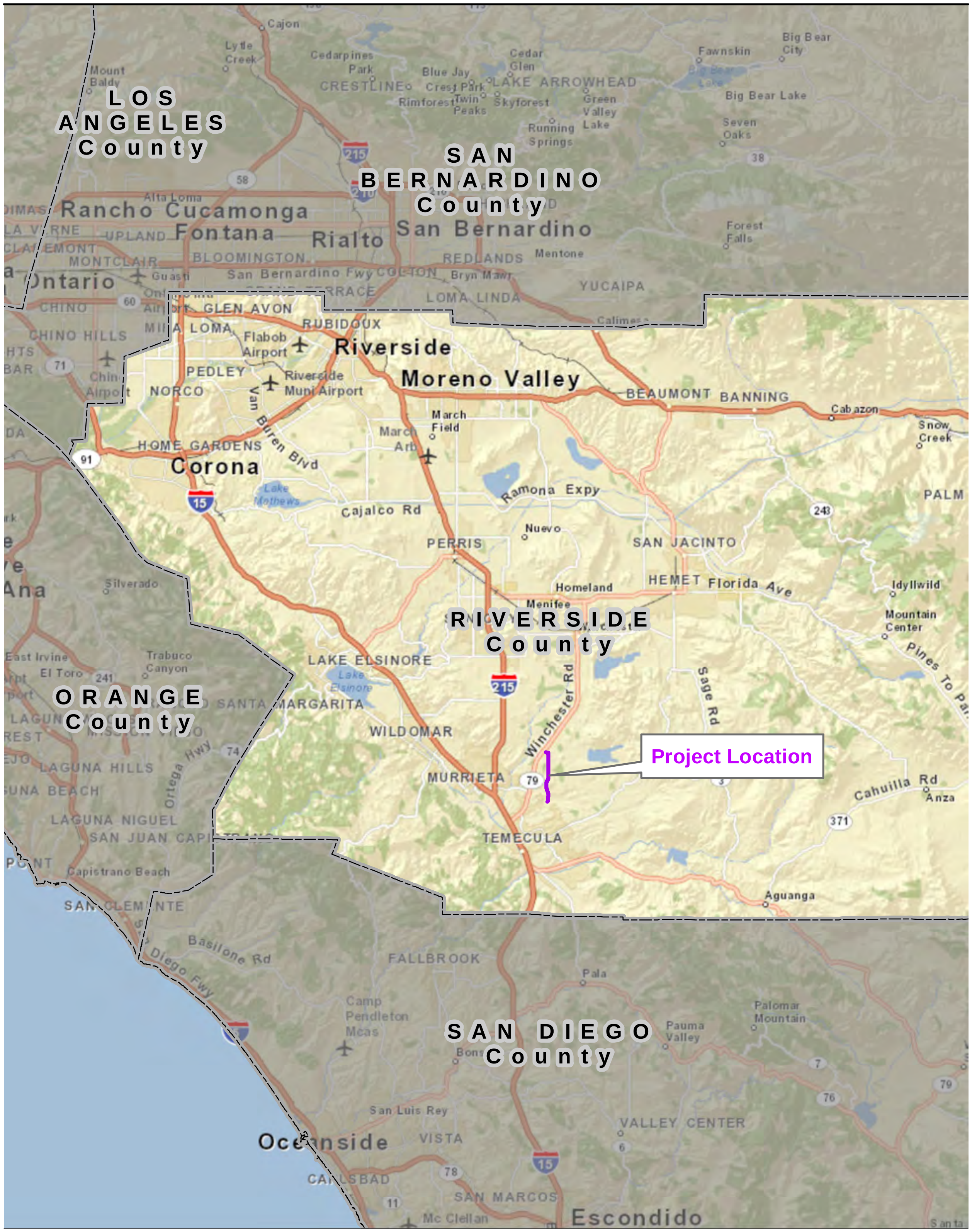
U.S. Fish and Wildlife Service (USFWS). 1996. *Interim Survey Guidelines to Permittees for Recovery Permits under Section 10(a)(1)(A) of the Endangered Species Act for the Listed Vernal Pool Branchiopods*. April 19.

U.S. Fish and Wildlife Service (USFWS). 1997. *Endangered and Threatened Species Review of Plant and Animal Taxa; Proposed Rule.* 50 CFR 17 Vol. 62, No. 182.

U.S. Fish and Wildlife Service (USFWS). 1998. *Vernal Pools of Southern California Recovery Plan*. U.S. Fish and Wildlife Service, Portland, Oregon. 13+ pp.

U.S. Fish and Wildlife Service (USFWS). 2000. *Endangered and Threatened Wildlife and Plants; Final Determination of Critical Habitat for the San Diego Fairy Shrimp (Branchinecta sandiegonensis).* U.S. Fish and Wildlife Service, Federal Register 65(205):63437–63466.

FIGURES



Source: ESRI 2014; USGS 7.5' Topographic Quadrangle Murrieta, CA 1980, Bachelor Mountain, CA 1978

NORTH

Scale: 1:633,600;1 inch = 10 miles

0 2.5 5 7.5 10 Miles

Figure 1
Regional Map

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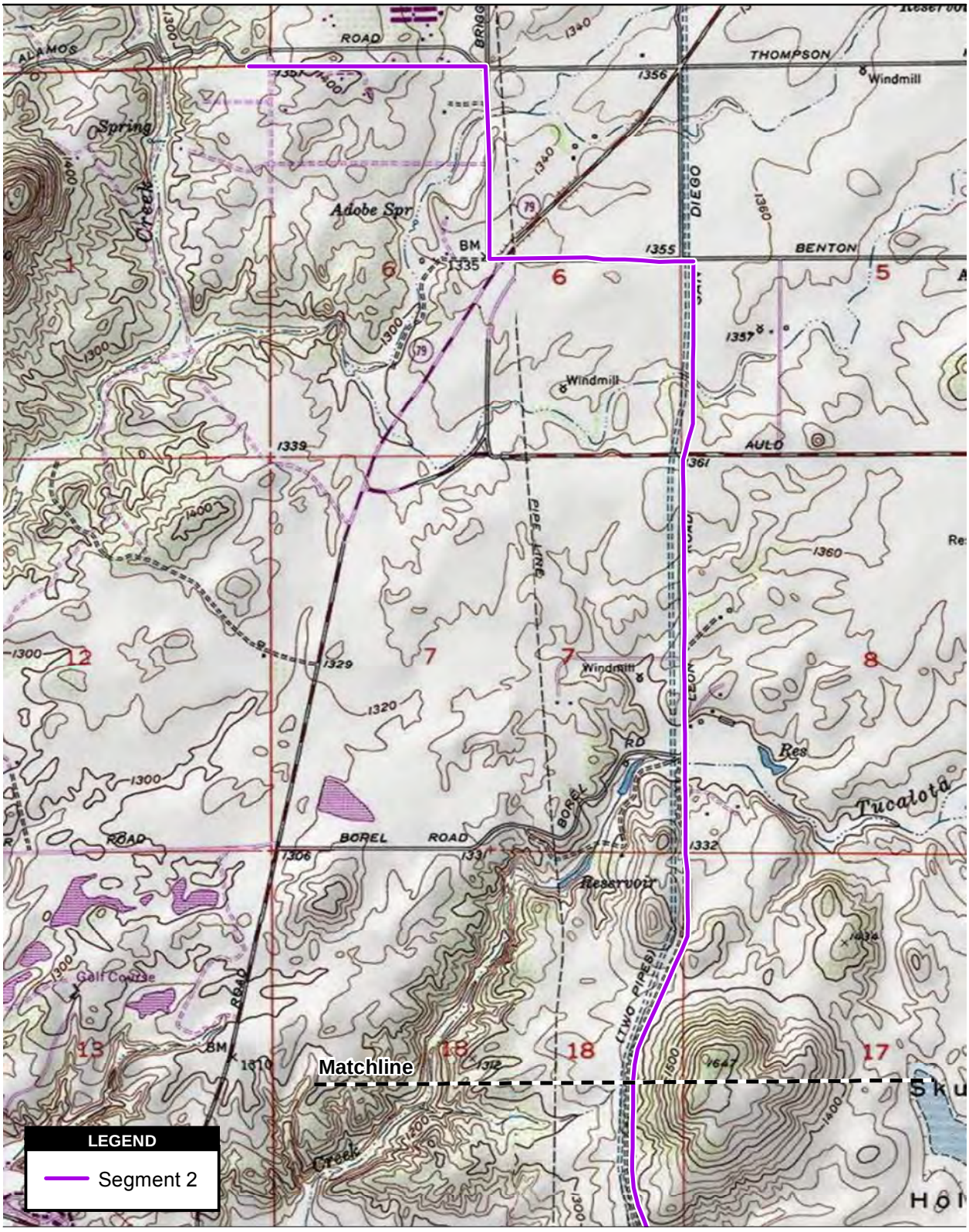

Source: ESRI 2014; USGS 7.5' Topographic Quadrangle Murrieta, CA 1980, Bachelor Mountain, CA 1978

NORTH

Scale: 1:24,000;1 inch = 2,000 feet

Feet

0 500 1,000 1,500 2,000

Figure 2a
Vicinity Map - North

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Source: ESRI 2014; USGS 7.5' Topographic Quadrangle Murrieta, CA 1980, Bachelor Mountain, CA 1978

NORTH

Scale: 1:24,000;1 inch = 2,000 feet

Feet

0 500 1,000 1,500 2,000

Figure 2b
Vicinity Map - South

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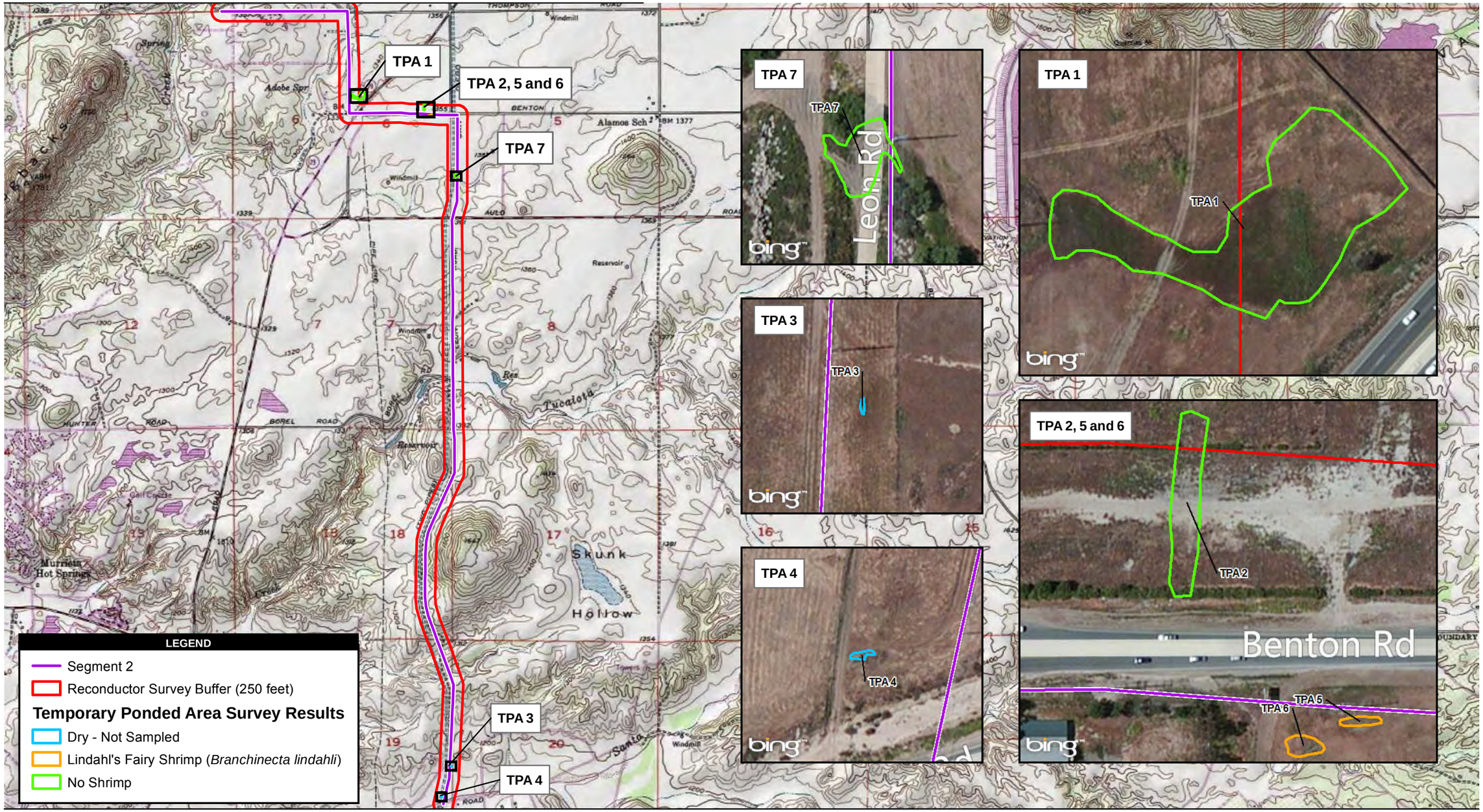

Source: ESRI 2014; USGS 7.5' Topographic Quadrangle Murrieta, CA 1980, Bachelor Mountain, CA 1978

NORTH

Scale: 1:30,000;1 inch = 2,500 feet
Feet
0 630 1,260 1,890 2,520

TPA Insets
Scale: 1:1,200; 1 inch = 100 feet
Feet
0 25 50 75 100

Figure 3
Fairy Shrimp Survey Results Map

Path: \\ussdg2fp001.na.aecomnet.com\data\Projects\2012\60247921\06GIS\6.3_Layout\VP_Figures\Figure3_Survey_REsults.mxd, 4/18/2014, janssenn

APPENDIX A

FIELD SURVEY DATA TABLE

Appendix A
Field Survey Data Table

Project	Permitted Bio	Survey Number	Date	Pool Number	Pool Status	Water Temperature	Max Depth (cm)	Pool Length (m)	Pool Width (m)	Scientific Name	Common Name	Pop Estimate	Males	Females	Pool Condition
VSSP	Lance Woolley	1	12/13/2013	Temp Area 1	Wet	59	9	8	9	None	None	NA	0	0	2. disturbed; a. tire tracks
VSSP	Lance Woolley	1	12/13/2013	Temp Area 2	Wet	57	25	21	5	None	None	NA	0	0	2. disturbed; a. tire tracks
VSSP	Lance Woolley	1	12/13/2013	Temp Area 3	Dry	0	0	0	0	NA	NA	NA	0	0	
VSSP	Lance Woolley	1	12/13/2013	Temp Area 4	Dry	0	0	0	0	NA	NA	NA	0	0	
VSSP	Lance Woolley	2	12/27/2013	Temp Area 1	Wet	58	5	8	8	None	None	NA	0	0	2. disturbed; a. tire tracks
VSSP	Lance Woolley	2	12/27/2013	Temp Area 2	Wet	58	20	20	5	None	None	NA	0	0	2. disturbed; a. tire tracks
VSSP	Lance Woolley	2	12/27/2013	Temp Area 3	Dry	0	0	0	0	NA	NA	NA	0	0	
VSSP	Lance Woolley	2	12/27/2013	Temp Area 4	Dry	0	0	0	0	NA	NA	NA	0	0	
VSSP	Lance Woolley	3	1/10/2014	Temp Area 1	Wet	59	6	5	3	None	None	NA	0	0	2. disturbed; a. tire tracks
VSSP	Lance Woolley	3	1/10/2014	Temp Area 2	Wet	57	8	6	3	None	None	NA	0	0	2. disturbed; a. tire tracks
VSSP	Lance Woolley	3	1/10/2014	Temp Area 3	Dry	0	0	0	0	NA	NA	NA	0	0	
VSSP	Lance Woolley	3	1/10/2014	Temp Area 4	Dry	0	0	0	0	NA	NA	NA	0	0	
VSSP	Lance Woolley	4	1/24/2014	Temp Area 1	Dry	0	0	0	0	NA	NA	NA	0	0	
VSSP	Lance Woolley	4	1/24/2014	Temp Area 2	Dry	0	0	0	0	NA	NA	NA	0	0	
VSSP	Lance Woolley	4	1/24/2014	Temp Area 3	Dry	0	0	0	0	NA	NA	NA	0	0	
VSSP	Lance Woolley	4	1/24/2014	Temp Area 4	Dry	0	0	0	0	NA	NA	NA	0	0	
VSSP	Andrew Fisher	5	3/12/2014	Temp Area 1	Wet	67	17	14.5	5	None	None	NA	0	0	2. disturbed; a. tire tracks
VSSP	Andrew Fisher	5	3/12/2014	Temp Area 2	Wet	69	100	78	7	None	None	NA	0	0	2. disturbed; b. garbage
VSSP	Andrew Fisher	5	3/12/2014	Temp Area 3	Dry	0	0	0	0	NA	NA	NA	0	0	

Project	Permitted Bio	Survey Number	Date	Pool Number	Pool Status	Water Temperature	Max Depth (cm)	Pool Length (m)	Pool Width (m)	Scientific Name	Common Name	Pop Estimate	Males	Females	Pool Condition
VSSP	Andrew Fisher	5	3/12/2014	Temp Area 4	Dry	0	0	0	0	NA	NA	NA	0	0	
VSSP	Andrew Fisher	5	3/12/2014	Temp Area 5	Wet	71	9	8	4	Branchinecta lindahli	Lindahl's fairy shrimp	1,000's	6	0	2. disturbed; c. discing/plowing
VSSP	Andrew Fisher	5	3/12/2014	Temp Area 6	Wet	69	14	11	10	Branchinecta lindahli	Lindahl's fairy shrimp	1,000's	7	0	2. disturbed; c. discing/plowing
VSSP	Andrew Fisher	5	3/12/2014	Temp Area 7	Wet	63	38	25	22	None	None	NA	0	0	2. disturbed; a. tire tracks; b. garbage
VSSP	Lance Woolley	6	3/25/2014	Temp Area 1	Dry	0	0	0	0	NA	NA	NA	0	0	
VSSP	Lance Woolley	6	3/25/2014	Temp Area 5	Dry	0	0	0	0	NA	NA	NA	0	0	
VSSP	Lance Woolley	6	3/25/2014	Temp Area 6	Dry	0	0	0	0	NA	NA	NA	0	0	
VSSP	Lance Woolley	6	3/25/2014	Temp Area 2	Wet	62	10	20	2.5	None	None	NA	0	0	2. disturbed; a. tire tracks; b. garbage
VSSP	Lance Woolley	6	3/25/2014	Temp Area 7	Wet	62	10	6	5	None	None	NA	0	0	2. disturbed; a. tire tracks
VSSP	Lance Woolley	6	3/25/2014	Temp Area 3	Dry	0	0	0	0	NA	NA	NA	0	0	
VSSP	Lance Woolley	6	3/25/2014	Temp Area 4	Dry	0	0	0	0	NA	NA	NA	0	0	
VSSP	Lance Woolley	7	4/8/2014	Temp Area 1	Dry	0	0	0	0	NA	NA	NA	0	0	
VSSP	Lance Woolley	7	4/8/2014	Temp Area 2	Dry	0	0	0	0	NA	NA	NA	0	0	
VSSP	Lance Woolley	7	4/8/2014	Temp Area 3	Dry	0	0	0	0	NA	NA	NA	0	0	
VSSP	Lance Woolley	7	4/8/2014	Temp Area 4	Dry	0	0	0	0	NA	NA	NA	0	0	
VSSP	Lance Woolley	7	4/8/2014	Temp Area 5	Dry	0	0	0	0	NA	NA	NA	0	0	
VSSP	Lance Woolley	7	4/8/2014	Temp Area 6	Dry	0	0	0	0	NA	NA	NA	0	0	
VSSP	Lance Woolley	7	4/8/2014	Temp Area 7	Dry	0	0	0	0	NA	NA	NA	0	0	

APPENDIX B

VSSP SURVEY AREA
TEMPORARY PONDED AREA PHOTOGRAPHS
MARCH 2014

Appendix B
VSSP Survey Area
Temporary Ponded Area Photographs, March 2014

Photo of temporary ponded area 1, facing north.

Photo of temporary ponded area 2, facing northeast.

Photo of temporary ponded area 3, facing north.

Photo of temporary ponded area 4, facing east.

Photo of temporary ponded area 5, facing east.

Photo of temporary ponded area 6, facing north.

Photo of temporary ponded area 7, facing east.

APPENDIX C

SUMMARY OF FAIRY SHRIMP IDENTIFIED PER SURVEY

Appendix C
Summary of Fairy Shrimp Identified per Survey

Pool	Species	1 12/13/2013	2 12/27/2013	3 01/10/2014	4 01/24/2014	5 03/12/2014	6 03/25/2014	7 04/08/2014	TOTAL
1	SDFS	0	0	0	Dry	0	Dry	Dry	**0**
	LFS	0	0	0		0			**0**
	RFS	0	0	0		0			**0**
2	SDFS	0	0	0	Dry	0	0	Dry	**0**
	LFS	0	0	0		0	0		**0**
	RFS	0	0	0		0	0		**0**
3	SDFS	Dry	Dry	Dry	Dry	Dry	Dry	Dry	**0**
	LFS								**0**
	RFS								**0**
4	SDFS	Dry	Dry	Dry	Dry	Dry	Dry	Dry	**0**
	LFS								**0**
	RFS								**0**
5	SDFS	Dry	Dry	Dry	Dry	0	Dry	Dry	**0**
	LFS					6			**6**
	RFS					0			**0**
6	SDFS	Dry	Dry	Dry	Dry	0	Dry	Dry	**0**
	LFS					7			**7**
	RFS					0			**0**
7	SDFS	Dry	Dry	Dry	Dry	0	0	Dry	**0**
	LFS					0	0		**0**
	RFS					0	0		**0**

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July 17, 2014/Version 2

Ms. Stacey Love
Recovery Permit Coordinator
Carlsbad Fish and Wildlife Office
6010 Hidden Valley Road, Suite 101
Carlsbad, California 92011

RE: Dry Season Fairy Shrimp Cyst Hatching Results for Listed Branchiopod Species within the Southern California Edison Company's (SCE) Valley South 115 kV Subtransmission Project Survey Area, Riverside County, California

Dear Ms. Love:

In compliance with the Special Terms and Conditions for Endangered and Threatened Wildlife Species Permit TE-820658-4, AECOM biologists conducted a dry season survey on May 28, 2014, to determine the presence or absence of the federally endangered San Diego fairy shrimp (*Branchinecta sandiegonensis*), Riverside fairy shrimp (*Streptocephalus woottoni*; RFS), and the federally threatened vernal pool fairy shrimp (*B. lynchi*) for Segment 2 of SCE's Valley South 115kV Subtransmission Project, Riverside County, California (Figures 1 and 2).

Focused protocol wet season fairy shrimp surveys were conducted within Segment 2 of the Proposed and Alternative Project from December 13, 2013, through April 8, 2014. Complete details of the survey are located in the *2013/2014 90-Day Report of Protocol Wet-Season Fairy Shrimp Surveys for Listed Branchiopod Species within the Southern California Edison Company's (SCE) Valley South 115 kV Subtransmission Project (VSSP) Survey Area, Riverside County, California* (AECOM, 2014).

Project Description

The Valley South Subtransmission Project consists of two Segments that are approximately 15.4 miles in total length, located within unincorporated Riverside County and the cities of Menifee, Murrieta, and Temecula. An analysis of biological resources for Segment 1 of the Proposed Project and Alternative Project was conducted previously; this report focuses on surveys conducted for Segment 2.

Project activities associated with Segment 2 involves reconductoring a section of the existing Valley-Auld-Triton 115 kV Subtransmission Line. Segment 2 would cross through unincorporated Riverside County and the City of Temecula and through a variety of habitat types, including heavily cultivated fields, horticultural landscapes adjacent to residential tracts, rural yards, otherwise historically disturbed lands, stands of heavily to partly disturbed

sage scrub vegetation, and the narrow sandy wash at Santa Gertrudis Creek immediately north of Nicolas Road. Segment 2 is divided into the Proposed and Alternative Project.

Segment 2 of the Proposed Project begins at the tubular steel pole (TSP) located at the southeast corner of Leon Road and Benton Road and continues southerly to the existing Terminal TSP located on the south side of Nicolas Road, for a total of 3.4 miles.

Segment 2 of the Alternative Project would begin at an existing TSP located east of Auld 115/12 kV Substation and would parallel Los Alamos Road for approximately 0.5 of a mile until it reaches Briggs Road where it would turn south for approximately 0.5 of a mile. It would then span State Route 79 in an easterly direction and parallel Benton Road before merging with Segment 2 of the Proposed Project. At this location, Segment 2 of the Alternative Project would follow the same 3.4 mile route as Segment 2 of the Proposed Project, for a total of 5 miles. To avoid repeating impacts along the shared 3.4 mile portion of Segment 2, the discussion specific to Segment 2 of the Alternative Project would focus on the unique 1.6-mile portion from Auld Substation to the intersection of Leon Road and Benton Road.

Methodology

AECOM biologist Lance Woolley conducted the dry season soil collection on May 28, 2014, in accordance with guidelines from the *Interim Survey Guidelines to Permittees for Recovery Permits under the Endangered Species Act for the Listed Vernal Pool Branchiopods* (USFWS, 1996). Three temporary ponded areas (TPA 3, TPA 4, and TPA 7) previously identified within Segment 2 of the Proposed Project were dry season sampled. The same TPAs surveyed for the wet season in 2013/2014 were dry season sampled. Approximately 1 liter of dry soil was collected from the three TPAs and sent to D. Christopher Rogers with University of Kansas to conduct cyst hatching.

Four TPAs (TPA1, TPA 2, TPA 5, and TPA 6) previously identified within Segment 2 of the Alternative Project were dry season sampled (Figure 3). The general methods described above for Segment 2 of the Proposed Project also were used in the dry season sampling for Segment 2 of the Alternative Project.

Laboratory Analysis

All laboratory analysis was conducted by D. Christopher Rogers at the University of Kansas and complete details of the methods used in the laboratory analysis are located in Appendix A. Soil samples were prepared for examination in the laboratory by dissolving the clumps of soil in distilled water. Adult shrimp were reared to maturity from the recovered eggs using methods following U.S. Environmental Protection Agency (1985), Belk et al. (1990), Maeda-Martinez et al. (1995a, 1995b), and Jawahar and Dumont (1995). Hatched shrimp were fed a standard *Daphnia* food that includes fish food, fish oil, baker's yeast, and the alga

Selenastrum capricornutum. Adult *Branchinecta* reared from the culture were killed in 90% ethyl alcohol and examined under a stereo dissection microscope.

The general methods described above for Segment 2 of the Proposed Project also were used in the laboratory analysis for Segment 2 of the Alternative Project.

Results

Segment 2 of the Proposed Project

No fairy shrimp eggs were isolated from the dry season soil samples of TPA 3, TPA 4, or TPA 7 (Figure 3; Rogers, 2014).

Segment 2 of the Alternative Project

No federally listed fairy shrimp eggs were isolated from the dry season soil samples. Fairy shrimp eggs belonging to the genus *Branchinecta* were recovered and cultured from TPA 5 and TPA 6 (Figure 3; Rogers, 2014). The adult fairy shrimp were identified as the nonlisted Lindahl's fairy shrimp (*Branchinecta lindahli*). No fairy shrimp eggs were isolated from TPA 1 or TPA 2 (Rogers, 2014).

A wet season survey of these seven temporary ponded areas was conducted in 2013/2014, and a dry season survey was conducted in 2014; therefore, according to the USFWS 1996 guidelines, a complete protocol fairy shrimp survey has been conducted for these seven temporary ponded areas.

Please call me at (619) 233-1454, extension 6820 if you have any questions or comments.

Lance Woolley
Biologist

Attachments: Figure 1 – Regional Map
Figure 2 – Vicinity Map
Figure 3 – Dry Season Fairy Shrimp Results Map
Appendix A – University of Kansas Results Report

Certification Statement

"I certify that the information in this survey report and attached exhibits fully and accurately represents my work."

Lance Woolley
Biologist

Literature Cited

AECOM. 2014. *2013/2014 90-Day Report of Protocol Wet-Season Fairy Shrimp Surveys for Listed Branchiopod Species within the Southern California Edison Company's (SCE) Valley South 115 kV Subtransmission Project (VSSP) Survey Area, Riverside County, California.* May.

Belk, D., G. Anderson, and S-Y. Hsu. 1990. Additional Observations on Variations in Egg Size among Populations of *Streptocephalus sealii* (Anostraca). *Journal of Crustacean Biology* 10:128—133.

Jawahar, A., and H. J. Dumont. 1995. Larviculture of the Fairy Shrimp, *Streptocephalus probocideus* (Crustacea: Anostraca): Effect of Food Concentration and Physical and Chemical Properties of the Culture Medium. *Hydrobiologia* 298:159–165.

Maeda-Martinez, A. M., H. Obregón-Barboza, and H. J. Dumont. 1995a. *Food-Dependent Color Patterns in Thamnocephalus platyurus* Packard (Branchiopoda: Anostraca); a Laboratory Study. *Hydrobiologia* 298:133–139.

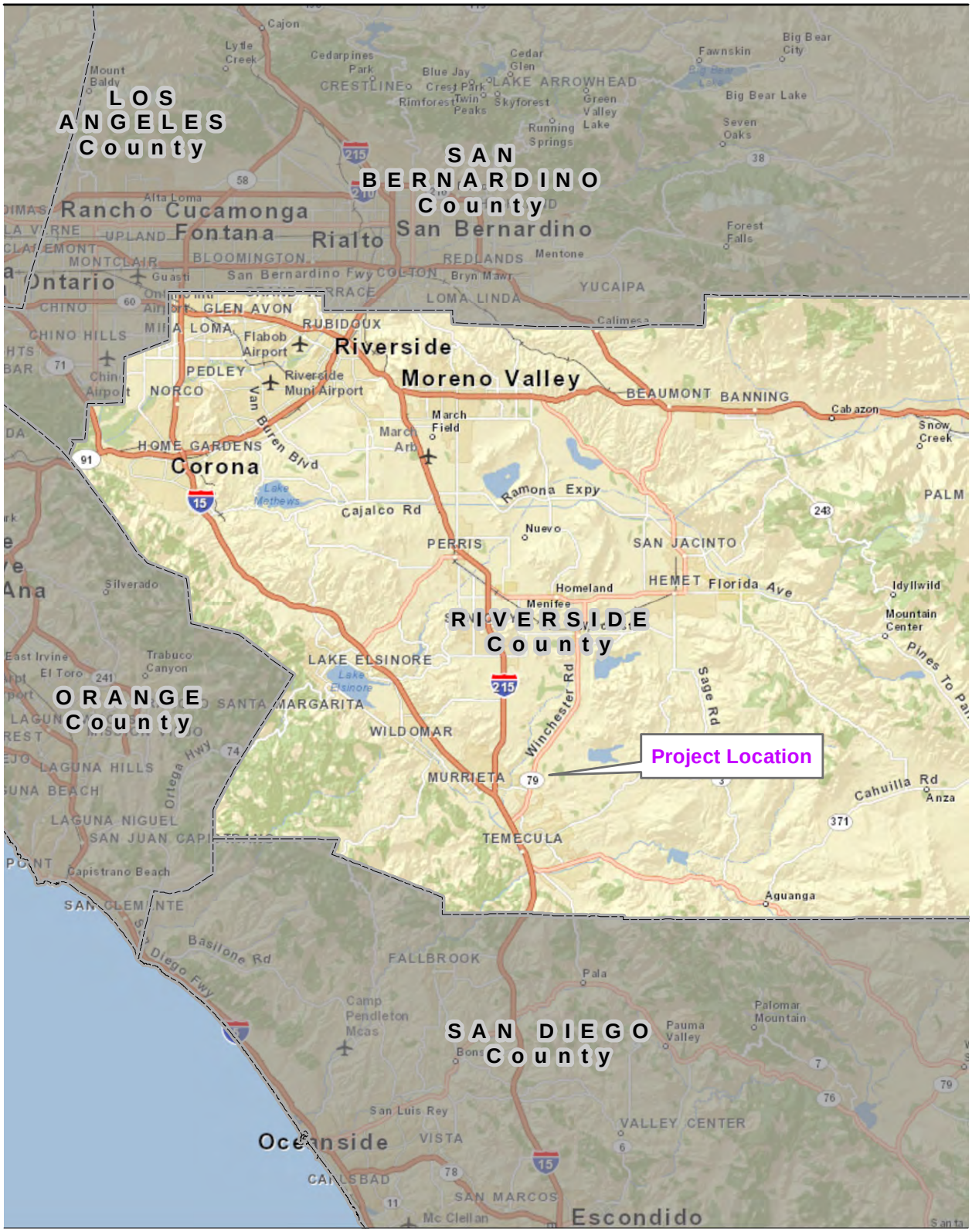
Maeda-Martinez, A. M., H. Obregón-Barboza, and H. J. Dumont. 1995b. Laboratory Culture of Fairy Shrimps Using Baker's Yeast as Basic Food in a Flow-Through System. *Hydrobiologia* 298:141–157.

Rogers, Christopher D. 2014. University of Kansas. *Results of Analyses of Soil Samples Collected from the Proposed Southern California Edison Company's (SCE) Valley South 115 kV Subtransmission Project (VSSP) Survey Area, Riverside County, California.* July.

U.S. Environmental Protection Agency. 1985. *Methods for Measuring the Acute Toxicity of Effluents to Freshwater and Marine Organisms*. EPA/600/4-85/013/. Environmental Research Laboratory, Duluth, MN. 216 pp.

U.S. Fish and Wildlife Service (USFWS). 1996. *Interim Survey Guidelines to Permittees for Recovery Permits under the Endangered Species Act for the Listed Vernal Pool Branchiopods*. Sacramento, CA.

FIGURES



Source: ESRI 2014; USGS 7.5' Topographic Quadrangle Murrieta, CA 1980, Bachelor Mountain, CA 1978

NORTH

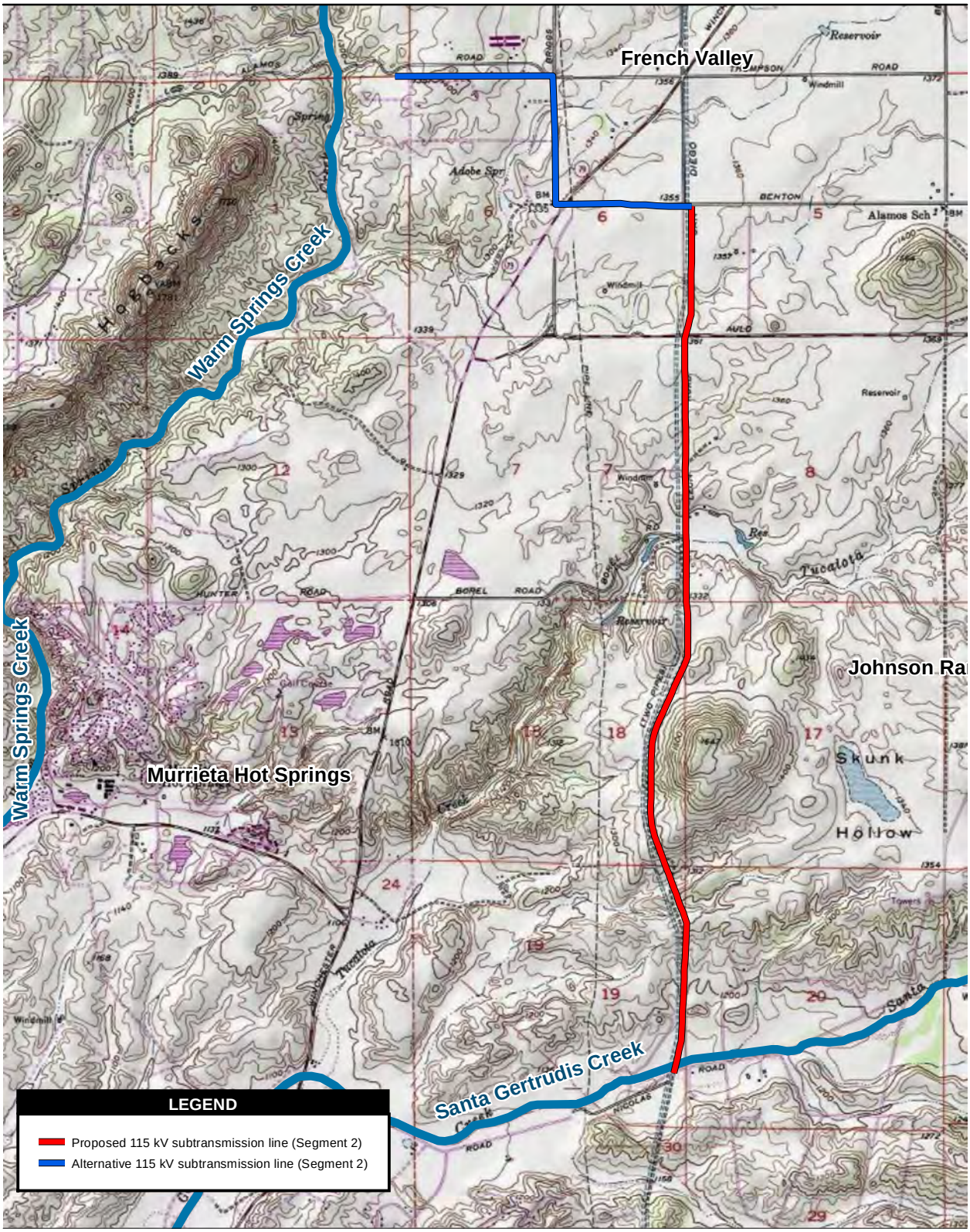
Scale: 1:633,600;1 inch = 10 miles

Miles

0 2.5 5 7.5 10

Figure 1
Regional Map

Path: P:\2012\60247921\06GIS\6.3_Layout\VP_Figures\Figure1_Regional_Map_.mxd, 7/8/2014, WoolleyL



Source: ESRI 2014; USGS 7.5' Topographic Quadrangle Murrieta, CA 1980, Bachelor Mountain, CA 1978

NORTH

Scale: 1:36,000;1 inch = 3,000 feet

Feet

0 750 1,500 2,250 3,000

Figure 2
Vicinity Map

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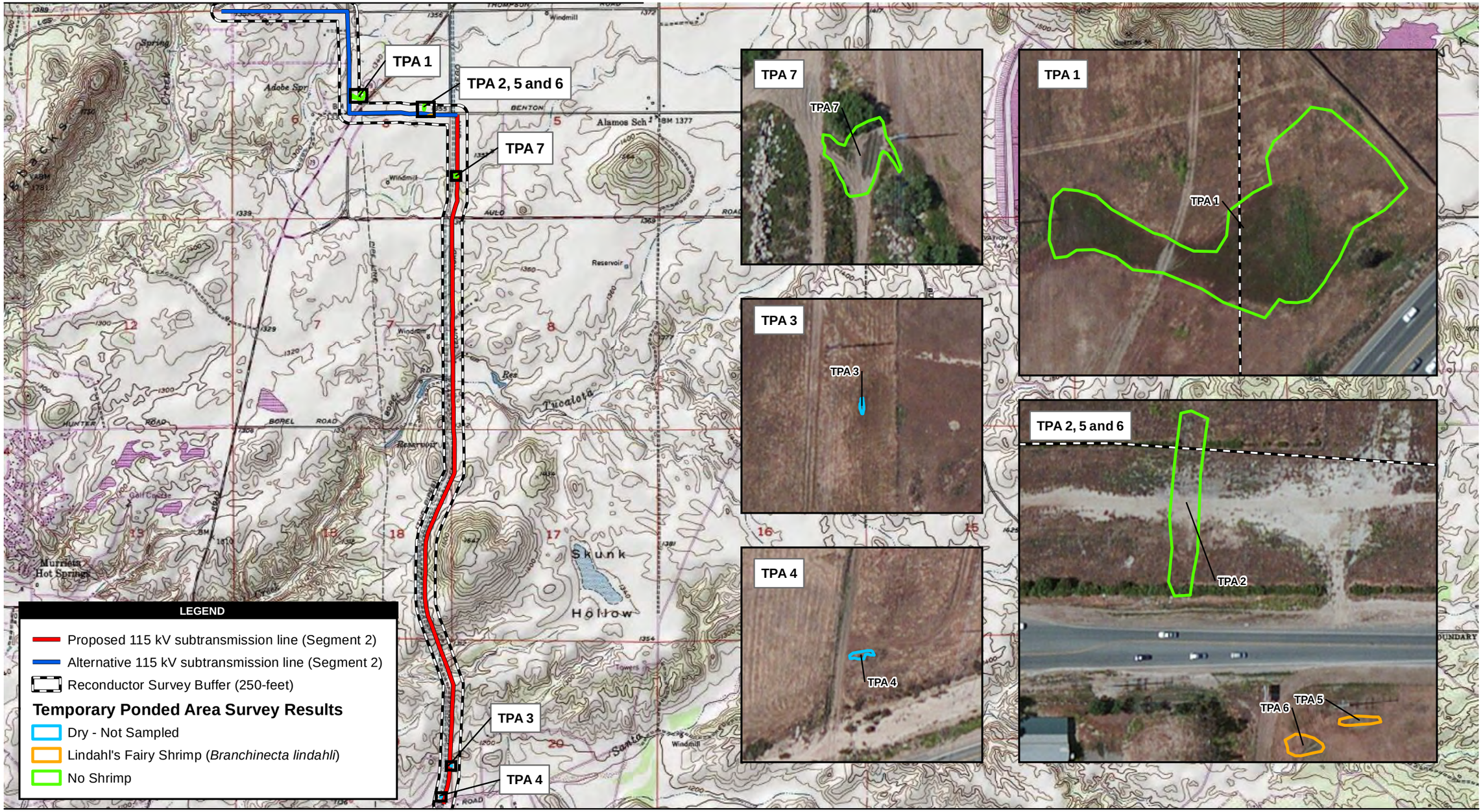

Source: ESRI 2014; USGS 7.5' Topographic Quadrangle Murrieta, CA 1980, Bachelor Mountain, CA 1978

NORTH

Scale: 1:30,000;1 inch = 2,500 feet
Feet
0 630 1,260 1,890 2,520

TPA Insets
Scale: 1:1,200; 1 inch = 100 feet
Feet
0 25 50 75 100

Figure 3
Fairy Shrimp Survey Results Map

Path: P:\2012\60247921\06GIS\6.3_Layout\VP_Figures\Figure3_Survey_REsults.mxd, 7/8/2014, WoolleyL

APPENDIX A

UNIVERSITY OF KANSAS
RESULTS REPORT

The University of Kansas

Kansas Biological Survey

30 June 2014

Barbra Calantas
AECOM, Inc.
1420 Kettner Boulevard, Suite 500
San Diego, California 92101

cc: Kyle Petersen, The Sanberg Group, Inc.

SUBJECT: Results of Dry Season Fairy Shrimp Analyses of Soil Samples Collected from the proposed Southern California Edison Company's (SCE) Valley South 115 kV Subtransmission Project (VSSP) Survey Area, Riverside County, California.

Dear Ms. Calantas,

AECOM biologists conducted a dry season survey of potential special status fairy shrimp habitats on May 02, 2014 within the proposed Southern California Edison Company's (SCE) Valley South 115 kV Subtransmission Project (VSSP) Survey Area, Riverside County, California. Soil samples were collected from seven previously identified habitats judged to be suitable for special status fairy shrimp species. No special status fairy shrimp eggs were collected or cultured from the soil samples analyzed.

Kansas Biological Survey understands that AECOM will submit this report and all other pertinent materials and information to the US Fish and Wildlife Service (USFWS), and the California Department of Fish and Wildlife (DFW), as required by the USFWS guidelines for a protocol level survey.

Definitions

For the purpose of this report, special status fairy shrimp are defined to include shrimp species listed as threatened or endangered under the federal Endangered Species Act (ESA) (50 CFR 17.11 for listed animals and various Federal Register notices for proposed species). Three special status fairy shrimp species (*Branchinecta lynchi*, *B. sandiegonensis* and *Streptocephalus woottoni*) have the potential to occur at the proposed project site. In addition, four nonlisted fairy shrimp species (*Branchinecta lindahli*, *B. mackini*, *Linderiella santarosae* and *Artemia franciscana*) are known from the proposed project vicinity.

Higuchi Hall • 2101 Constant Ave., Room 108 • Lawrence, KS 66047-3759
(785) 864-1500 • Fax: (785) 864-1534 • www.kbs.ku.edu

Methods

AECOM collected dry soil samples from seven potential special status fairy shrimp habitats (numbered sequentially from 1 to 7) at the proposed project site 28 May 2014. Each soil sample was placed in a plastic zip-lock bag, labeled with the locality number, and submitted to the Kansas Biological Survey laboratory for analysis. All potential habitats sampled were identified according to the numbers assigned to them in the field, and recorded on a base map.

Laboratory Analysis

Soil samples were prepared for examination in the laboratory by dissolving the clumps of soil in water and sieving the material through 300- and 150- µm pore size screens. The small size of these screens ensures that the eggs from the shrimp species will be retained. The portion of each sample retained in the screens was dissolved in a brine solution to separate the organic material from the inorganic material. The organic fraction was then examined under a microscope.

Isolated eggs from each sample were cultured separately. Adult fairy shrimp were reared from the recovered eggs using methods following U.S. Environmental Protection Agency (1985), Belk, et al. (1990), Maeda-Martinez, et al., (1995a and 1995b), and Jawahar & Dumont (1995). All dry eggs were removed from the filtered debris left over from the soil sieving. These undamaged eggs were placed in a hatching chamber. A combination of de-chlorinated tap water and de-ionized water with an ultimate conductivity of 30 µS (microsiemens) was added to the chamber, which was then incubated at 9-12 ˚C, 14-17˚C, 9-22˚C and 23-27˚C.

Nauplii (newly hatched fairy shrimp) were transferred to 2.5-liter culture chambers. Nauplii were fed a standard *Daphnia* food that includes; fish food, fish oil, baker's yeast, and the alga *Selenastrum capricornutum*. The nauplii were then reared to maturity. Adult fairy shrimp reared from culture were killed in 90% ethyl alcohol, and examined under a stereo dissection microscope. Identifications were made based upon comparisons with specimens in our collections, the original species descriptions and professional experience.

Results

No special status shrimp eggs were recovered from the soil samples. Anostracan eggs belonging to the genus *Branchinecta* were recovered and cultured from features 5 and 6. The adult animals were identified as the nonlisted *Branchinecta lindahli*.

These analyses are insufficient by themselves to determine that special status fairy shrimp are absent from the other habitat on this site. The results of this survey must be combined with a protocol wet season survey, and concurrence must be sought from the USFWS before any additional determinations can be made.

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If you have any questions please call me.

Sincerely,

D. Christopher Rogers
785.864.1714
Crustacean Taxonomist and Ecologist
Kansas Biological Survey and The Biodiversity Institute
Kansas University, Higuchi Hall
2101 Constant Avenue, Lawrence, KS 66047-3759 USA

Literature Cited

Belk, D., G. Anderson & S-Y. Hsu. 1990. Additional observations on variations in egg size among populations of *Streptocephalus sealii* (Anostraca). Journal of Crustacean Biology 10: 128-133.

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Maeda-Martinez, A. M., H. Obregón-Barboza & H. J. Dumont. 1995a. Food-dependant color patterns in *Thamnocephalus platyurus* Packard (Branchiopoda: Anostraca); a laboratory study. Hydrobiologia 298: 133-139.

Maeda-Martinez, A. M., H. Obregón-Barboza & H. J. Dumont. 1995b. Laboratory culture of fairy shrimps using baker's yeast as basic food in a flow-through system. Hydrobiologia 298: 141-157.

U. S. Environmental Protection Agency. 1985. Methods for measuring the acute toxicity of effluents too freshwater and marine organisms. EPA/600/4-85/013/. Environmental Research Laboratory, Duluth, MN, 216 pp.

U. S. Fish & Wildlife Service. 1996. Interim Survey Guidelines to Permittees for Recovery Permits under the Endangered Species Act for the Listed Vernal Pool Branchiopods. Sacramento, CA.

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July 25, 2014 – Version 2

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Carlsbad Fish and Wildlife Office
2177 Salk Avenue, Suite 250
Carlsbad, California 92008

RE: 45-Day Summary Report of Protocol Surveys for the Southwestern Willow Flycatcher and Least Bell's Vireo within the Southern California Edison Company's (SCE) Valley South 115 kV Subtransmission Project Survey Area, Riverside County, California

Dear Ms. Love:

In compliance with the Special Terms and Conditions for Endangered and Threatened Wildlife Species Permit TE-820658, AECOM submits this letter report summarizing the results of focused surveys conducted in 2014 to determine the presence or absence of the federally and state listed endangered southwestern willow flycatcher (*Empidonax traillii extimus*; SWFL) and federally and state listed endangered least Bell's vireo (*Vireo belli pulillus*; LBV) associated with the Valley South 115 kV Subtransmission Project, Riverside County, California (Proposed Project). Surveys were conducted on behalf of SCE.

This report includes the Proposed Project description; a site description; and a discussion of species background, survey methodology, and results. A list of wildlife species detected throughout all surveys is provided in Appendix A.

Project Description

The Valley South Subtransmission Project consists of two Segments that are approximately 15.4 miles in total length, located within unincorporated Riverside County and the cities of Menifee, Murrieta, and Temecula. An analysis of biological resources for Segment 1 of the Proposed Project and Alternative Project was conducted previously; this report focuses on surveys conducted for Segment 2.

Project activities associated with Segment 2 involves reconductoring a section of the existing Valley-Auld-Triton 115 kV Subtransmission Line. Segment 2 would cross through unincorporated Riverside County and the City of Temecula and through a variety of habitat types, including heavily cultivated fields, horticultural landscapes adjacent to residential tracts, rural yards, otherwise historically disturbed lands, stands of heavily to partly disturbed sage scrub vegetation, and the narrow sandy wash at Santa Gertrudis Creek immediately north of Nicolas Road. Segment 2 is divided into the Proposed and Alternative Project.

Segment 2 of the Proposed Project begins at the tubular steel pole (TSP) located at the southeast corner of Leon Road and Benton Road and continues southerly to the existing Terminal TSP located on the south side of Nicolas Road, for a total of 3.4 miles.

Segment 2 of the Alternative Project would begin at an existing TSP located east of Auld 115/12 kV Substation and would parallel Los Alamos Road for approximately 0.5 of a mile until it reaches Briggs Road where it would turn south for approximately 0.5 of a mile. It would then span State Route 79 in an easterly direction and parallel Benton Road before merging with Segment 2 of the Proposed Project. At this location, Segment 2 of the Alternative Project would follow the same 3.4 mile route as Segment 2 of the Proposed Project, for a total of 5 miles. To avoid repeating impacts along the shared 3.4 mile portion of Segment 2, the discussion specific to Segment 2 of the Alternative Project would focus on the unique 1.6-mile portion from Auld Substation to the intersection of Leon Road and Benton Road.

Site Description

The overall survey area is approximately 620 acres. The SWFL and LBV survey area consists of all suitable habitat within a 500' buffer surrounding the proposed and alternative alignments. Habitat types found within the survey area are coastal sage scrub, grassland, riparian areas, agriculture, and urban/developed land. A description of the area surveyed within the Proposed Project and within the Alternative Project is provided below.

Segment 2 of the Proposed Project

Within the Proposed Project area, three narrow strips of southern willow scrub were surveyed for LBV and SWFL (2.88 acres) with one additional strip of mule fat scrub surveyed for LBV only (1.19 acres).

Segment 2 of the Alternative Project

Within the Alternative Project area, one narrow strip of southern willow scrub (1.36 acres) was surveyed for LBV and SWFL with one additional strip of mule fat scrub surveyed for LBV only (0.38 acres).

Southwestern Willow Flycatcher

SWFL Background Information

SWFL, a subspecies of willow flycatcher (*Empidonax traillii*), is listed by the California Department of Fish and Wildlife (CDFW; previously California Department of Fish and Game [CDFG]) as endangered in California (CDFG, 1991) as part of the state endangered listing of the full species (willow flycatcher). SWFL was also federally listed as endangered in 1995 (USFWS, 1995). This subspecies can only be separated from other willow flycatcher subspecies in the field geographically by breeding range. SWFL breeds in New Mexico, Arizona, southern California, Nevada, Utah, and possibly west Texas (Rourke et al., 1999). In 2005, the U.S. Fish and Wildlife Service (USFWS) issued the final ruling to designate critical habitat for SWFL, which includes portions of Riverside County (USFWS, 2005). No critical habitat occurs within the Proposed Project or Alternative Project.

The primary factor responsible for the decline of SWFL is habitat loss, exacerbated by nest predation and brood parasitism by brown-headed cowbirds (*Molothrus ater*) (BHCO) (Rourke et al., 1999). SWFL is a neotropical migrant that breeds in riparian forests with a distinct vegetation structure: a dense understory where nests are built, a moderately closed canopy, and an open foraging area at midstory. SWFL breeding habitat is also characterized by actively changing hydrology, frequently including standing water, but also dry areas that have flooded within the past few years and retain the appropriate vegetation structure. In California, less than 5% of appropriate riparian habitat remains from its previous extent when California achieved statehood in 1850 (Kus, 2003).

SWFL begin arriving on breeding territories in Southern California in early May, but the northern subspecies (*E. t. brewsteri*) may migrate through southern breeding areas through mid-June. Both male and female migrant willow flycatchers frequently sing, and determining whether an individual is a resident (SWFL) or a migrant (willow flycatcher) cannot be accomplished from a single detection. Therefore, a survey protocol for SWFL has been adopted by USFWS (Sogge et al,. 2010).

SWFL Survey Methodology

A reconnaissance-level habitat assessment for SWFL was conducted by AECOM biologists in 2013. During the initial 2014 survey for LBV, the site was again assessed for suitable riparian habitat that could support SWFL (Figure 3).

AECOM biologist Brennan Mulrooney conducted surveys under Endangered Species Permit TE-820658. SWFL surveys followed the current survey protocol adopted by USFWS (Sogge et al., 2010). In accordance with the requirements of the USFWS SWFL survey protocol, the SWFL survey area depicted in Figure 3 was surveyed once during the first survey period (May 15 through May 31), twice during the second survey period (June 1 through June 24), and twice during the third survey period (June 25 through July 17). Surveys were conducted at least 5 days apart between dawn and 11 a.m. Biologists walked through suitable habitat, stopping frequently to listen. After a few minutes of passive listening, if no SWFL were heard, a playback recording of SWFL calls was played (active surveys) to elicit a response from SWFL within or adjacent to the property.

As allowed under the relevant endangered species permits, the survey activity “takes” the SWFL through harassment with playback of recorded SWFL vocalizations. No individual SWFL were captured.

Protocol-level SWFL surveys were conducted between May 15 and July 11, 2014, within Segment 2 of the Proposed Project in areas of suitable SWFL habitat (Table 1).

SWFL Results

Table 1 details each survey, including the survey period, date, permitted biologist, time, weather conditions, and observations for the Proposed Project and the Alternative Project. A complete list of all wildlife detected is provided in Appendix A. BHCO observations are listed in Table 3.

Table 1. SWFL Survey Dates, Personnel, Weather Conditions, and Results

Survey Number	Date	Survey Personnel	Weather Conditions	Time[1] / Time[2]	Results[1] / Results[2]
1	5/15/2014	Brennan Mulrooney	Start: 57°F, wind 2 mph, 0% cover End: 65°F, wind 3 mph, 0% cover	0634–0804	1 migrant willow flycatcher observed
				0804–0928	No SWFL observed
2	6/9/2014	Brennan Mulrooney	Start: 65°F, wind 0 mph, 0% cover End: 76°F, wind 3 mph, 0% cover	0700–0752	No SWFL observed
				0752–0930	No SWFL observed
3	6/19/2014	Brennan Mulrooney	Start: 63°F, wind 1 mph, 0% cover End: 75°F, wind 3 mph, 0% cover	0932–1008	No SWFL observed
				0806–0932	No SWFL observed
4	6/30/2014	Brennan Mulrooney	Start: 66°F, wind 2 mph, 100% cover End: 69°F, wind 1 mph, 75% cover	0721–0828	No SWFL observed
				0828–0922	No SWFL observed
5	7/11/2014	Brennan Mulrooney	Start: 65°F, wind 0 mph, 90% cover End: 70°F, wind 5 mph, 0% cover	0721–0802	No SWFL observed
				0802–0922	No SWFL observed

[1]Proposed Project Area
[2]Alternative Project Area

Segment 2 of the Proposed Project

During SWFL surveys, several sensitive species were detected: white-faced ibis (*Plegadis chihi*; CDFW Watch List), LBV, California horned lark (*Eremophila alpestris actia*; CDFW Watch List), and tricolored blackbird (*Agelaius tricolor*; CDFW Species of Special Concern). All sensitive species and BHCO detections are represented in Figure 3.

Segment 2 of the Alternative Project

The species detected in the Proposed Project area were consistent with those found in the Alternative Project area with the exception of tricolored blackbird.

SWFL Discussion

Segment 2 of the Proposed Project

During survey 1, a single willow flycatcher was detected in ornamental trees in the driveway to a residence adjacent to a riparian strip within the survey area. The bird never sang and only gave “whit” calls in response to SWFL recordings. This bird was not detected in subsequent surveys and can be assumed to have been a migrant. No SWFL were detected on any surveys.

Segment 2 of the Alternative Project

No SWFL were detected in the Alternative Project area.

Least Bell's Vireo

LBV Background Information

LBV was listed as endangered by USFWS on May 2, 1986 (USFWS, 1986), with designated critical habitat (USFWS, 1994). This listing status applies to the entire population of LBV. A draft recovery plan was written by USFWS and circulated for review in 1998 (USFWS, 1998). No critical habitat occurs within the Proposed Project or Alternative Project. CDFW listed this subspecies as endangered on October 2, 1980 (CDFG, 2004).

Historically, this subspecies was a common summer visitor to riparian habitat throughout much of California. Currently, LBV is found only in riparian woodlands in southern California, with the majority of breeding pairs in San Diego, Santa Barbara, and Riverside Counties.

LBV is migratory and arrives in Southern California in late March/early April; it leaves for its wintering grounds in September. LBV primarily occupies riparian woodlands that include dense cover within 3 to 7 feet of the ground and a dense, stratified canopy. The subspecies inhabits low, dense riparian growth along water or along dry parts of intermittent streams. The understory is typically dominated by species of willow (*Salix* sp.) and mulefat (*Baccharis salicifolia*). Overstory species typically include cottonwood (*Populus* sp.), western sycamore (*Platanus racemosa*), and mature willows. The subspecies typically builds nests in vegetation 3 to 4 feet above the ground (Salata, 1984) where there is moderately open midstory cover with an overstory of willows, cottonwoods, sycamores, or coast live oaks (*Quercus agrifolia*). Nests are also often placed along internal or external edges of riparian thickets at an average of 3.3 feet above the ground (Unitt, 2004). Riparian plant succession is an important factor in maintaining LBV habitat.

The decline of LBV is attributed to loss, degradation, and fragmentation of riparian habitat, combined with brood/nest parasitism by BHCO. LBV is known to be sensitive to many forms of disturbance, including noise, night-lighting, and consistent human presence. Due to concerted programs focused on preserving, enhancing, and creating suitable nesting habitat, the LBV population has steadily increased in size along several of its breeding drainages in southern California. Significant increases in breeding populations have occurred along the Santa Ana River at Prado Basin, and on the Santa Margarita River on Marine Corps Base Camp Pendleton, as well as at several other sites in the region.

LBV Survey Methodology

LBV surveys were conducted due to the presence of suitable habitat within the study area. A reconnaisance-level habitat assessment for LBV was conducted by AECOM biologists in 2013. During the initial 2014 survey for LBV, the site was again assessed for suitable riparian habitat that could support LBV (Figure 3).

LBV surveys were completed during the breeding season of 2014. Focused surveys followed the current USFWS survey guidelines for the species, dated January 19, 2001 (USFWS, 2001). Surveys were conducted by AECOM biologist Brennan Mulrooney. The survey consisted of walking transects through potential LBV habitat and conducting passive

surveillance (i.e., listening and looking for the species). Per USFWS guidelines, the area was surveyed eight times during 2014 (Table 1). Surveys were conducted at least 10 days apart and typically completed between dawn and 11 a.m. All surveys occurred between April 10 and July 31. Surveys consisted of walking meandering transects through potential LBV habitat. Surveys were not conducted during periods of inclement weather such as extreme wind or during a rain event.

LBV Results

Table 2 details each survey, including the date, survey period, personnel and permitted biologist, time, weather conditions, and observations for the Proposed Project and the Alternative Project. A complete list of all wildlife detected is provided in Appendix A. BHCO observations are listed in Table 3.

Segment 2 of the Proposed Project

During LBV surveys, several sensitive species were detected: white-faced ibis (*Plegadis chihi*; CDFW Watch List), SWFL, California horned lark (*Eremophila alpestris actia*; CDFW Watch List), and tricolored blackbird (*Agelaius tricolor*; CDFW Species of Special Concern). All sensitive species and BHCO detections are represented in Figure 3.

Table 2. LBV Survey Dates, Personnel, Weather Conditions, and Results

Survey Number	Date	Survey Personnel	Weather Conditions	Time[1] / Time[2]	Results[1] / Results[2]
1	4/24/2014	Brennan Mulrooney	Start: 59°F, wind 0 mph, 0% cover End: 69°F, wind 2 mph, 0% cover	0727–0858	1 singing male LBV
				0727–1017	1 singing male LBV
2	5/5/2014	Brennan Mulrooney	Start: 52°F, wind 2 mph, 80% cover End: 69°F, wind 2 mph, 10% cover	0706–0815	1 singing male LBV
				0815–0915	No LBV detected
3	5/15/2014	Brennan Mulrooney	Start: 57°F, wind 2 mph, 0% cover End: 65°F, wind 3 mph, 0% cover	0634–0750	No LBV detected
				0750–0902	1 singing male LBV
4	5/27/2014	Brennan Mulrooney	Start: 65°F, wind 0 mph, 0% cover End: 73°F, wind 1 mph, 0% cover	0815–0907	No LBV detected
				0606–0815	1 singing male LBV
5	6/9/2014	Brennan Mulrooney	Start: 65°F, wind 0 mph, 0% cover End: 76°F, wind 3 mph, 0% cover	0731–0820	No LBV detected
				0820–0932	Male and female LBV with begging juvenile
6	6/19/2014	Brennan Mulrooney	Start: 63°F, wind 1 mph, 0% cover End: 75°F, wind 3 mph, 0% cover	0901–1006	1 singing male LBV
				0804–0901	1 singing male LBV with begging juvenile
7	6/30/2014	Brennan Mulrooney	Start: 66°F, wind 2 mph, 100% cover End: 69°F, wind 1 mph, 75% cover	0721–0922	No LBV detected
				0721–0922	2 adult LBV with at least one juvenile
8	7/11/2014	Brennan Mulrooney	Start: 65°F, wind 0 mph, 90% cover End: 70°F, wind 5 mph, 0% cover	0723–0924	No LBV detected
				0723–0924	1 singing male LBV

[1]Proposed Project Area
[2]Alternative Project Area

Table 3
Summary of Brown-Headed Cowbird Observations by Survey Period

Survey Period	Survey Date	Number of BHCO Individuals Detected
LBV 1	4/24/2014	6
LBV 2	5/5/2014	3
LBV 3/SWFL 1	5/15/2014	3
LBV 4	5/27/2014	3
LBV 5/SWFL 2	6/9/2014	2
LBV 6/SWFL 3	6/19/2014	2
LBV 7/SWFL 4	6/30/2014	3
LBV 8/SWFL 5	7/11/2014	3

Segment 2 of the Alternative Project

The species detected in the Proposed Project area were consistent with those found in the Alternative Project area with the exception of tricolored blackbird.

LBV Discussion

Segment 2 of the Proposed Project

One singing male LBV was detected directly adjacent to the Proposed Project area. This bird was never observed within the 500' buffer, but it given the fact that the habitat it was using continues into the buffer, it can be assumed that it spent some amount of time within the Proposed Project area. This bird was never observed to be paired.

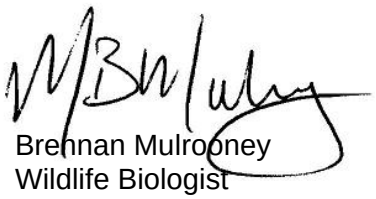
Segment 2 of the Alternative Project

One breeding pair of LBV was found to be nesting in the Alternative Project area. Two adults and at least one begging juvenile were observed on multiple occasions. The begging juvenile was observed outside the nest and the pair did not appear to be feeding any BHCO.

Attachments:
Figure 1 – Regional Map
Figure 2 – Vicinity Map
Figure 3 – Suitable Habitat Map and Special-Status Species Observations
Appendix A – Wildlife Species Detected during All Focused Surveys

Certification Statement

I certify that the information in this survey report and attached exhibits fully and accurately represent my work.



Brennan Mulrooney
Wildlife Biologist
TE-820658

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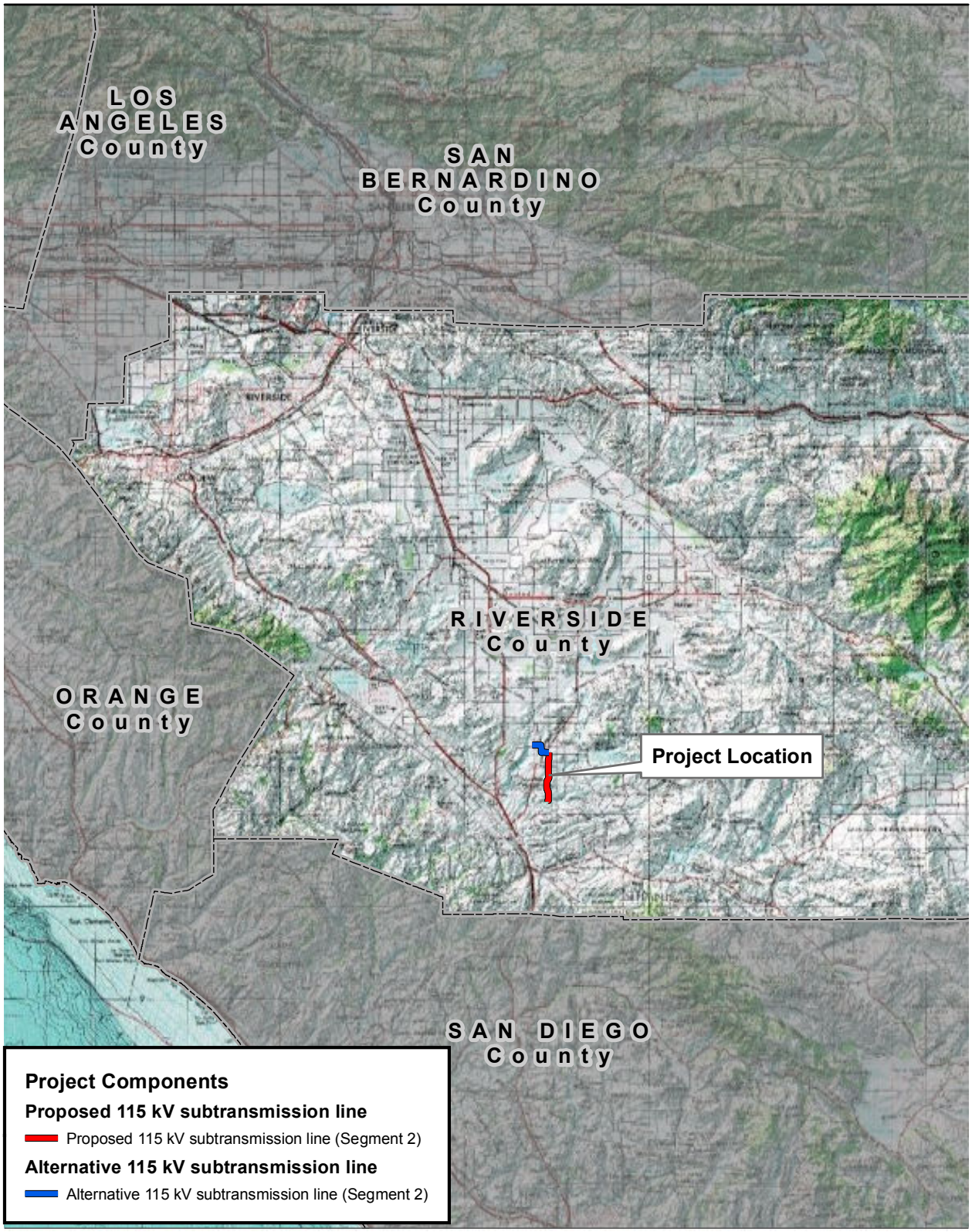
FIGURES



Source: ESRI 2014; USGS 7.5' Topographic Quadrangle Murrieta, CA 1980, Bachelor Mountain, CA 1978

NORTH

Scale: 1:633,600;1 inch = 10 miles

0 2.5 5 7.5 10 Miles

Figure 1
Regional Map

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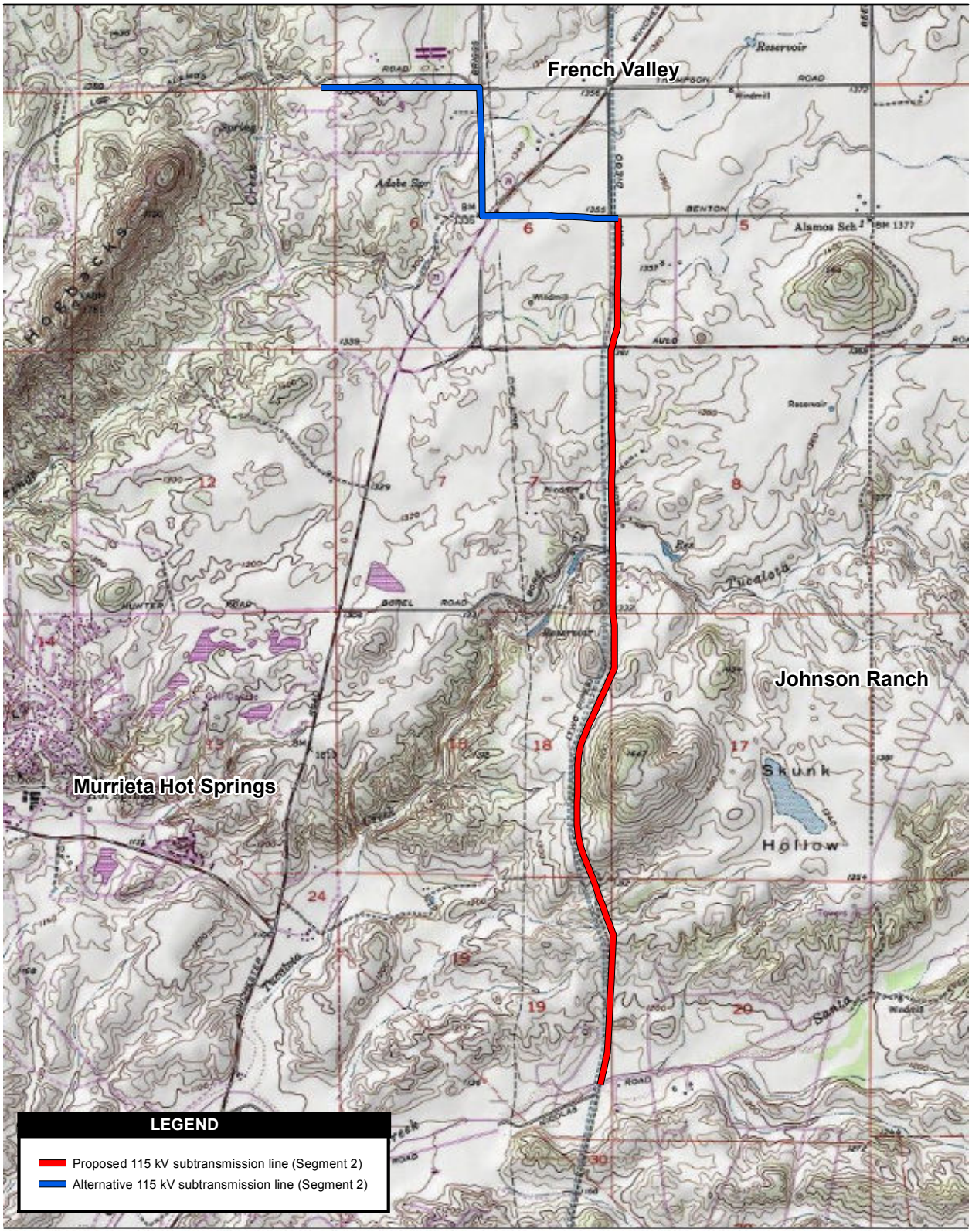

Source: ESRI 2014; USGS 7.5' Topographic Quadrangle Murrieta, CA 1980, Bachelor Mountain, CA 1978

NORTH

Scale: 1:36,000;1 inch = 3,000 feet

0 750 1,500 2,250 3,000 Feet

Figure 2
Vicinity Map

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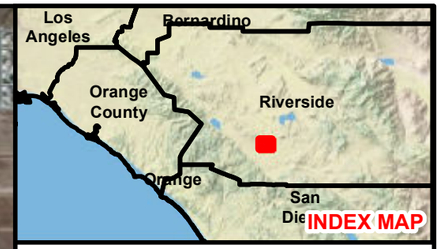
AULD SUBSTATION

150 75 0 150 Feet

250 125 0 250 Feet

Borel Property



Legend

Existing Facilities

- 115 kV Substation

Project Components

Proposed 115 kV subtransmission line

- Proposed 115 kV subtransmission line (Segment 2)

Alternative 115 kV subtransmission line

- Alternative 115 kV subtransmission line (Segment 2)
- Sensitive Landowner Parcels - Not Surveyed
- 500- foot buffer
- Mule Fat Scrub
- Southern Willow Scrub

Special-Status Bird Species

- Brown-headed Cowbird
- California horned lark
- White-faced ibis
- Least Bell's vireo
- Tricolored blackbird
- Yellow warbler
- Willow flycatcher

NORTH

1 inch = 1,500 feet

0 375 750 1,125 1,500 Feet

AECOM

VALLEY SOUTH 115 kV SUBTRANSMISSION PROJECT

Suitable Habitat Map and Special-Status Species Observations

Figure 3

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APPENDIX A

WILDLIFE SPECIES DETECTED DURING ALL SURVEYS

Appendix A
Species Observations

Common Name	Scientific Name	Order	Family
Invertebrates			
White Checkered-Skipper	*Pyrgus albescens*	Lepidoptera	Hesperiidae
West Coast Lady	*Vanessa annabella*	Lepidoptera	Nymphalidae
Western Tiger Swallowtail	*Papilio rutulus*	Lepidoptera	Papilionidae
Checkered White	*Pontia protodice*	Lepidoptera	Pieridae
Reptiles & Amphibians			
Western Fence Lizard	*Sceloporus occidentalis*	Squamata	Phrynosomatidae
Granite Spiny Lizard	*Sceloporus orcutti*	Squamata	Phrynosomatidae
Avian			
Red-tailed Hawk	*Buteo jamaicensis*	Accipitriformes	Accipitridae
Mallard	*Anas platyrhynchos*	Anseriformes	Anatidae
Canada Goose	*Branta canadensis*	Anseriformes	Anatidae
Black-chinned Hummingbird	*Archilochus alexandri*	Apodiformes	Trochilidae
Anna's Hummingbird	*Calypte anna*	Apodiformes	Trochilidae
Costa's Hummingbird	*Calypte costae*	Apodiformes	Trochilidae
Rufous/Allen’s Hummingbird	*Selasphorus rufus/sasin*	Apodiformes	Trochilidae
Eurasian Collared-Dove	*Streptopelia decaocto*	Columbiformes	Columbidae
Mourning Dove	*Zenaida macroura*	Columbiformes	Columbidae
Greater Roadrunner	*Geococcyx californianus*	Cuculiformes	Cuculidae
American Kestrel	*Falco sparverius*	Falconiformes	Falconidae
Bushtit	*Psaltriparus minimus*	Passeriformes	Aegithalidae
California Horned Lark	*Eremophila alpestris actia*	Passeriformes	Alaudidae
Lazuli Bunting	*Passerina amoena*	Passeriformes	Cardinalidae
Blue Grosbeak	*Passerina caerulea*	Passeriformes	Cardinalidae
Black-headed Grosbeak	*Pheucticus melanocephalus*	Passeriformes	Cardinalidae
American Crow	*Corvus brachyrhynchos*	Passeriformes	Corvidae

Common Name	Scientific Name	Order	Family
Common Raven	*Corvus corax*	Passeriformes	Corvidae
Lark Sparrow	*Chondestes grammacus*	Passeriformes	Emberizidae
Song Sparrow	*Melospiza melodia*	Passeriformes	Emberizidae
California Towhee	*Melozone crissalis*	Passeriformes	Emberizidae
Spotted Towhee	*Pipilo maculatus*	Passeriformes	Emberizidae
House Finch	*Haemorhous mexicanus*	Passeriformes	Fringillidae
Lawrence's Goldfinch	*Spinus lawrencei*	Passeriformes	Fringillidae
Lesser Goldfinch	*Spinus psaltria*	Passeriformes	Fringillidae
American Goldfinch	*Spinus tristis*	Passeriformes	Fringillidae
Barn Swallow	*Hirundo rustica*	Passeriformes	Hirundinidae
Cliff Swallow	*Petrochelidon pyrrhonota*	Passeriformes	Hirundinidae
Northern Rough-winged Swallow	*Stelgidopteryx serripennis*	Passeriformes	Hirundinidae
Red-winged Blackbird	*Agelaius phoeniceus*	Passeriformes	Icteridae
Tricolored Blackbird	*Agelaius tricolor*	Passeriformes	Icteridae
Bullock's Oriole	*Icterus bullockii*	Passeriformes	Icteridae
Hooded Oriole	*Icterus cucullatus*	Passeriformes	Icteridae
Brown-headed Cowbird	*Molothrus ater*	Passeriformes	Icteridae
Western Meadowlark	*Sturnella neglecta*	Passeriformes	Icteridae
Northern Mockingbird	*Mimus polyglottos*	Passeriformes	Mimidae
California Thrasher	*Toxostoma redivivum*	Passeriformes	Mimidae
Wilson's Warbler	*Cardellina pusilla*	Passeriformes	Parulidae
MacGillivray's Warbler	*Geothlypis tolmiei*	Passeriformes	Parulidae
Common Yellowthroat	*Geothlypis trichas*	Passeriformes	Parulidae
Orange-crowned Warbler	*Oreothlypis celata*	Passeriformes	Parulidae
Yellow Warbler	*Setophaga petechia brewsteri*	Passeriformes	Parulidae
Bewick's Wren	*Thryomanes bewickii*	Passeriformes	Troglodytidae
House Wren	*Troglodytes aedon*	Passeriformes	Troglodytidae
Swainson's Thrush	*Catharus ustulatus*	Passeriformes	Turdidae
Western Bluebird	*Sialia mexicana*	Passeriformes	Turdidae

Common Name	Scientific Name	Order	Family
Western Wood-Pewee	*Contopus sordidulus*	Passeriformes	Tyrannidae
Pacific-slope Flycatcher	*Empidonax difficilis*	Passeriformes	Tyrannidae
Dusky Flycatcher	*Empidonax oberholseri*	Passeriformes	Tyrannidae
Willow Flycatcher	*Empidonax traillii*	Passeriformes	Tyrannidae
Ash-throated Flycatcher	*Myiarchus cinerascens*	Passeriformes	Tyrannidae
Black Phoebe	*Sayornis nigricans*	Passeriformes	Tyrannidae
Say's Phoebe	*Sayornis saya*	Passeriformes	Tyrannidae
Western Kingbird	*Tyrannus verticalis*	Passeriformes	Tyrannidae
Cassin's Kingbird	*Tyrannus vociferans*	Passeriformes	Tyrannidae
Least Bell's Vireo	*Vireo bellii pusillus*	Passeriformes	Vireonidae
Cassin's Vireo	*Vireo cassinii*	Passeriformes	Vireonidae
Warbling Vireo	*Vireo gilvus*	Passeriformes	Vireonidae
Great Egret	*Ardea alba*	Pelecaniformes	Ardeidae
Green Heron	*Butorides virescens*	Pelecaniformes	Ardeidae
Black-crowned Night-Heron	*Nycticorax nycticorax*	Pelecaniformes	Ardeidae
White-faced Ibis	*Plegadis chihi*	Pelecaniformes	Threskiornithidae
Nuttall's Woodpecker	*Picoides nuttallii*	Piciformes	Picidae
Downy Woodpecker	*Picoides pubescens*	Piciformes	Picidae
Mammals			
Mule Deer	*Odocoileus hemionus*	Artiodactyla	Cervidae
Desert Cottontail	*Sylvilagus audubonii*	Lagomorpha	Leporidae
California Ground Squirrel	*Spermophilus beecheyi*	Rodentia	Sciuridae

Cultural Resources: Historic Contact Program

AECOM

AECOM
1420 Kettner Boulevard
Suite 500
San Diego, CA 92101
www.aecom.com

619.233.1454 tel
619.233.0952 fax

April 02, 2012

Dora Nelson
African-American History Museum
316 E. Seventh Street
Perris, CA
92572

Subject: The Proposed SCE Valley South Subtransmission Line Project, Riverside County, California

Dear Dora Nelson,

Southern California Edison (SCE) is proposing the construction of the Valley South Subtransmission Line Project (VSSP) to serve current and projected demand for electricity, and maintain electric system reliability in portions of southern Riverside County including the cities of Murrieta, Menifee, Temecula, Wildomar, and the surrounding unincorporated communities within the county.

AECOM was contracted by SCE to conduct cultural resources studies, including archaeological and architectural surveys of the proposed VSSP for compliance with the California Environmental Quality Act (CEQA), Public Resources Code Section 21083.2 and its implementing guidelines (CCR Title 14 Sections 15064.5, 15064.7, 15126.4(b), Appendix G Section V). The purpose of this letter is to notify you of this project and to solicit your input. We would like to know if you have any questions, comments, or concerns, or would like to share information about cultural resources within the vicinity of the proposed project.

A project map and a reply form have been included for your convenience. Written replies should be sent to AECOM at the address above. Providing comments now does not limit your ability to comment at a later time.

Sincerely,

Jill Gibson
Architectural Historian

Enclosures: Project Map
Response Form

CONTACT PROGRAM RESPONSE FORM
Valley South Sub-transmission Line Project

Please check all that apply:

- ❑ Please call me to discuss the project further; my day-time phone number is (_____)_____ or my evening phone number is (_____)_____
- ❑ I have further comments as provided below
- ❑ I do not have any comments

Comments:

_____

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_____

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_____

Signature:

_____ _____

Date

AECOM
1420 Kettner Boulevard
Suite 500
San Diego, CA 92101
www.aecom.com

619.233.1454 tel
619.233.0952 fax

April 02, 2012

Temecula Valley Museum
28314 Mercedes Street
Temecula, California
92590

Subject: The Proposed SCE Valley South Subtransmission Line Project, Riverside County, California

Dear Temecula Valley Museum,

Southern California Edison (SCE) is proposing the construction of the Valley South Subtransmission Line Project (VSSP) to serve current and projected demand for electricity, and maintain electric system reliability in portions of southern Riverside County including the cities of Murrieta, Menifee, Temecula, Wildomar, and the surrounding unincorporated communities within the county.

AECOM was contracted by SCE to conduct cultural resources studies, including archaeological and architectural surveys of the proposed VSSP for compliance with the California Environmental Quality Act (CEQA), Public Resources Code Section 21083.2 and its implementing guidelines (CCR Title 14 Sections 15064.5, 15064.7, 15126.4(b), Appendix G Section V). The purpose of this letter is to notify you of this project and to solicit your input. We would like to know if you have any questions, comments, or concerns, or would like to share information about cultural resources within the vicinity of the proposed project.

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Sincerely,

Jill Gibson
Architectural Historian

Enclosures: Project Map
Response Form

CONTACT PROGRAM RESPONSE FORM
Valley South Sub-transmission Line Project

Please check all that apply:

- ❑ Please call me to discuss the project further; my day-time phone number is (_____)_____ or my evening phone number is (_____)_____
- ❑ I have further comments as provided below
- ❑ I do not have any comments

Comments:

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_____

Signature:

_____ _____

Date

AECOM
1420 Kettner Boulevard
Suite 500
San Diego, CA 92101
www.aecom.com

619.233.1454 tel
619.233.0952 fax

April 02, 2012

San Jacinto Valley Museum
181 E. Main Street
San Jacinto, California
92583

Subject: The Proposed SCE Valley South Subtransmission Line Project, Riverside County, California

Dear San Jacinto Valley,

Southern California Edison (SCE) is proposing the construction of the Valley South Subtransmission Line Project (VSSP) to serve current and projected demand for electricity, and maintain electric system reliability in portions of southern Riverside County including the cities of Murrieta, Menifee, Temecula, Wildomar, and the surrounding unincorporated communities within the county.

AECOM was contracted by SCE to conduct cultural resources studies, including archaeological and architectural surveys of the proposed VSSP for compliance with the California Environmental Quality Act (CEQA), Public Resources Code Section 21083.2 and its implementing guidelines (CCR Title 14 Sections 15064.5, 15064.7, 15126.4(b), Appendix G Section V). The purpose of this letter is to notify you of this project and to solicit your input. We would like to know if you have any questions, comments, or concerns, or would like to share information about cultural resources within the vicinity of the proposed project.

A project map and a reply form have been included for your convenience. Written replies should be sent to AECOM at the address above. Providing comments now does not limit your ability to comment at a later time.

Sincerely,

Jill Gibson
Architectural Historian

Enclosures: Project Map
Response Form

CONTACT PROGRAM RESPONSE FORM
Valley South Sub-transmission Line Project

Please check all that apply:

- ❑ Please call me to discuss the project further; my day-time phone number is (_____)_____ or my evening phone number is (_____)_____
- ❑ I have further comments as provided below
- ❑ I do not have any comments

Comments:

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_____

_____

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_____

_____

_____

Signature:

_____ _____

Date

AECOM
1420 Kettner Boulevard
Suite 500
San Diego, CA 92101
www.aecom.com

619.233.1454 tel
619.233.0952 fax

April 01, 2012

Patterson House Museum
28030 Patterson Avenue
Winchester, California
92596

Subject: The Proposed SCE Valley South Subtransmission Line Project, Riverside County, California

Dear Winchester Historic Society,

Southern California Edison (SCE) is proposing the construction of the Valley South Subtransmission Line Project (VSSP) to serve current and projected demand for electricity, and maintain electric system reliability in portions of southern Riverside County including the cities of Murrieta, Menifee, Temecula, Wildomar, and the surrounding unincorporated communities within the county.

AECOM was contracted by SCE to conduct cultural resources studies, including archaeological and architectural surveys of the proposed VSSP for compliance with the California Environmental Quality Act (CEQA), Public Resources Code Section 21083.2 and its implementing guidelines (CCR Title 14 Sections 15064.5, 15064.7, 15126.4(b), Appendix G Section V). The purpose of this letter is to notify you of this project and to solicit your input. We would like to know if you have any questions, comments, or concerns, or would like to share information about cultural resources within the vicinity of the proposed project.

A project map and a reply form have been included for your convenience. Written replies should be sent to AECOM at the address above. Providing comments now does not limit your ability to comment at a later time.

Sincerely,

Jill Gibson
Architectural Historian

Enclosures: Project Map
Response Form

CONTACT PROGRAM RESPONSE FORM
Valley South Sub-transmission Line Project

Please check all that apply:

- ❑ Please call me to discuss the project further; my day-time phone number is (_____)_____ or my evening phone number is (_____)_____
- ❑ I have further comments as provided below
- ❑ I do not have any comments

Comments:

_____

_____

_____

_____

_____

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_____

_____

_____

Signature:

_____ _____

Date

AECOM

AECOM
1420 Kettner Boulevard
Suite 500
San Diego, CA 92101
www.aecom.com

619.233.1454 tel
619.233.0952 fax

April 02, 2012

Riverside Public Library, Special Collections
3581 Mission Ave
Riverside, CA
92501

Subject: The Proposed SCE Valley South Subtransmission Line Project, Riverside County, California

Dear Riverside Public Library,

Southern California Edison (SCE) is proposing the construction of the Valley South Subtransmission Line Project (VSSP) to serve current and projected demand for electricity, and maintain electric system reliability in portions of southern Riverside County including the cities of Murrieta, Menifee, Temecula, Wildomar, and the surrounding unincorporated communities within the county.

AECOM was contracted by SCE to conduct cultural resources studies, including archaeological and architectural surveys of the proposed VSSP for compliance with the California Environmental Quality Act (CEQA), Public Resources Code Section 21083.2 and its implementing guidelines (CCR Title 14 Sections 15064.5, 15064.7, 15126.4(b), Appendix G Section V). The purpose of this letter is to notify you of this project and to solicit your input. We would like to know if you have any questions, comments, or concerns, or would like to share information about cultural resources within the vicinity of the proposed project.

A project map and a reply form have been included for your convenience. Written replies should be sent to AECOM at the address above. Providing comments now does not limit your ability to comment at a later time.

Sincerely,

Jill Gibson
Architectural Historian

Enclosures: Project Map
Response Form

CONTACT PROGRAM RESPONSE FORM
Valley South Sub-transmission Line Project

Please check all that apply:

- ❑ Please call me to discuss the project further; my day-time phone number is (_____)_____ or my evening phone number is (_____)_____
- ❑ I have further comments as provided below
- ❑ I do not have any comments

Comments:

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_____

_____

Signature:

_____ _____

Date

CONTACT PROGRAM RESPONSE FORM
Valley South Sub-transmission Line Project

Please check all that apply:

- ☐ Please call me to discuss the project further; my day-time phone number is (951) 294-0899 or my evening phone number is (____)_____
- ☒ I have further comments as provided below
- ☐ I do not have any comments

Comments:

See MAP

Feel free to CALL ~~ME~~ IF you WISH

You MAY FIND OLD HOMSTEADS ALSO. LOOK for CLUMPS of TREES

Signature:

Greg Cowdery

4-26-12
Date

Patterson House Museum

Legend of "Old Man" Mountain

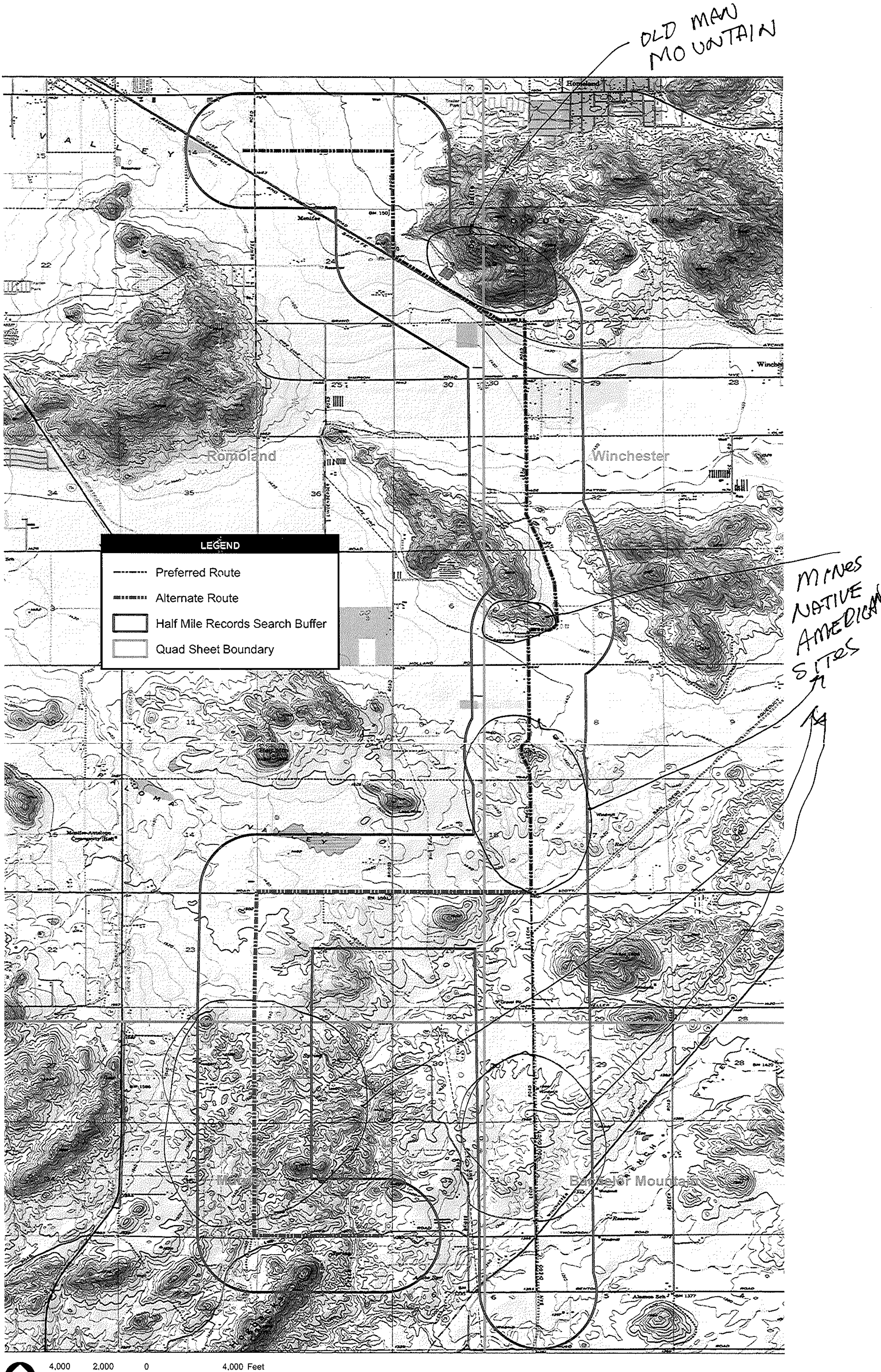
Long ago, before the advent of the pale face, when the Soboba and Pechango Indians roamed about the land, there arose a dispute between the two tribes, which resulted in a bitter, ceaseless warfare. For more than a year the braves wore their war paint and had their war and scalp dances. At last Peeled-Nosed Blizzard, the daughter of Whirlwind, and squaw of the Sobobans, being half-sister to the Pechango chief, betrayed her people into the hands of the Cahuilla tribe, allies of the Pechangos. For this treachery she was taken up on Old Man mountain and let down the narrow cave or entrance to the mountain and cast into the bottomless lake of agua caliente, supposed to exist in the base of the mountain. Then there were fireworks, firewater, and a general flow of soul among the Sobobans.

At the invitation of C. M. Ross, a merry party of a dozen young people explored this historic cave in the mountain, three miles northward and thirteen hundred feet skyward from Winchester, Tuesday afternoon. There are three crevices in the rocks on the north side of the peak, one of which extends into the mountain about forty feet, widening at the end enough to permit sitting upright. The other two are smaller and not as long.

After spending some time here the party ascended the rocky peak and replaced the weather-beaten flag that has braved the storms of two winters, with a new one.

Upon descending a lunch was indulged in, to which all did justice, and though somewhat tired, all thoroughly enjoyed the trip. – Winchester Recorder

(Article was found in the June 23rd 1898 Riverside Daily Press)



SCE Valley South Sub-transmission Line Project

Source: SCE, AECOM, USGS

Path: P:\2012\60247921\06GIS\6.3_Layout\VSSP_NAHC_Map.mxd, 3/22/2012, wilsons5

Winchester Historical Society of
Pleasant Valley
28030 Patterson Avenue
Winchester, California 92596

SAN BERNARDINO CA 923

30 APR 2012 PM 3 T

RECEIVED
MAY 01 2012

AECom
1420 Kettner Blvd Ste 500
SAN Diego, CA 92101

Attn Jill Gibson

92101+2434

Cultural Resources: Native American Contact Program

Wilson, Stacie

From: Wilson, Stacie
Sent: Thursday, March 22, 2012 12:37 PM
To: Dave Singleton
Subject: Sacred Lands File Search for SCE VSSP
Attachments: VSSP_NAHC_Map.pdf

Mr. Singleton,

I am contacting you to request a sacred lands file check for the SCE Valley South Sub-transmission Line project. The proposed project is located in near Romoland, Homeland, Winchester, and Murrieta, California. Attached is a map showing the project area, incorporating a 1/2-mile radius from the centerline on the following quadrangles:

Romoland (1980)	T5S R2W	Section 18, 19, 30, 31
	T5S R3W	Sections 13, 14, 24
	T6S R2W	Sections 6, 7, 18, 19
	T6S R3W	Sections 13, 14, 23, 24
Winchester (1980)	T5S R2W	Sections 19, 20, 29, 30, 31, 32
	T6S R2W	Sections 5, 6, 7, 8 17, 18, 19, 20
Murrieta (1978)	T6S R2W	Sections 30, 31
	T6S R3W	Sections 25, 26, 35, 36
	T7S R3W	Sections 6, 7
	T7S R3W	Sections 1, 2
Bachelor Mountain (1980)	T6S R2W	Sections 29, 30, 31, 32
	T7S R2W	Sections 5, 6, 7, 8

If you have any questions, please do not hesitate to call me at (619) 233-1454.
Thank you! Stacie

Stacie L. Wilson, M.S., RPA
Archaeologist / GIS Specialist
Design + Planning
D + 619.764.6817 M + 619.723.8229
stacie.wilson@aecom.com

AECOM
1420 Kettner Boulevard, Suite 500, San Diego CA 92101 USA
T + 619.233.1454 F + 619.233.0952
www.aecom.com

STATE OF CALIFORNIA Edmund G. Brown, Jr., Governor

NATIVE AMERICAN HERITAGE COMMISSION
915 CAPITOL MALL, ROOM 364
SACRAMENTO, CA 95814
(916) 653-6251
Fax (916) 657-5390
Web Site www.nahc.ca.gov
ds_nahc@pacbell.net

March 23, 2012

Ms. Stacie L. Wilson, M.S., RPA
AECOM Design + Planning
1420 Kettner Boulevard, Suite 500
San Diego, CA 92101

Sent by FAX to 619-233-0952
No. of Pages: 5

Re: Sacred Lands File Search and Native American Contacts list for the **"Southern California Edison (SCE) Valley South Sub-transmission Line Project;"** located near the Communities of Romoland, Homeland, Winchester and Murrieta; Riverside County, California;

Dear Ms. Wilson:

The Native American Heritage Commission (NAHC) conducted a Sacred Lands File search of the 'area of potential effect,' (APE) based on the USGS coordinates provided and **Native American cultural resources were not identified** in the project area of potential effect (e.g. APE): you specified. This area is known to the NAHC to be culturally sensitive. Also, please note; the NAHC Sacred Lands Inventory is not exhaustive and does not preclude the discovery of cultural resources during any project groundbreaking activity.

California Public Resources Code §§5097.94 (a) and 5097.96 authorize the NAHC to establish a Sacred Land Inventory to record Native American sacred sites and burial sites. These records are exempt from the provisions of the California Public Records Act pursuant to. California Government Code§6254 (r). The purpose of this code is to protect such sites from vandalism, theft and destruction.

In the 1985 Appellate Court decision (170 Cal App 3rd 604), the court held that the NAHC has jurisdiction and special expertise, as a state agency, over affected Native American resources, impacted by proposed projects including archaeological, places of religious significance to Native Americans and burial sites

The California Environmental Quality Act (CEQA – CA Public Resources Code §§ 21000-21177, amendments effective 3/18/2010) requires that any project that causes a substantial adverse change in the significance of an historical resource, that includes archaeological resources, is a 'significant effect' requiring the preparation of an Environmental Impact Report (EIR) per the CEQA Guidelines defines a significant impact on the environment as 'a substantial, or potentially substantial, adverse change in any of physical conditions within an area affected by the proposed project, including ...objects of historic or aesthetic significance." In order to comply with this provision, the lead agency is required to assess whether the project will have an adverse impact on these resources within the 'area of potential

effect (APE), and if so, to mitigate that effect. CA Government Code §65040.12(e) defines "environmental justice" provisions and is applicable to the environmental review processes.

Early consultation with Native American tribes in your area is the best way to avoid unanticipated discoveries once a project is underway. Local Native Americans may have knowledge of the religious and cultural significance of the historic properties of the proposed project for the area (e.g. APE). Consultation with Native American communities is also a matter of environmental justice as defined by California Government Code §65040.12(e). We urge consultation with those tribes and interested Native Americans on the list the NAHC has attached in order to see if your proposed project might impact Native American cultural resources. Lead agencies should consider avoidance as defined in §15370 of the CEQA Guidelines when significant cultural resources as defined by the CEQA Guidelines §15064.5 (b)(c)(f) may be affected by a proposed project. If so, Section 15382 of the CEQA Guidelines defines a significant impact on the environment as "substantial," and Section 2183.2 which requires documentation, data recovery of cultural resources.

The 1992 *Secretary of the Interiors Standards for the Treatment of Historic Properties* were revised so that they could be applied to all historic resource types included in the National Register of Historic Places and including cultural landscapes. Also, federal Executive Orders Nos. 11593 (preservation of cultural environment), 13175 (coordination & consultation) and 13007 (Sacred Sites) are helpful, supportive guides for Section 106 consultation. The aforementioned Secretary of the Interior's *Standards* include recommendations for all 'lead agencies' to consider the historic context of proposed projects and to "research" the cultural landscape that might include the 'area of potential effect.'

Partnering with local tribes and interested Native American consulting parties, on the NAHC list, should be conducted in compliance with the requirements of federal NEPA (42 U.S.C 4321-43351) and Section 106 4(f), Section 110 (f)(k) of federal NHPA (16 U.S.C. 470 *et seq*), 36 CFR Part 800.3 (f) (2) & .5, the President's Council on Environmental Quality (CSO, 42 U.S.C 4371 *et seq.* and NAGPRA (25 U.S.C. 3001-3013) as appropriate. The 1992 *Secretary of the Interiors Standards for the Treatment of Historic Properties* were revised so that they could be applied to all historic resource types included in the National Register of Historic Places and including cultural landscapes. Also, federal Executive Orders Nos. 11593 (preservation of cultural environment), 13175 (coordination & consultation) and 13007 (Sacred Sites) are helpful, supportive guides for Section 106 consultation. The NAHC remains concerned about the limitations and methods employed for NHPA Section 106 Consultation.

Also, California Public Resources Code Section 5097.98, California Government Code §27491 and Health & Safety Code Section 7050.5 provide for provisions for accidentally discovered archeological resources during construction and mandate the processes to be followed in the event of an accidental discovery of any human remains in a project location other than a 'dedicated cemetery', another important reason to have Native American Monitors on board with the project.

To be effective, consultation on specific projects must be the result of an ongoing relationship between Native American tribes and lead agencies, project proponents and their contractors, in the opinion of the NAHC. An excellent way to reinforce the relationship between a project and local tribes is to employ Native American Monitors in all phases of proposed projects including the planning phases.

Confidentiality of "historic properties of religious and cultural significance" may also be protected under Section 304 of he NHPA or at the Secretary of the Interior discretion if not

eligible for listing on the National Register of Historic Places. The Secretary may also be advised by the federal Indian Religious Freedom Act (cf. 42 U.S.C., 1996) in issuing a decision on whether or not to disclose items of religious and/or cultural significance identified in or near the APE and possibility threatened by proposed project activity.

If you have any questions about this response to your request, please do not hesitate to contact me at (916) 653-6251.

Sincerely,

Dave Singleton

Attachment: Native American Contact List

Native American Contacts
Riverside County
March 23, 2012

Los Coyotes Band of Mission Indians
Shane Chapparosa, Chairman
P.O. Box 189 Cahuilla
Warner , CA 92086
(760) 782-0711
(760) 782-2701 - FAX

Ramona Band of Cahuilla Mission Indians
Joseph Hamilton, Chairman
P.O. Box 391670 Cahuilla
Anza , CA 92539
admin@ramonatribe.com
(951) 763-4105
(951) 763-4325 Fax

Pala Band of Mission Indians
Tribal Historic Preservation Office/Shasta Gaugher
35008 PalaTemecula Road, PMB 50 Luiseno
, Cupeno
Pala, CA 92059
(760) 891-3515
sgaughen@palatribe.com
(760) 742-3189 Fax

Santa Rosa Band of Mission Indians
John Marcus, Chairman
P.O. Box 391820 Cahuilla
Anza , CA 92539
(951) 659-2700
(951) 659-2228 Fax

Pauma & Yuima Reservation
Randall Majel, Chairperson
P.O. Box 369 Luiseno
Pauma Valley CA 92061
paumareservation@aol.com
(760) 742-1289
(760) 742-3422 Fax

Morongo Band of Mission Indians
Michael Contreras, Cultural Heritage Prog.
12700 Pumarra Road Cahuilla
Banning , CA 92220 Serrano
(951) 201-1866 - cell
mcontreras@morongo-nsn.gov
(951) 922-0105 Fax

Pechanga Band of Mission Indians
Paul Macarro, Cultural Resources Manager
P.O. Box 1477 Luiseno
Temecula , CA 92593
(951) 770-8100
pmacarro@pechanga-nsn.gov
(951) 506-9491 Fax

Rincon Band of Mission Indians
Bo Mazzetti, Chairperson
P.O. Box 68 Luiseno
Valley Center, CA 92082
bomazzetti@aol.com
(760) 749-1051
(760) 749-8901 Fax

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of the statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is applicable for contacting local Native Americans with regard to cultural resources for the proposed SCE Valley South Sub-transmission Line Project; located near the Communities of Romoland, Homeland, Winchester, and Murrieta; Riverside County, California for which a Sacred Lands File search and Native American Contacts list were requested.

Native American Contacts
Riverside County
March 23, 2012

Pechanga Band of Mission Indians
Mark Macarro, Chairperson
P.O. Box 1477 Luiseno
Temecula , CA 92593
tbrown@pechanga-nsn.gov
(951) 770-6100
(951) 695-1778 Fax

SOBOBA BAND OF LUISENO INDIANS
Joseph Ontiveros, Cultural Resource Department
P.O. BOX 487 Luiseno
San Jacinto , CA 92581
jontiveros@soboba-nsn.gov
(951) 663-5279
(951) 654-5544, ext 4137

William J. Pink
48310 Pechanga Road Luiseno
Temecula , CA 92592
wjpink@hotmail.com
(909) 936-1216
Prefers e-mail contact

Cahuilla Band of Indians
Chairperson
PO Box 391760 Cahuilla
Anza , CA 92539
tribalcouncil@cahuilla.net
915-763-5549

Pechanga Cultural Resources Department
Anna Hoover, Cultural Analyst
P.O. Box 2183 Luiseño
Temecula , CA 92593
ahoover@pechanga-nsn.gov
951-770-8104
(951) 694-0446 - FAX

This list is current only as of the date of this document.

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This list is applicable for contacting local Native Americans with regard to cultural resources for the proposed SCE Valley South Sub-transmission Line Project; located near the Communities of Romoland, Homeland, Winchester, and Murrieta; Riverside County, California for which a Sacred Lands File search and Native American Contacts list were requested.

SOUTHERN CALIFORNIA EDISON®
An EDISON INTERNATIONAL® Company

27 April 2012

Chairperson
Cahuilla Band of Indians
P.O. Box 391760
Anza, CA 92539

Subject: SCE Valley South Subtransmission Project, Riverside County, California

Dear Chairperson,

Southern California Edison (SCE) proposes the Valley South Subtransmission Project (VSSP) to serve current and future demand for electricity and maintain electric system reliability in portions of Murrieta, Menifee, Temecula, Wildomar, and adjacent unincorporated areas within the County of Riverside, California. All lands within the proposed project area are privately owned.

SCE is conducting a cultural resources study of the proposed project in compliance with the California Environmental Quality Act (CEQA), Public Resources Code Section 21083.2, and the associated implementing guidelines (CCR Title 14 Sections 15064.5, 15064.7, 15126.4(b), Appendix G Section V). Accordingly, the Native American Heritage Commission (NAHC) was asked for a Sacred Lands File search and a list of persons who might have information about the VSSP area. You were identified by the NAHC as a possible source.

This letter requests your input on the proposed project. We invite your questions, comments, or concerns, and are available to meet if you would like to discuss this project in person. Providing comments now does not limit your ability to comment at a later time.

Please use the self-addressed stamped envelope to direct written replies to AECOM, which is under contract to SCE for portions of the cultural resource study. If you have any questions, please contact either of the following persons at SCE.

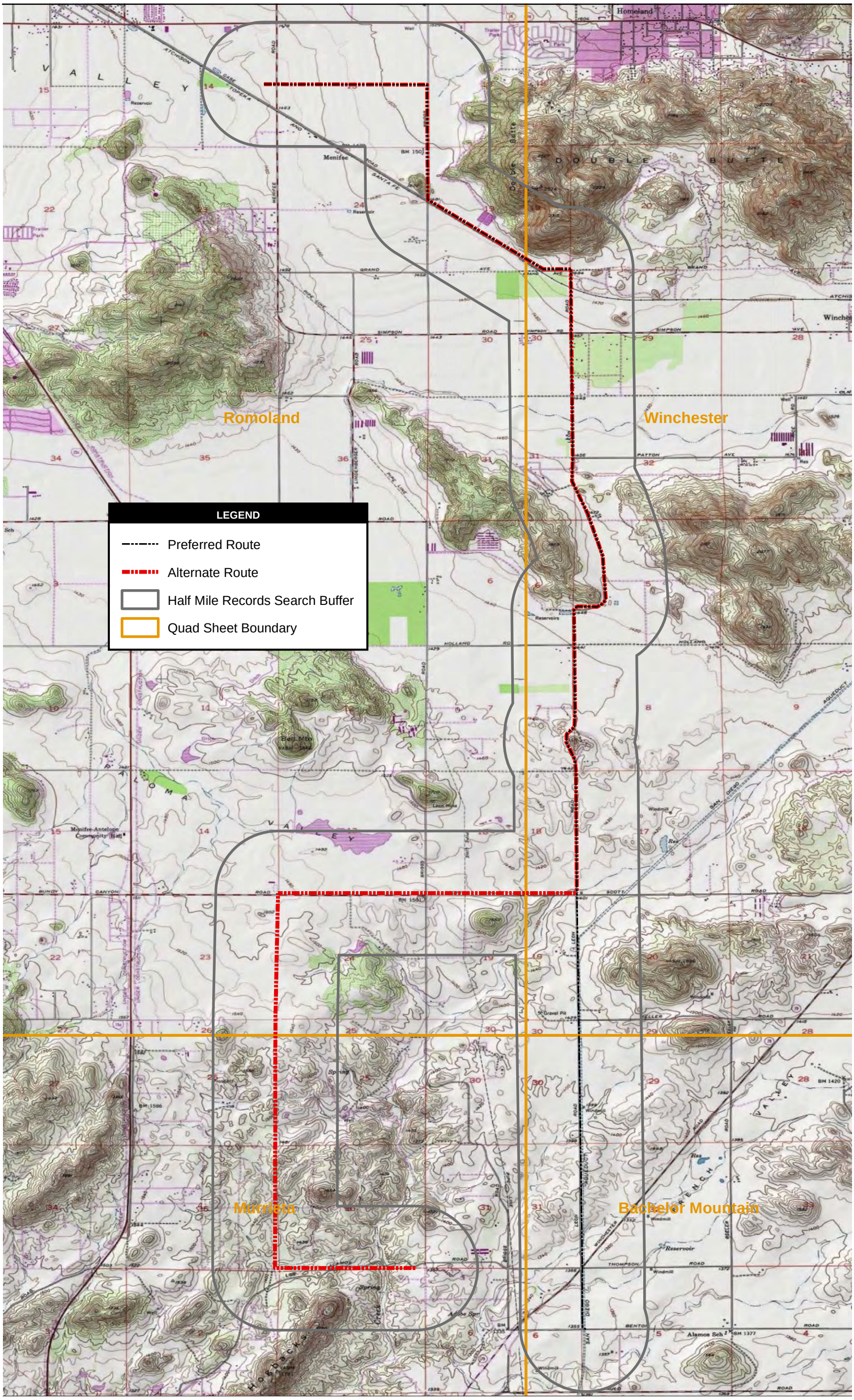
Dave Hanna, SCE Archaeologist
626-462-8630 / dave.hanna@sce.com

Brian McDonald, SCE Tribal Liaison
951-249-8467 / brian.mcdonald@sce.com

Thank you.

David C. Hanna, Jr., M.A., RPA
SCE Archaeologist
1218 Fifth Avenue
Monrovia, CA 91016

Enclosures: Project Map
Response Form
Self-addressed Stamped Envelope



SCE Valley South Sub-transmission Line Project

Source: SCE, AECOM, USGS

Path: P:\2012\60247921\06GIS\6.3_Layout\VSSP_NAHC_Map.mxd, 3/22/2012, wilsons5

CONTACT PROGRAM RESPONSE FORM
Valley South Sub-transmission Line Project

Please check all that apply:

- ❑ Please call me to discuss the project further; my day-time phone number is (_____)_____ or my evening phone number is (_____)_____
- ❑ I have further comments as provided below
- ❑ I do not have any comments

Comments:

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_____

_____

_____

_____

_____

Signature:

_____ _____

Date

SOUTHERN CALIFORNIA EDISON®
An EDISON INTERNATIONAL® Company

27 April 2012

Shane Chapparosa, Chairman
Los Coyotes Band of Mission Indians
P.O. Box 189
Warner, CA 92086

Subject: SCE Valley South Subtransmission Project, Riverside County, California

Dear Mr. Chapparosa,

Southern California Edison (SCE) proposes the Valley South Subtransmission Project (VSSP) to serve current and future demand for electricity and maintain electric system reliability in portions of Murrieta, Menifee, Temecula, Wildomar, and adjacent unincorporated areas within the County of Riverside, California. All lands within the proposed project area are privately owned.

SCE is conducting a cultural resources study of the proposed project in compliance with the California Environmental Quality Act (CEQA), Public Resources Code Section 21083.2, and the associated implementing guidelines (CCR Title 14 Sections 15064.5, 15064.7, 15126.4(b), Appendix G Section V). Accordingly, the Native American Heritage Commission (NAHC) was asked for a Sacred Lands File search and a list of persons who might have information about the VSSP area. You were identified by the NAHC as a possible source.

This letter requests your input on the proposed project. We invite your questions, comments, or concerns, and are available to meet if you would like to discuss this project in person. Providing comments now does not limit your ability to comment at a later time.

Please use the self-addressed stamped envelope to direct written replies to AECOM, which is under contract to SCE for portions of the cultural resource study. If you have any questions, please contact either of the following persons at SCE.

Dave Hanna, SCE Archaeologist
626-462-8630 / dave.hanna@sce.com

Brian McDonald, SCE Tribal Liaison
951-249-8467 / brian.mcdonald@sce.com

Thank you.

David C. Hanna, Jr., M.A., RPA
SCE Archaeologist
1218 Fifth Avenue
Monrovia, CA 91016

Enclosures: Project Map
Response Form
Self-addressed Stamped Envelope

SOUTHERN CALIFORNIA EDISON®
An EDISON INTERNATIONAL® Company

27 April 2012

Michael Contreras, Cultural Heritage Prog.
Morongo Band of Mission Indians
12700 Pumarra Road
Banning, CA 92220

Subject: SCE Valley South Subtransmission Project, Riverside County, California

Dear Mr. Contreras,

Southern California Edison (SCE) proposes the Valley South Subtransmission Project (VSSP) to serve current and future demand for electricity and maintain electric system reliability in portions of Murrieta, Menifee, Temecula, Wildomar, and adjacent unincorporated areas within the County of Riverside, California. All lands within the proposed project area are privately owned.

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Brian McDonald, SCE Tribal Liaison
951-249-8467 / brian.mcdonald@sce.com

Thank you.

David C. Hanna, Jr., M.A., RPA
SCE Archaeologist
1218 Fifth Avenue
Monrovia, CA 91016

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27 April 2012

Shasta Gaugher
Tribal Historic Preservation Office
Pala Band of Mission Indians
35008 Pala Temecula Road, PMB 50
Pala, CA 92059

Subject: SCE Valley South Subtransmission Project, Riverside County, California

Dear Ms. Gaugher,

Southern California Edison (SCE) proposes the Valley South Subtransmission Project (VSSP) to serve current and future demand for electricity and maintain electric system reliability in portions of Murrieta, Menifee, Temecula, Wildomar, and adjacent unincorporated areas within the County of Riverside, California. All lands within the proposed project area are privately owned.

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626-462-8630 / dave.hanna@sce.com

Brian McDonald, SCE Tribal Liaison
951-249-8467 / brian.mcdonald@sce.com

Thank you.

David C. Hanna, Jr., M.A., RPA
SCE Archaeologist
1218 Fifth Avenue
Monrovia, CA 91016

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SOUTHERN CALIFORNIA EDISON®
An EDISON INTERNATIONAL® Company

27 April 2012

Joseph Hamilton, Chairman
Ramona Band of Cahuilla Mission Indians
P.O. Box 391670
Anza, CA 92539

Subject: SCE Valley South Subtransmission Project, Riverside County, California

Dear Mr. Hamilton,

Southern California Edison (SCE) proposes the Valley South Subtransmission Project (VSSP) to serve current and future demand for electricity and maintain electric system reliability in portions of Murrieta, Menifee, Temecula, Wildomar, and adjacent unincorporated areas within the County of Riverside, California. All lands within the proposed project area are privately owned.

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Brian McDonald, SCE Tribal Liaison
951-249-8467 / brian.mcdonald@sce.com

Thank you.

David C. Hanna, Jr., M.A., RPA
SCE Archaeologist
1218 Fifth Avenue
Monrovia, CA 91016

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SOUTHERN CALIFORNIA EDISON®
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27 April 2012

Anna Hoover, Cultural Analyst
Pechanga Cultural Resources Department
P.O. Box 2183
Temecula, CA 92593

Subject: SCE Valley South Subtransmission Project, Riverside County, California

Dear Ms. Hoover,

Southern California Edison (SCE) proposes the Valley South Subtransmission Project (VSSP) to serve current and future demand for electricity and maintain electric system reliability in portions of Murrieta, Menifee, Temecula, Wildomar, and adjacent unincorporated areas within the County of Riverside, California. All lands within the proposed project area are privately owned.

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626-462-8630 / dave.hanna@sce.com

Brian McDonald, SCE Tribal Liaison
951-249-8467 / brian.mcdonald@sce.com

Thank you.

David C. Hanna, Jr., M.A., RPA
SCE Archaeologist
1218 Fifth Avenue
Monrovia, CA 91016

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SOUTHERN CALIFORNIA EDISON®
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27 April 2012

Mark Macarro, Chairperson
Pechanga Band of Mission Indians
P.O. Box 1477
Temecula, CA 92593

Subject: SCE Valley South Subtransmission Project, Riverside County, California

Dear Mr. Macarro,

Southern California Edison (SCE) proposes the Valley South Subtransmission Project (VSSP) to serve current and future demand for electricity and maintain electric system reliability in portions of Murrieta, Menifee, Temecula, Wildomar, and adjacent unincorporated areas within the County of Riverside, California. All lands within the proposed project area are privately owned.

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Brian McDonald, SCE Tribal Liaison
951-249-8467 / brian.mcdonald@sce.com

Thank you.

David C. Hanna, Jr., M.A., RPA
SCE Archaeologist
1218 Fifth Avenue
Monrovia, CA 91016

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SOUTHERN CALIFORNIA EDISON®
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27 April 2012

Paul Macarro, Cultural Resources Manager
Pechanga Band of Mission Indians
P.O. Box 1477
Temecula, CA 92593

Subject: SCE Valley South Subtransmission Project, Riverside County, California

Dear Mr. Macarro,

Southern California Edison (SCE) proposes the Valley South Subtransmission Project (VSSP) to serve current and future demand for electricity and maintain electric system reliability in portions of Murrieta, Menifee, Temecula, Wildomar, and adjacent unincorporated areas within the County of Riverside, California. All lands within the proposed project area are privately owned.

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Brian McDonald, SCE Tribal Liaison
951-249-8467 / brian.mcdonald@sce.com

Thank you.

David C. Hanna, Jr., M.A., RPA
SCE Archaeologist
1218 Fifth Avenue
Monrovia, CA 91016

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SOUTHERN CALIFORNIA EDISON®
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27 April 2012

Randall Majel, Chairperson
Pauma & Yuima Reservation
P.O. Box 369
Pauma Valley CA 92061

Subject: SCE Valley South Subtransmission Project, Riverside County, California

Dear Mr. Majel,

Southern California Edison (SCE) proposes the Valley South Subtransmission Project (VSSP) to serve current and future demand for electricity and maintain electric system reliability in portions of Murrieta, Menifee, Temecula, Wildomar, and adjacent unincorporated areas within the County of Riverside, California. All lands within the proposed project area are privately owned.

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Brian McDonald, SCE Tribal Liaison
951-249-8467 / brian.mcdonald@sce.com

Thank you.

David C. Hanna, Jr., M.A., RPA
SCE Archaeologist
1218 Fifth Avenue
Monrovia, CA 91016

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SOUTHERN CALIFORNIA EDISON®
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27 April 2012

John Marcus, Chairman
Santa Rosa Band of Mission Indians
P.O. Box 391820
Anza, CA 92539

Subject: SCE Valley South Subtransmission Project, Riverside County, California

Dear Mr. Marcus,

Southern California Edison (SCE) proposes the Valley South Subtransmission Project (VSSP) to serve current and future demand for electricity and maintain electric system reliability in portions of Murrieta, Menifee, Temecula, Wildomar, and adjacent unincorporated areas within the County of Riverside, California. All lands within the proposed project area are privately owned.

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Brian McDonald, SCE Tribal Liaison
951-249-8467 / brian.mcdonald@sce.com

Thank you.

David C. Hanna, Jr., M.A., RPA
SCE Archaeologist
1218 Fifth Avenue
Monrovia, CA 91016

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SOUTHERN CALIFORNIA EDISON®
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27 April 2012

Bo Mazzetti, Chairperson
Rincon Band of Mission Indians
P.O. Box 68
Valley Center, CA 92082

Subject: SCE Valley South Subtransmission Project, Riverside County, California

Dear Mr. Mazzetti,

Southern California Edison (SCE) proposes the Valley South Subtransmission Project (VSSP) to serve current and future demand for electricity and maintain electric system reliability in portions of Murrieta, Menifee, Temecula, Wildomar, and adjacent unincorporated areas within the County of Riverside, California. All lands within the proposed project area are privately owned.

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Brian McDonald, SCE Tribal Liaison
951-249-8467 / brian.mcdonald@sce.com

Thank you.

David C. Hanna, Jr., M.A., RPA
SCE Archaeologist
1218 Fifth Avenue
Monrovia, CA 91016

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27 April 2012

Joseph Ontiveros, Cultural Resource Department
Soboba Band of Luiseno Indians
P.O. Box 487
San Jacinto, CA 92581

Subject: SCE Valley South Subtransmission Project, Riverside County, California

Dear Mr. Ontiveros,

Southern California Edison (SCE) proposes the Valley South Subtransmission Project (VSSP) to serve current and future demand for electricity and maintain electric system reliability in portions of Murrieta, Menifee, Temecula, Wildomar, and adjacent unincorporated areas within the County of Riverside, California. All lands within the proposed project area are privately owned.

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Brian McDonald, SCE Tribal Liaison
951-249-8467 / brian.mcdonald@sce.com

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David C. Hanna, Jr., M.A., RPA
SCE Archaeologist
1218 Fifth Avenue
Monrovia, CA 91016

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SOUTHERN CALIFORNIA EDISON®
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27 April 2012

William J. Pink
48310 Pechanga Road
Temecula, CA 92592

Subject: SCE Valley South Subtransmission Project, Riverside County, California

Dear Mr. Pink,

Southern California Edison (SCE) proposes the Valley South Subtransmission Project (VSSP) to serve current and future demand for electricity and maintain electric system reliability in portions of Murrieta, Menifee, Temecula, Wildomar, and adjacent unincorporated areas within the County of Riverside, California. All lands within the proposed project area are privately owned.

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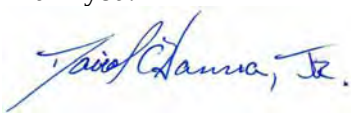
626-462-8630 / dave.hanna@sce.com

Brian McDonald, SCE Tribal Liaison
951-249-8467 / brian.mcdonald@sce.com

Thank you.



David C. Hanna, Jr., M.A., RPA
SCE Archaeologist
1218 Fifth Avenue
Monrovia, CA 91016

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PALA TRIBAL HISTORIC PRESERVATION OFFICE

PMB 50, 35008 Pala Temecula Road
Pala, CA 92059
760-891-3510 Office | 760-742-3189 Fax

PALA THPO

May 3, 2012

David C. Hanna, Jr.
Southern California Edison
1218 Fifth Avenue
Monrovia, CA 91016

Re: SCE valley South Subtransmission Project

Dear Ms. Hanna,

The Pala Band of Mission Indians Tribal Historic Preservation Office has received your notification of the project referenced above. This letter constitutes our response on behalf of Robert Smith, Tribal Chairman.

We have consulted our maps and determined that the project as described is not within the boundaries of the recognized Pala Indian Reservation. The project is also beyond the boundaries of the territory that the tribe considers its Traditional Use Area (TUA). Therefore, we have no objection to the continuation of project activities as currently planned and we defer to the wishes of Tribes in closer proximity to the project area.

We appreciate involvement with your initiative and look forward to working with you on future efforts. If you have questions or need additional information, please do not hesitate to contact me by telephone at 760-891-3515 or by e-mail at sgaughen@palatribe.com.

Sincerely,

Shasta C. Gaughen, PhD
Tribal Historic Preservation Officer
Pala Band of Mission Indians

ATTENTION: THE PALA TRIBAL HISTORIC PRESERVATION OFFICE IS RESPONSIBLE FOR ALL REQUESTS FOR CONSULTATION. PLEASE ADDRESS CORRESPONDENCE TO **SHASTA C. GAUGHEN** AT THE ABOVE ADDRESS. IT IS NOT NECESSARY TO ALSO SEND NOTICES TO PALA TRIBAL CHAIRMAN ROBERT SMITH.

RECEIVED
MAY 08 2012

May 7, 2012

Attn: Stacie Wilson
AECOM
1420 Kettner Blvd., Ste. 500
San Diego, CA 92101

SOBOBA BAND OF LUISEÑO INDIANS
EST. JUNE 19, 1883

Re: SCE Valley South Subtransmission Project, Riverside County, California

The Soboba Band of Luiseño Indians appreciates your observance of Tribal Cultural Resources and their preservation in your project. The information provided to us on said project has been assessed through our Cultural Resource Department, where it was concluded that although it is outside the existing reservation, the project area does fall within the bounds of our Tribal Traditional Use Areas. This project location is in close proximity to known village sites and is a shared use area that was used in ongoing trade between the Luiseno and Cahuilla tribes. Therefore it is regarded as highly sensitive to the people of Soboba.

Soboba Band of Luiseño Indians is requesting the following:

1. To initiate a consultation with the Project Developer and Land owner.

2. The transfer of information to the Soboba Band of Luiseno Indians regarding the progress of this project should be done as soon as new developments occur.

3. Soboba Band of Luiseño Indians continues to act as a consulting tribal entity for this project.

4. Working in and around traditional use areas intensifies the possibility of encountering cultural resources during the construction/excavation phase. For this reason the Soboba Band of Luiseño Indians requests that Native American Monitor(s) from the Soboba Band of Luiseño Indians Cultural Resource Department to be present during any ground disturbing proceedings. Including surveys and archaeological testing.

5. Request that proper procedures be taken and requests of the tribe be honored (Please see the attachment)

The Soboba Band of Luiseno Indians is requesting a face-to-face meeting between Southern California Edison and the Soboba Cultural Resource Department. Please contact me at your earliest convenience either by email or phone in order to make arrangements.

Sincerely,

Joseph Ontiveros
Soboba Cultural Resource Department
P.O. Box 487
San Jacinto, CA 92581
Phone (951) 654-5544 ext. 4137
Cell (951) 663-5279
jontiveros@soboba-nsn.gov

Cultural Items (Artifacts). Ceremonial items and items of cultural patrimony reflect traditional religious beliefs and practices of the Soboba Band. The Developer should agree to return all Native American ceremonial items and items of cultural patrimony that may be found on the project site to the Soboba Band for appropriate treatment. In addition, the Soboba Band requests the return of all other cultural items (artifacts) that are recovered during the course of archaeological investigations. When appropriate and agreed upon in advance, the Developer's archeologist may conduct analyses of certain artifact classes if required by CEQA, Section 106 of NHPA, the mitigation measures or conditions of approval for the Project. This may include but is not limited or restricted to include shell, bone, ceramic, stone or other artifacts.

The Developer should waive any and all claims to ownership of Native American ceremonial and cultural artifacts that may be found on the Project site. Upon completion of authorized and mandatory archeological analysis, the Developer should return said artifacts to the Soboba Band within a reasonable time period agreed to by the Parties and not to exceed (30) days from the initial recovery of the items.

Treatment and Disposition of Remains

A. The Soboba Band shall be allowed, under California Public Resources Code § 5097.98 (a), to (1) inspect the site of the discovery and (2) make determinations as to how the human remains and grave goods shall be treated and disposed of with appropriate dignity.

B. The Soboba Band, as MLD, shall complete its inspection within twenty-four (24) hours of receiving notification from either the Developer or the NAHC, as required by California Public Resources Code § 5097.98 (a). The Parties agree to discuss in good faith what constitutes "appropriate dignity" as that term is used in the applicable statutes.

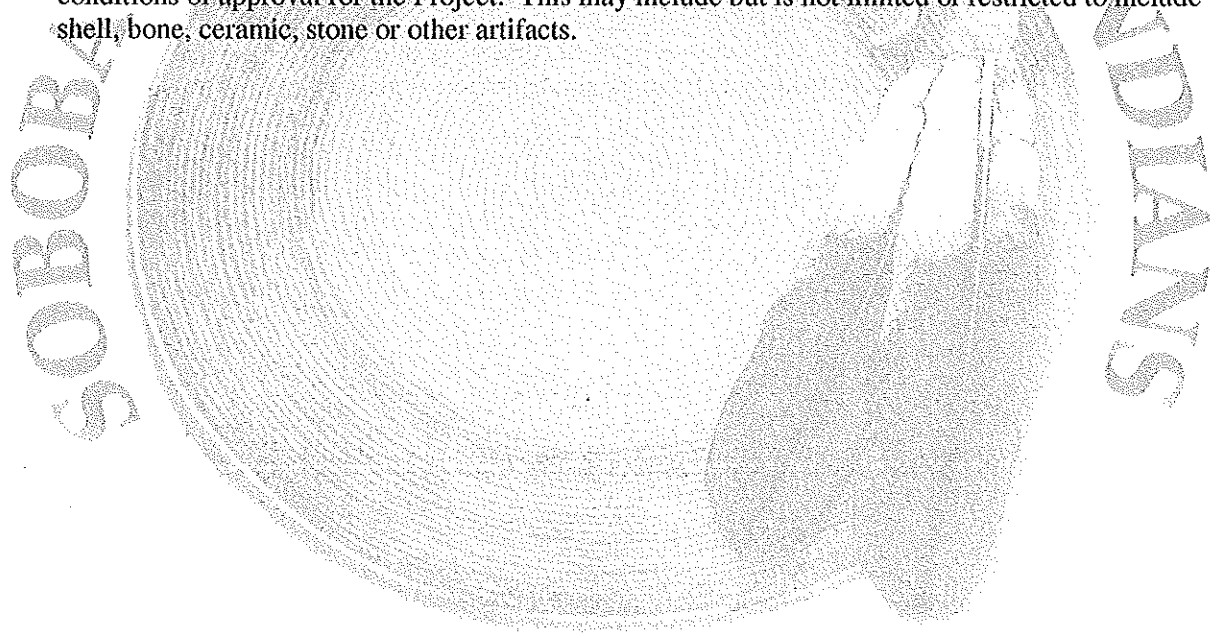
C. Reburial of human remains shall be accomplished in compliance with the California Public Resources Code § 5097.98 (a) and (b). The Soboba Band, as the MLD in consultation with the Developer, shall make the final discretionary determination regarding the appropriate disposition and treatment of human remains.

D. All parties are aware that the Soboba Band may wish to rebury the human remains and associated ceremonial and cultural items (artifacts) on or near, the site of their discovery, in an area that shall not be subject to future subsurface disturbances. The Developer should accommodate on-site reburial in a location mutually agreed upon by the Parties.

E. The term "human remains" encompasses more than human bones because the Soboba Band's traditions periodically necessitated the ceremonial burning of human remains. Grave goods are those artifacts associated with any human remains. These items, and other funerary remnants and their ashes are to be treated in the same manner as human bone fragments or bones that remain intact.

Coordination with County Coroner's Office. The Lead Agencies and the Developer should immediately contact both the Coroner and the Soboba Band in the event that any human remains are discovered during implementation of the Project. If the Coroner recognizes the human remains to be those of a Native American, or has reason to believe that they are those of a Native American, the Coroner shall ensure that notification is provided to the NAHC within twenty-four (24) hours of the determination, as required by California Health and Safety Code § 7050.5 (c).

Non-Disclosure of Location Reburials. It is understood by all parties that unless otherwise required by law, the site of any reburial of Native American human remains or cultural artifacts shall not be disclosed and shall not be governed by public disclosure requirements of the California Public Records Act. The Coroner, parties, and Lead Agencies, will be asked to withhold public disclosure information related to such reburial, pursuant to the specific exemption set forth in California Government Code § 6254 (r).
Ceremonial items and items of cultural patrimony reflect traditional religious beliefs and practices of the Soboba Band. The Developer agrees to return all Native American ceremonial items and items of cultural patrimony that may be found on the project site to the Soboba Band for appropriate treatment. In addition, the Soboba Band requests the return of all other cultural items (artifacts) that are recovered during the course of archaeological investigations. Where appropriate and agreed upon in advance, Developer's archeologist may conduct analyses of certain artifact classes if required by CEQA, Section 106 of NHPA, the mitigation measures or conditions of approval for the Project. This may include but is not limited or restricted to include shell, bone, ceramic, stone or other artifacts.



Wilson, Stacie

From: Dave.Hanna@sce.com
Sent: Monday, May 07, 2012 12:28 PM
To: Laura Shaker
Cc: Brian.McDonald@sce.com; Wilson, Stacie
Subject: Re: SCE Valley South Subtransmission Station Project
Attachments: SCE Valley South Subtransmission Project, Riverside County, California.doc

Hi Laura ---

Thank you!

At this time, we are just assessing possible subtransmission line routes and no decisions have been made.

We will, of course, keep you informed as things progress.

----- Dave Hanna

David C. Hanna, Jr., M.A., RPA
Archaeologist
Southern California Edison
1218 Fifth Ave,. Monrovia, CA 91016
Office: 626-462-8630 (PAX 74630)
Cell: 626-483-9891

From: Laura Shaker <lshaker@soboba-nsn.gov>
To: "stacie.wilson@aecom.com" <stacie.wilson@aecom.com>
Cc: "Brian.McDonald@sce.com" <Brian.McDonald@sce.com>, "Dave.Hanna@sce.com" <Dave.Hanna@sce.com>
Date: 05/07/2012 12:20 PM
Subject: SCE Valley South Subtransmission Station Project

Cahuilla Tribal Environmental Protection Office
P.O. Box 391741 (52701 CA-Highway 371)
Anza, California 92539
(951) 763-2631 Fax (951) 763-2632)

May 10, 2012

Stacie Wilson
AECOM
1240 Kettner Blvd Ste. 500
San Diego, CA 92101

RE: SCE Valley South Subtransmission Project, Riverside County, California

Dear Ms. Wilson:

We presently have no knowledge of any cultural resources within the project plan; however, although the project area is outside the Cahuilla Indian Reservation territory, it is not outside the Traditional Use Area for the Cahuilla Band of Indians and we are requesting copies of archeological and /or cultural resource documentation if any.

Finally, working in and around traditional use areas intensifies the possibility of encountering cultural resources during the construction/excavation phase. For this, the Cahuilla Band of Indians requests Cultural Resource Monitor(s) to be present during any ground disturbing proceedings. The Cahuilla tribe does have trained and certified Native American Monitors who are qualified to monitor construction and archaeological activities. Please contact the Cahuilla Tribal Environmental Protection Office (CTEPO) for any proposed monitoring.

Sincerely,

Yvonne L. Markle

Yvonne L. Markle
Cahuilla Environmental Office Manager
Cahuilla Tribal Environmental Protection Office
P.O. Box 391741
Anza, CA 92539
951-763-2631
environmentalofficer@cahuilla.net

RINCON BAND OF LUISEÑO INDIANS

Culture Committee

Post Office Box 68 · Valley Center, California 92082 ·
(760) 297-2621 or·(760) 297-2622 & Fax:(760) 749-8901

May 15, 2012

David C. Hanna, Jr., M.A., RPA
SCE Archaeologist
Southern California Edison
1218 Fifth Avenue
Monrovia, CA 91016

Re: SCE Valley South Subtransmission Project, Riverside County, California

Dear Mr. David C. Hanna, Jr.,

Thank you for inviting us to submit comments on the SCE Valley South Subtransmission Project. This letter is written on behalf of the Rincon Band of Luiseño Indians. Rincon is submitting these comments concerning your Project's potential impact on Luiseño cultural resources.

The Rincon Band has concerns for impacts to historic and cultural resources and findings of significant cultural value that could be disturbed or destroyed and are considered culturally significant to the Luiseño people. This is to inform you, your identified location is within the Aboriginal Territory of the Luiseno people, but is not within the Rincon Historic boundaries.

We refer you to Soboba Band of Luiseño Indians or Pechanga Band of Luiseño Indians who are closer to your project area, please contact the Native American Heritage commission and they will assist with a referral. If for some reason you are unable to locate an interested tribe please notify us and we will be happy to assist you in the matter. We also request you update your contact information for Rincon and request you include in any future letters and correspondence the Rincon Tribal Chairman and the Tribal Historic Preservation Office in the Cultural Resource Department, Post Office Box 68, Valley Center, Ca 92082 (760) 297 2621.

Thank you for this opportunity to protect and preserve our cultural assets.

Sincerely

Rose Duro

Rose Duro
Rincon Culture Committee Chairman

PECHANGA CULTURAL RESOURCES
Temecula Band of Luiseño Mission Indians

Post Office. Box 2183 • Temecula, CA 92593
Telephone (951) 308-9295 • Fax (951) 506-9491

May 25, 2012

VIA E-Mail and USPS

RE: Request for Information for the SCE Valley South Subtransmission Line

Dear Mr. Hanna;

The Pechanga Band of Luiseño Indians ("Pechanga Tribe") appreciates your request for information regarding the above referenced Project. After reviewing the provided maps, we have determined that the Project area is not within reservation lands although it is within our ancestral territory.

The Tribe has serious concerns about the proposed Project. Because we have been working in this area for many years, we are familiar with this particular cultural landscape and have additional information we would like to share concerning the Project's alignment and the multiple Luiseño villages it is proposed to impact This area is extremely sensitive for surface and subsurface cultural resources, including human remains, and the Tribe is aware of multiple places in which the proposed Project is in close proximity to remains in which the Tribe has been designated as MLD. While we understand that SCE is the Applicant/Developer on this Project and not the Lead Agency, we still request to meet with Project representatives to discuss our concerns prior to the completion of the archaeological study. The Tribe also requests to consult on a government-to-government level with the Lead Agency (presumably the CPUC) and that SCE forward a copy of this letter to the appropriate Lead Agency representative so we may begin our consultation with them as well. It is imperative that we meet with SCE as soon as possible to ensure the avoidance and preservation of our irreplaceable Luiseño cultural resources.

To assist us further in the assessment of the Project, the Tribe requests the following:

1) Participation in all subsurface excavation activities including but not limited to archaeological excavations, geological testing, mass grading and trenching;
2) Notification once the Project begins the entitlement process, if applicable;
3) Copies of all applicable archaeological reports, site records, proposed grading plans and environmental documents (EA/IS/MND/EIR, etc); and
4) Consultation with SCE and Government-to-government consultation with the Lead Agency.

The Tribe is opposed to impacts to any and all cultural resources located on the Project site. We will be working with SCE and the Lead Agency on preservation and avoidance of all cultural resources that may be impacted by development. While it is too early to provide specific mitigation measures, we do believe archaeological and tribal monitoring will be required in areas where resources are not already identified or identified through further study and evaluation. Specifics regarding monitoring will be discussed in more detail when we meet with SCE and the Lead Agency. The Tribe reserves its right to make additional comments and recommendations once the environmental documents have been received and fully reviewed. Further, in the event that subsurface cultural resources are identified, the Tribe requests consultation with SCE and the Lead Agency regarding the treatment and disposition of all artifacts.

As a sovereign governmental entity, the Tribe is entitled to appropriate and adequate government-to-government consultation regarding the proposed Project. We would like you and your client to know that the Tribe does not consider initial inquiry letters from project consultants to constitute appropriate government-to-government consultation, but rather tools to obtain further information about the Project area. Therefore, the Tribe reserves its rights to participate in the formal environmental review process, including government-to-government consultation with the Lead Agency, and requests to be included in all correspondence regarding this Project.

Please note that we are interested in participating in surveys within Luiseño ancestral territory. Prior to conducting any surveys, please contact the Cultural Department to schedule specifics. If you have any additional questions or comments, please contact me at ahoover@pechanga-nsn.gov or 951-770-8104.

Sincerely,

Anna M. Hoover
Cultural Analyst

Cc: Pechanga Office of the General Counsel
Brian McDonald, SCE Tribal Liaison

Wilson, Stacie

From: Dave.Hanna@sce.com
Sent: Thursday, June 14, 2012 1:32 PM
To: Wilson, Stacie
Subject: Fw: Pechanga Tribe Response to Scoping Request for the Valley South Subtransmission Project

Follow Up Flag: Follow up
Flag Status: Flagged

Categories: Red Category

Please see email below --- for your NA Liaison file.

David C. Hanna, Jr., M.A., RPA
Archaeologist
Southern California Edison
1218 Fifth Ave,. Monrovia, CA 91016
Office: 626-462-8630 (PAX 74630)
Cell: 626-483-9891

----- Forwarded by Dave Hanna Jr/SCE/EIX on 06/14/2012 01:31 PM -----

From: Dave Hanna Jr/SCE/EIX
To: "Anna Hoover" <ahoover@pechanga-nsn.gov>
Cc: Brian.McDonald@sce.com, Rosalie Barcinas/SCE/EIX@SCE, Rey Gonzales/SCE/EIX@SCE, Fatima Clark/SCE/EIX@SCE
Date: 06/13/2012 09:57 AM
Subject: RE: Pechanga Tribe Response to Scoping Request for the Valley South Subtransmission Project

FOR INTERNAL USE ONLY

Hi Anna ---

I am awaiting approval of our letter response to your comments -- which should be pretty soon.

Regarding your request, though, let me explain that the CPUC has not yet assigned a project manager to the VSSP. That comes much later, when we are closer to submitting a Proponents Environmental Assessment (PEA) --- which won't be for quite a while still.

So, we have not sent your comments to the CPUC, because there's nobody to send them to.

They will, of course, be sent to the CPUC with the PEA -- and, subject to corporate approval, they may be sent earlier once the CPUC actually has a project manager on board.

I hope this is helpful information.

We'll be in touch with you soon.

----- Dave Hanna

David C. Hanna, Jr., M.A., RPA
Archaeologist
Southern California Edison
1218 Fifth Ave,. Monrovia, CA 91016
Office: 626-462-8630 (PAX 74630)
Cell: 626-483-9891

From: "Anna Hoover" <ahoover@pechanga-nsn.gov>
To: <Dave.Hanna@sce.com>
Cc: <Brian.McDonald@sce.com>
Date: 06/13/2012 09:47 AM
Subject: RE: Pechanga Tribe Response to Scoping Request for the Valley South Subtransmission Project

---

Dave,
Can you please provide the contact name and information for the CPUC manager in charge? Also, can you please confirm that our comments were submitted to this contact?

Anna M. Hoover
Cultural Analyst
Pechanga Band of Luiseno Mission Indians
P.O. Box 2183
Temecula, CA 92593

951-770-8104 (O)
951-694-0446 (F)
951-757-6139 (C)
ahoover@pechanga-nsn.gov

From: Dave.Hanna@sce.com [mailto:Dave.Hanna@sce.com]
Sent: Friday, May 25, 2012 5:14 PM
To: Anna Hoover
Cc: Brian.McDonald@sce.com
Subject: Re: Pechanga Tribe Response to Scoping Request for the Valley South Subtransmission Project

Hi Anna --

Thank you for the response.

Brian McDonald will be contacting you at some point in the next few weeks.

Have a great weekend!

----- Dave Hanna

From: "Anna Hoover" [ahoover@pechanga-nsn.gov]
Sent: 05/25/2012 05:03 PM MST
To: Dave Hanna Jr
Cc: Brian McDonald
Subject: Pechanga Tribe Response to Scoping Request for the Valley South Subtransmission Project

Mr. Hanna,

Attached are the Pechanga Tribes preliminary comments for the above referenced project. A hard copy will follow via USPS. Please do not hesitate to contact me should you have difficulty opening the attachment or if you have additional questions. Thank you!

Anna M. Hoover
Cultural Analyst
Pechanga Band of Luiseno Mission Indians
P.O. Box 2183
Temecula, CA 92593

951-770-8104 (O)
951-694-0446 (F)
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ahoover@pechanga-nsn.gov

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11 June 2012

Ms. Yvonne L. Markle
Cahuilla Environmental Office Manager
Cahuilla tribal environmental Protection Office
P.O. Box 391741
Anza, CA 92539

Re: Comments on Valley South Subtransmission Project, Riverside County, California

Dear Ms. Markle:

Thank you for sending comments on the proposed Southern California Edison (SCE) Valley South Subtransmission Project (VSSP).

SCE is in the early stages of studying route alternatives and planning the overall project, after which a Proponent's Environmental Assessment (PEA) will be prepared and submitted to the California Public Utilities Commission (CPUC). The CPUC will use the PEA in preparing the Draft Environmental Impact Report (DEIR), which it will circulate for public comment.

Please find, below, SCE's responses to your comments.

1. Request copies of "archeological and / or cultural resource documentation if any"

SCE will direct participating Native American stakeholders to the public documents, and provide confidential cultural resources documentation as appropriate.

2. Request "monitors to be present during any ground disturbing proceedings…. Please contact the Cahuilla Tribal Environmental Protection Office (CTEPO) for any proposed monitoring."

SCE will comply with mitigation measures in the FEIR. It is standard practice to have Native American monitors present for ground-disturbing activities that occur in close proximity or within the boundaries of cultural resources of Native American origin. Regarding areas where resources are not already identified, Native American monitors may be present in areas where there is a moderate to high potential of encountering unanticipated, subsurface deposits. These locations will be identified in a project treatment plan and/or Native American Participation Plan. SCE will seek tribal input on the plan(s). SCE typically does not request the presence of Native Americans during survey activity unless surveys are performed within documented sacred lands or Traditional Cultural Properties.

2244 Walnut Grove Avenue
Rosemead, CA 91770

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You will be contacted by the SCE Tribal Liaison, Mr. Brian McDonald, in the near future. In addition, please feel free to contact me at your convenience.

Sincerely,

David C. Hanna, Jr., M.A., RPA
Archaeologist
Southern California Edison
1218 Fifth Avenue
Monrovia, CA 91016
Office: 626-462-8630 (PAX 74630)
Cell: 626-483-9891

cc: Brian McDonald
Rosalie Barcinas
Adam Sriro
Stacie Wilson

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11 June 2012

Mr. Joseph Ontiveros
Soboba Cultural Resource Department
Soboba Band of Luiseño Indians
P.O. Box 487
San Jacinto, CA 92581

Re: Comments on Valley South Subtransmission Project, Riverside County, California

Dear Mr. Ontiveros:

Thank you for sending comments on the proposed Southern California Edison (SCE) Valley South Subtransmission Project (VSSP).

SCE is in the early stages of studying route alternatives and planning the overall project, after which a Proponent's Environmental Assessment (PEA) will be prepared and submitted to the California Public Utilities Commission (CPUC). The CPUC will use the PEA in preparing the Draft Environmental Impact Report (DEIR), which it will circulate for public comment.

Please find, below, SCE's responses to your comments.

1. Consult with Project Developer and Land Owner

SCE's request letter was sent in order to invite input and dialog, as required by CEQA.

2. Update Tribe on project progress / status

SCE will keep the Tribe updated on project progress or status, and will invite its participation in a meeting as a part of continuing communication.

3. Native American monitors (Soboba) during surveys and testing

It is standard practice to have Native American monitors present for ground-disturbing activities that occur in close proximity or within the boundaries of cultural resources of Native American origin. Regarding areas where resources are not already identified, Native American monitors may be present in areas where there is a moderate to high potential of encountering unanticipated, subsurface deposits. These locations will be identified in a project treatment plan and/or Native American Participation Plan(s). SCE will seek tribal input on the plan. SCE typically does not request the presence of Native Americans during survey activity unless surveys are performed within documented sacred lands or Traditional Cultural Properties.

4. Agree to "return all Native American ceremonial items of cultural patrimony"

SCE does not have the legal authority to compel a land owner to turn over artifacts of Native American origin recovered on private lands. SCE may help the tribe and land owner to facilitate a

resolution. SCE will work with the tribe to curate artifacts of Native American origin recovered on SCE owned land in a facility meeting 36 CFR 79 requirements or equivalent standards.

5. Return "all other cultural items (artifacts) that are recovered during the course of archaeological investigations"

SCE does not have the legal authority to compel a land owner to turn over artifacts of Native American origin recovered on private lands. SCE may help the tribe and land owner to facilitate a resolution. SCE will work with the tribe to curate artifacts of Native American origin recovered on SCE owned land in a facility meeting 36 CFR 79 requirements or equivalent standards.

6. Cultural Items (Artifacts). Ceremonial items and items of cultural patrimony reflect traditional religious beliefs and practices of the Soboba Band. The Developer should agree to return all Native American ceremonial items and items of cultural patrimony that may be found on the project site to the Soboba Band for appropriate treatment. In addition, the Soboba Band requests the return of all other cultural items (artifacts) that are recovered during the course of archaeological investigations. When appropriate and agreed upon in advance, the Developer's archeologist may conduct analyses of certain artifact classes if required by CEQA, Section 106 of NHPA, the mitigation measures or conditions of approval for the Project. This may include but is not limited or restricted to include shell, bone, ceramic, stone or other artifacts.

The Developer should waive any and all claims to ownership of Native American ceremonial and cultural artifacts that may be found on the Project site. Upon completion of authorized and mandatory archeological analysis, the Developer should return said artifacts to the Soboba Band within a reasonable time period agreed to by the Parties and not to exceed (30) days from the initial recovery of the items.

SCE does not have the legal authority to compel a land owner to turn over artifacts of Native American origin recovered on private lands. SCE may help the tribe and land owner to facilitate a resolution. SCE will work with the tribe to curate artifacts of Native American origin recovered on SCE owned land in a facility meeting 36 CFR 79 requirements or equivalent standards.

7. <u>Treatment and Disposition of Remains</u>

A. The Soboba Band shall be allowed, under California Public Resources Code § 5097.98 (a), to (1) inspect the site of the discovery and (2) make determinations as to how the human remains and grave goods shall be treated and disposed of with appropriate dignity.

SCE will develop a treatment plan describing the role Native American tribes have when complying with California Public Resources Code 5097.98. SCE will seek tribal input on the plan.

B. The Soboba Band, as MLD, shall complete its inspection within twenty-four (24) hours of receiving notification from either the Developer or the NAHC, as required by California Public Resources Code § 5097.98 (a). The Parties agree to discuss in good faith what constitutes "appropriate dignity" as that term is used in the applicable statutes.

SCE will develop a treatment plan describing the role Native American tribes have when complying with California Public Resources Code 5097.98. SCE will seek tribal input on the plan.

C. Reburial of human remains shall be accomplished in compliance with the California Public Resources Code § 5097.98 (a) and (b). The Soboba Band, as the MLD in consultation with the Developer, shall make the final discretionary determination regarding the appropriate disposition and treatment of human remains.

SCE will develop a treatment plan describing the role Native American tribes have when complying with California Public Resources Code 5097.98. SCE will seek tribal input on the plan.

D. All parties are aware that the Soboba Band may wish to rebury the human remains and associated ceremonial and cultural items (artifacts) on or near, the site of their discovery, in an area that shall not be subject to future subsurface disturbances. The Developer should accommodate on-site reburial in a location mutually agreed upon by the Parties.

SCE will develop a treatment plan describing the process all parties will employ to mutually agree to a location should reburial be proposed. SCE will seek tribal input on the plan.

E. The term "human remains" encompasses more than human bones because the Soboba Band's traditions periodically necessitated the ceremonial burning of human remains. Grave goods are those artifacts associated with any human remains. These items, and other funerary remnants and their ashes are to be treated in the same manner as human bone fragments or bones that remain intact.

SCE will develop a treatment plan describing the process by which all parties mutually agree to a definition of grave goods. SCE will seek tribal input on the plan.

8. <u>Coordination with County Coroner's Office</u>. The Lead Agencies and the Developer should immediately contact both the Coroner and the Soboba Band in the event that any human remains are discovered during implementation of the Project. If the Coroner recognizes the human remains to be those of a Native American, or has reason to believe that they are those of a Native American, the Coroner shall ensure that notification is provided to the NAHC within twenty-four (24) hours of the determination, as required by California Health and Safety Code § 7050.5 (c).

SCE will comply with the California Health and Safety Code § 7050.5 (c).

9. <u>Non-Disclosure of Location of Reburials</u>. It is understood by all parties that unless otherwise required by law, the site of any reburial of Native American human remains or cultural artifacts shall not be disclosed and shall not be governed by public disclosure requirements of the California Public Records Act. The Coroner, parties, and Lead Agencies, will be asked to withhold public disclosure information related to such reburial, pursuant to the specific exemption set forth in California Government Code § 6254 (r). Ceremonial items and items of cultural patrimony reflect traditional religious beliefs and practices of the Soboba Band. The Developer agrees to return all Native American ceremonial items and items of cultural patrimony that may be found on the project site to the Soboba Band for appropriate treatment. In addition, the Soboba Band requests the return of all other cultural items (artifacts) that are recovered during the course of archaeological investigations. Where appropriate and agreed upon in advance, Developer's archeologist may conduct analyses of certain artifact classes if required by CEQA, Section 106

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of NHPA, the mitigation measures or conditions of approval for the Project. This may include but is not limited or restricted to include shell, bone, ceramic, stone or other artifacts.

SCE will comply with the California Government Code § 6254 (r). Be advised, however, that SCE does not have the legal authority to compel a land owner to turn over artifacts of Native American origin recovered on private lands. SCE may help the tribe and land owner to facilitate a resolution. SCE will work with the tribe to curate artifacts of Native American origin recovered on SCE owned land in a facility meeting 36 CFR 79 requirements or equivalent standards.

You will be contacted by the SCE Tribal Liaison, Mr. Brian McDonald, in the near future. In addition, please feel free to contact me at your convenience.

Sincerely,

David C. Hanna, Jr., M.A., RPA
Archaeologist
Southern California Edison
1218 Fifth Avenue
Monrovia, CA 91016
Office: 626-462-8630 (PAX 74630)
Cell: 626-483-9891

cc: Brian McDonald
Rosalie Barcinas
Adam Sriro
Stacie Wilson

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11 June 2012

Ms. Anna M. Hoover
Pechanga Cultural Resources
Temecula Band of Luiseño Mission Indians
P.O. Box 2183
Temecula, CA 92592

Re: Comments on Valley South Subtransmission Project, Riverside County, California

Dear Ms. Hoover:

Thank you for sending comments on the proposed Southern California Edison (SCE) Valley South Subtransmission Project (VSSP).

SCE is in the early stages of studying route alternatives and planning the overall project, after which a Proponent's Environmental Assessment (PEA) will be prepared and submitted to the California Public Utilities Commission (CPUC). The CPUC will use the PEA in preparing the Draft Environmental Impact Report (DEIR), which it will circulate for public comment.

Please find, below, SCE's responses to your comments.

1. Meet wit h Project representatives prior to co mpletion of the archaeological study and "as soon as possible"

SCE has already initiated communication with the Tribe and will continue this process.

2. Consult "on a government-to-government level with the Lead Agency (presumably the CPUC)"

The concept of government-to-government consultation applies when a federal undertaking is identified and is between Federally Recognized Tribes and a designated lead federal agency. The VSSP does not currently have an undertaking.

3. SCE to "forward a copy of this letter to th e appropriate Lead Agenc y representative so we may begin our consultation with them as well"

SCE will comply with all CEQA requirements regarding Native American consultation. The CPUC is identified as the lead state agency and will play a role in the consultation process. All letters requesting consultation will be documented in the project's public record.

4. Particip ate in "all subsurface excavation ac tivities including but n ot lim ited to archaeologi cal excavations, geological testing, mass grading and trenching"

It is standard practice to have Native American monitors present for ground-disturbing activities that occur in close proximity or within the boundaries of cultural resources of Native American origin. Regarding areas where resources are not already identified, Native American monitors may be present in areas where there is a moderate to high potential of encountering unanticipated, subsurface deposits. These locations will be identified in a project treatment plan and/or Native American Participation Plan(s). SCE will seek tribal input on the plan. SCE typically does not request the presence of Native Americans during survey activity unless surveys are performed within documented sacred lands or Traditional Cultural Properties.

5. Notification "once the Project begins the entitlement process, if applicable"

SCE will keep the Tribe informed as to the project's progress through critical milestones of the CPUC project licensing process, and the Tribe is free to consult the public record in this matter.

6. "Copies of all applicable archaeological reports, site records, proposed grading plans and environmental documents"

SCE will direct participating Native American stakeholders to the public documents, and provide confidential cultural resources documentation as appropriate.

7. "Consultation with SCE and Government-to-government consultation with the Lead Agency"

The concept of government-to-government consultation applies when a federal undertaking is identified and is between Federally Recognized Tribes and a designated lead federal agency. The VSSP does not currently have an undertaking.

8. Tribe is "opposed to impacts to any and all cultural resources located on the Project site"

SCE will comply with all applicable regulations to avoid, minimize, and mitigate potential impacts to cultural resources within the project area.

9. States "we do believe archaeological and tribal monitoring will be required in areas where resources are not already identified or identified through further study and evaluation"

SCE will comply with mitigation measures in the FEIR. It is standard practice to have Native American monitors present for ground-disturbing activities that occur in close proximity or within the boundaries of cultural resources of Native American origin. Regarding areas where resources are not already identified, Native American monitors may be present in areas where there is a moderate to high potential of encountering unanticipated, subsurface deposits. These locations will be identified in a project treatment plan and/or Native American Participation Plan. SCE will seek tribal input on the plan(s). SCE typically does not request the presence of Native Americans during survey activity unless surveys are performed within documented sacred lands or Traditional Cultural Properties.

10. Tribe "reserves it s right to make additional comments and recommendations once the environmental documents have been received and fully reviewed"

The tribe will be afforded the opportunity to review pertinent environmental technical reports within an agreed upon time frame; however, the PEA and/or DEIR shall be reviewed within the time frames established by the CPUC.

11. "Further, in the event that subsurface cultural resources are identified, the Tribe requests consultation with SCE and the Lead Agency regarding the treatment and disposition of all artifacts"

SCE will draft an Unanticipated Discovery Plan covering this topic. SCE will seek tribal input on the plan.

12. "As a sovereign governmental entity, the Tribe is entitled to appropriate and adequate government-to-government consultation regarding the proposed Project."

The concept of government-to-government consultation applies when a federal undertaking is identified and is between Federally Recognized Tribes and a designated lead federal agency. The VSSP does not currently have an undertaking.

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13. "We would like you and your client to know that the Tribe does not consider initial inquiry letters from project consultants to constitute appropriate government-to-government consultation, but rather tools to obtain further information about the Project area. Therefore, the Tribe reserves its rights to participate in the formal environmental review process, including government-to-government

consultation with the Lead Agency, and requests to be included in all correspondence regarding this Project."

SCE will continue consulting with interested Tribes, and will comply with all CEQA requirements regarding Native American consultation. The CPUC is identified as the lead state agency and will play a role in the consultation process. The concept of government-to-government consultation applies when a federal undertaking is identified and is between Federally Recognized Tribes and a designated lead federal agency. The VSSP does not currently have an undertaking.

14. "Please note that we are interested in participating in surveys within Luiseño ancestral territory. Prior to conducting any surveys, please contact the Cultural Department to schedule specifics."

SCE typically does not request the presence of Native Americans during survey activity unless surveys are performed within documented sacred lands or Traditional Cultural Properties. However, the tribe may be invited to voluntarily participate on cultural resource surveys within the Luiseno ancestral territory.

You will be contacted by the SCE Tribal Liaison, Mr. Brian McDonald, in the near future. In addition, please feel free to contact me at your convenience.

Sincerely,

David C. Hanna, Jr., M.A., RPA
Archaeologist
Southern California Edison
1218 Fifth Avenue
Monrovia, CA 91016
Office: 626-462-8630 (PAX 74630)
Cell: 626-483-9891

cc: Brian McDonald
Rosalie Barcinas
Adam Sriro
Stacie Wilson

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28 September 2012

Ms. Anna M. Hoover
Pechanga Cultural Resources
Temecula Band of Luiseño Mission Indians
P.O. Box 2183
Temecula, CA 92592

Subject: SCE Valley South Subtransmission Project, Riverside County, California: Preliminary Route Alternatives Map with 200-foot Buffer

Dear Ms. Hoover,

This letter has been sent in furtherance of on-going communications between Southern California Edison (SCE) and tribal entities concerning SCE's proposed development of the Valley South Subtransmission Project (VSSP) to serve current and future electrical needs within portions of Murrieta, Menifee, Temecula, Wildomar, and surrounding communities of unincorporated Riverside County.

Our mutual communications are part of SCE's cultural resources study undertaken pursuant to the California Environmental Quality Act, Public Resources Code Section 21083.2, and associated implementing guidelines (CCR Title 14 Sections 15064.5, 15064.7, 15126.4(b), Appendix G Section V).

Enclosed is a preliminary map of the SCE-proposed VSSP route alternatives. The map is sent for your general information and in the hope that you will use it to assist us with identifying areas of particular concern to you; shape files will be forwarded to you electronically. The blue dashed lines on the map indicate the 200-foot-wide corridors, within which new subtransmission facilities may be constructed. Where the corridor coincides with a street, the width is defined from the centerline and extends 100 feet on each side. Please note that this information is preliminary and subject to change.

Should you decide to provide us mapped information, please mail a disc containing the shape files to Dave Hanna at the address shown below or via email to Dave.Hanna@sce.com.

Should you have any questions, please contact either of the following persons at SCE.

Dave Hanna, SCE Archaeologist
626-462-8630 / dave.hanna@sce.com

Brian McDonald, SCE Tribal Liaison
951-249-8467 / brian.mcdonald@sce.com

Thank you.

David C. Hanna, Jr., M.A., RPA
SCE Archaeologist
1218 Fifth Avenue
Monrovia, CA 91016

Enclosures: Shape files of map depicting two route alternatives

SOUTHERN CALIFORNIA EDISON®
An EDISON INTERNATIONAL® Company

28 September 2012

Mr. Joseph Ontiveros
Soboba Cultural Resource Department
Soboba Band of Luiseño Indians
P.O. Box 487
San Jacinto, CA 92581

Subject: SCE Valley South Subtransmission Project, Riverside County, California: Preliminary Route Alternatives Map with 200-foot Buffer

Dear Mr. Ontiveros,

This letter has been sent in furtherance of on-going communications between Southern California Edison (SCE) and tribal entities concerning SCE's proposed development of the Valley South Subtransmission Project (VSSP) to serve current and future electrical needs within portions of Murrieta, Menifee, Temecula, Wildomar, and surrounding communities of unincorporated Riverside County.

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David C. Hanna, Jr., M.A., RPA
SCE Archaeologist
1218 Fifth Avenue
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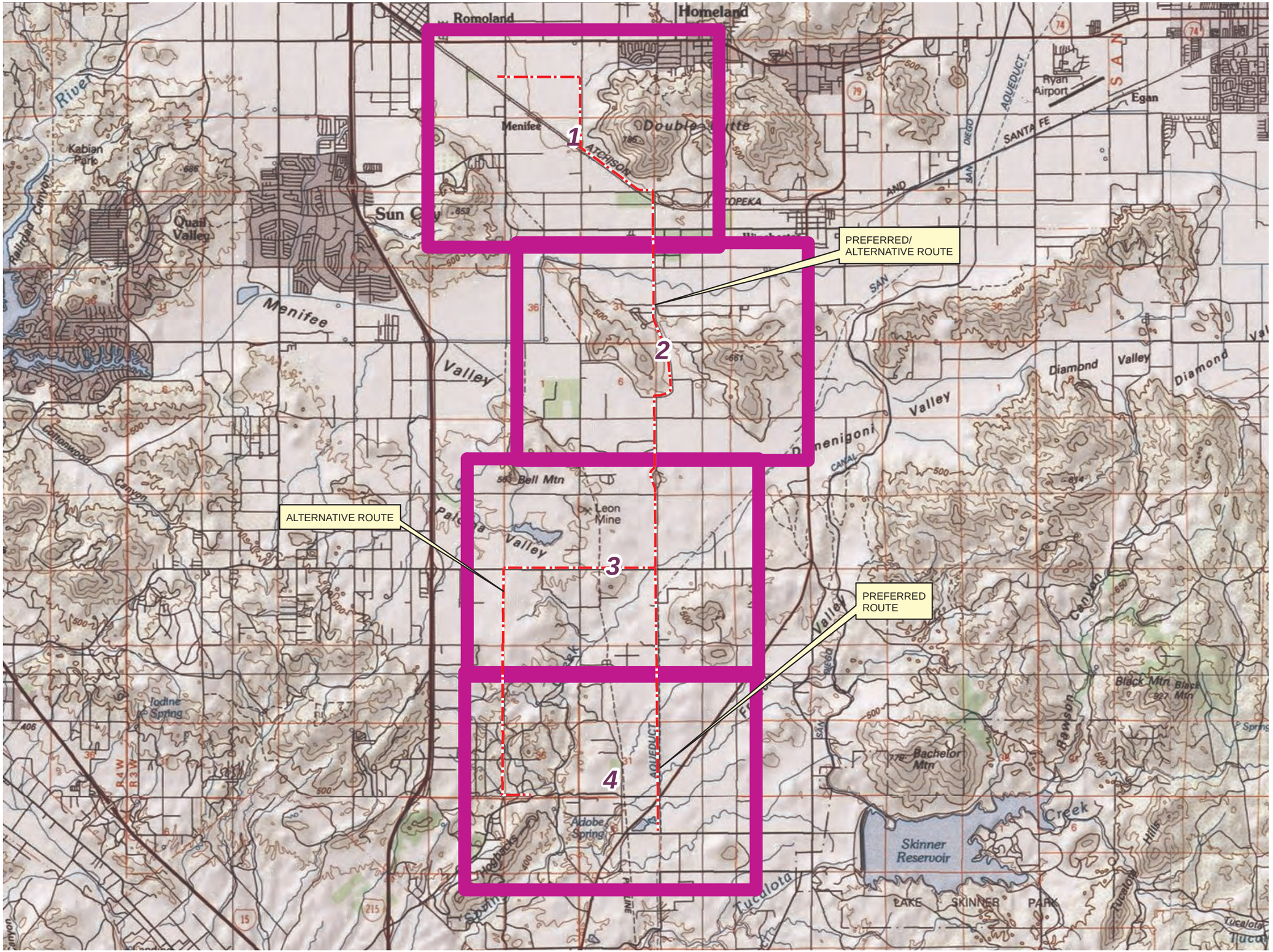
Enclosures: Shape files of map depicting two route alternatives



Notification #:20139801 Filename: Valley_South_Route Analysis_Preferred Route and Alternative_Map_v2_11142011.mxd Created by: IT Date: 11/14/2011

PRELIMINARY SUBJECT TO CHANGE

Valley-South Subtransmission Project
200Ft Buffer Zone Map
County of Riverside
09-28-2012

INDEX PAGE

Legend

Street Center Line

1500FT_Grid

The TOPO maps are seamless, scanned images of United States Geological Survey (USGS) paper topographic maps provided by ESRI For more information, visit http://goto.arcgisonline.com/maps/USA_Topo_Maps

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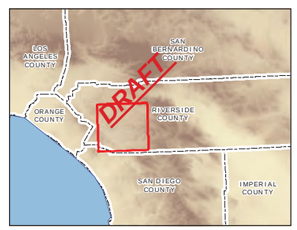
N

1 inch = 6,500 feet



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PRELIMINARY
SUBJECT TO CHANGE

Valley-South Subtransmission Project
200Ft Buffer Zone Map
County of Riverside
09-28-2012

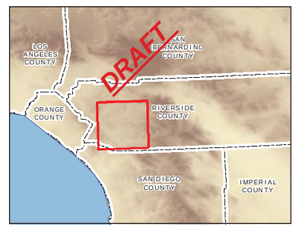
Legend

Street Center Line

200Ft Buffer (100ft from center line)

N

1 inch = 1,500 feet



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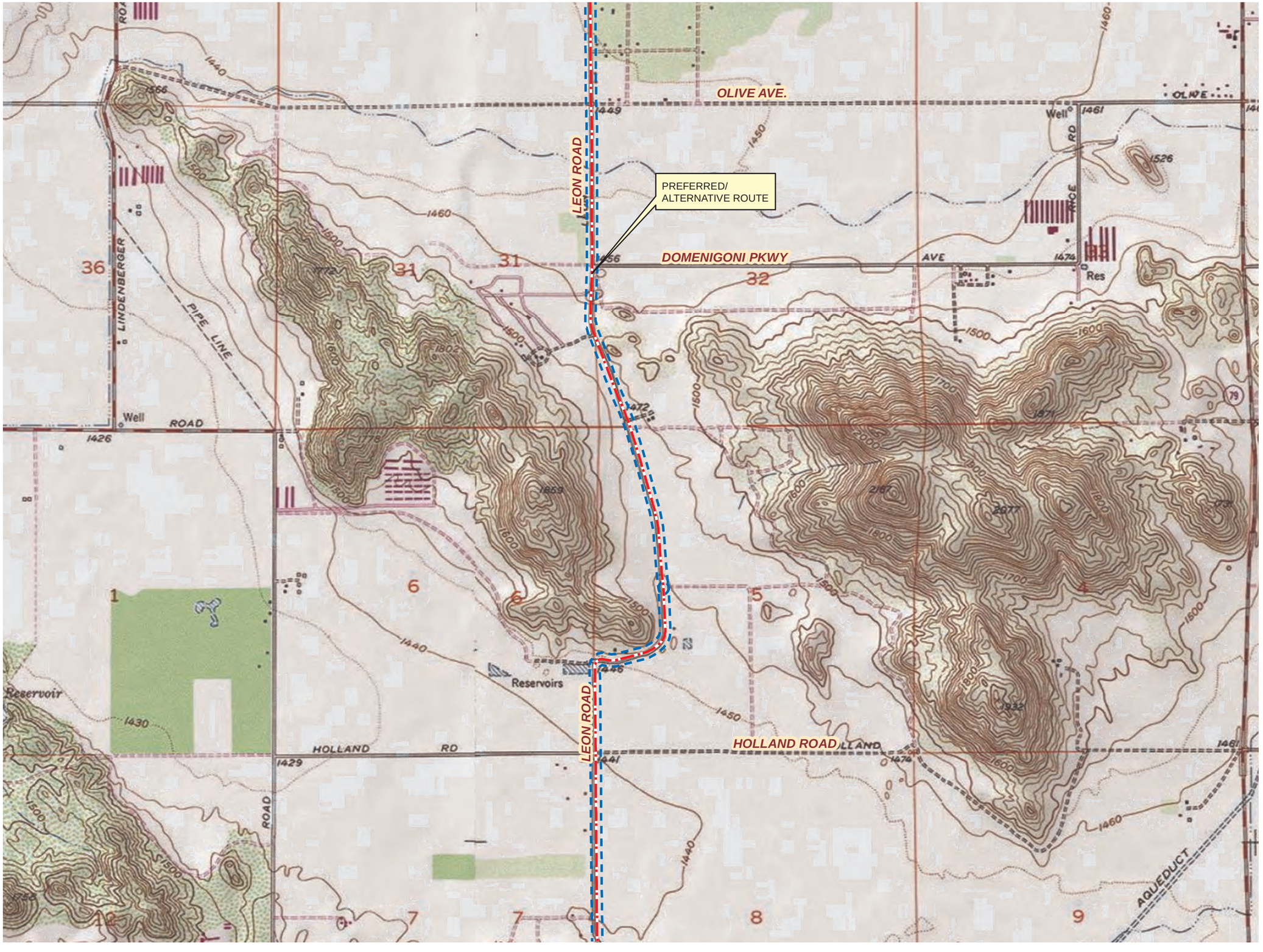

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SUBJECT TO CHANGE

Valley-South Subtransmission Project
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County of Riverside
09-28-2012

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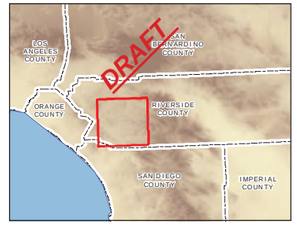

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PRELIMINARY
SUBJECT TO CHANGE

Valley-South Subtransmission Project
200Ft Buffer Zone Map
County of Riverside
09-28-2012

Legend

Street Center Line

200Ft Buffer (100ft from center line)

PREFERRED/
ALTERNATIVE ROUTE

ALTERNATIVE ROUTE

ALTERNATIVE ROUTE

PREFERRED ROUTE

LEON ROAD

SCOTT ROAD

MENIFEE ROAD

KELLER ROAD

BRIGGS ROAD

SAN DIEGO

Bell Mtn
VABM 1948

Leon Mine

Windmill

Res

Gravel Pit

VABM 1896

Windmill

Spring

V A L L E Y

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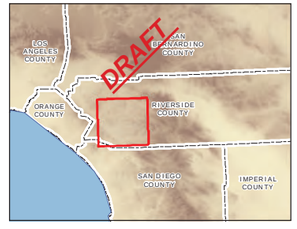

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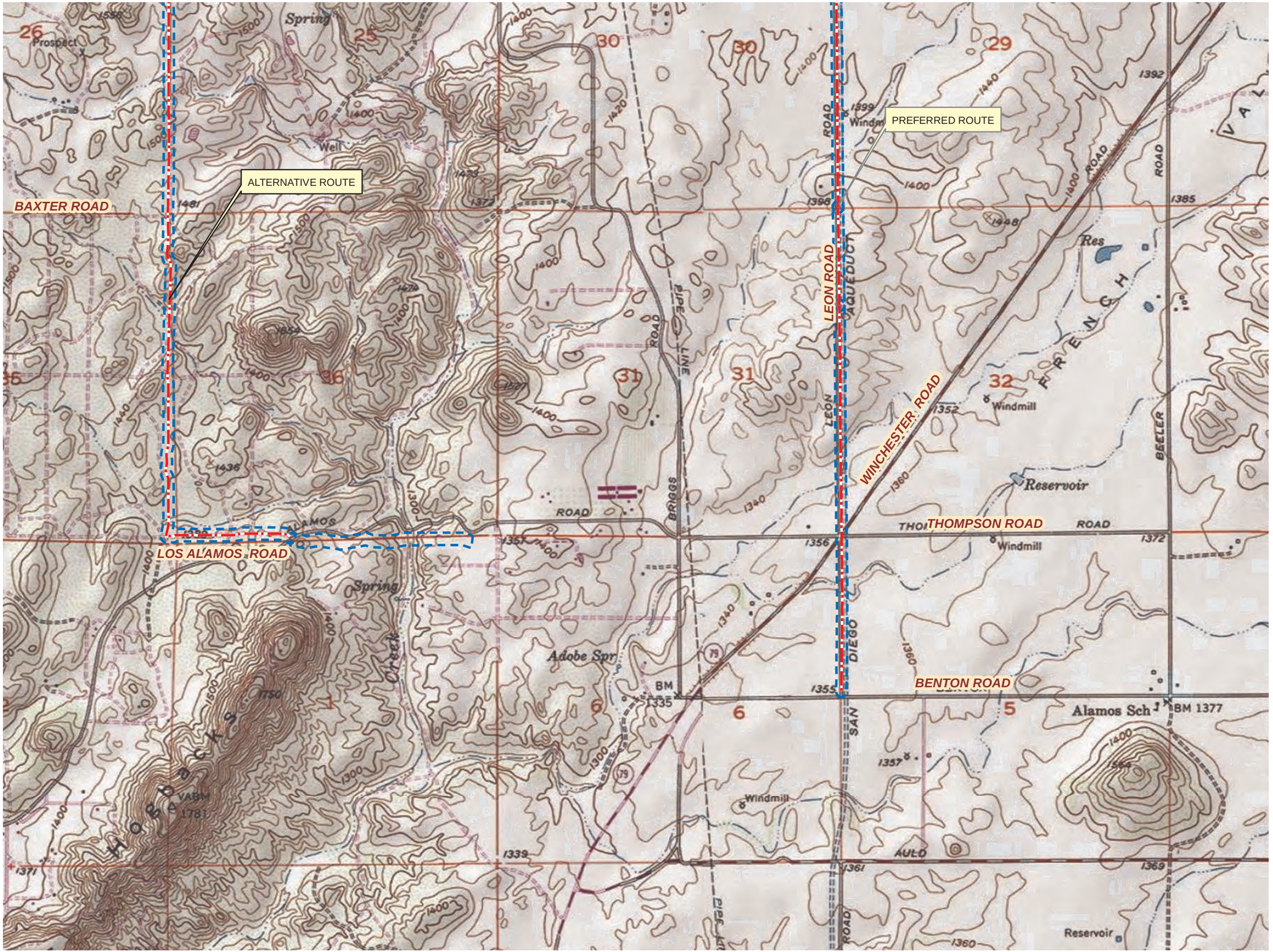

PRELIMINARY
SUBJECT TO CHANGE

Valley-South Subtransmission Project
200Ft Buffer Zone Map
County of Riverside
09-28-2012

Legend

Street Center Line

200Ft Buffer (100ft from center line)

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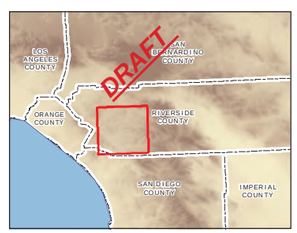

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Notification #:20139880l1 Filename: Valley_South_Route Analysis_Preferred Route and Alternative_Map_v2_11142011.mxd Created by: IT Date: 11/14/2011

VSSP Native American Mailing List
(06-25-2013)

Los Coyotes Band of Mission Indians
Shane Chapparosa, Chairman
P.O. Box 189
Warner, CA 92086

Ramona Band of Cahuilla Mission Indians
Joseph Hamilton, Chairman
P.O. Box 391670
Anza, CA 92539

Pala Band of Mission Indians
Tribal Historic Preservation Office
Shasta Gaugher
35008 Pala Temecula Road, PMB 50
Pala, CA 92059

Santa Rosa Band of Mission Indians
John Marcus, Chairman
P.O. Box 391820
Anza, CA 92539

Pauma & Yuima Reservation
Randall Majel, Chairperson
P.O. Box 369
Pauma Valley CA 92061

Morongo Band of Mission Indians
William Madrigal, Jr., Cultural Heritage Program
12700 Pumarra Road
Banning, CA 92220

Pechanga Band of Mission Indians
Paul Macarro, Cultural Resources Manager
P.O. Box 1477
Temecula, CA 92593

Rincon Band of Mission Indians
Bo Mazzetti, Chairperson
P.O. Box 68
Valley Center, CA 92082

Pechanga Band of Mission Indians
Mark Macarro, Chairperson
P.O. Box 1477
Temecula, CA 92593

William J. Pink
48310 Pechanga Road
Temecula, CA 92592

Cahuilla Band of Indians
Chairperson
P.O. Box 391760
Ann, CA 92539

Pechanga Cultural Resources Department
Anna Hoover, Cultural Analyst
P.O. Box 2183
Temecula, CA 92593

Soboba Band of Luiseno Indians
Joseph Ontiveros, Cultural Resource Department
ParroBox 487
San Jacinto, CA 92581

RINCON BAND OF LUISEÑO INDIANS

Culture Committee

1 W. Tribal Road · Valley Center, California 92082 ·
(760) 297-2622 or·(760) 297-2635 & Fax:(760) 297-2639

July 16, 2013

Southern California Edison
1218 S. Fifth Avenue
Monrovia, CA 91016

Re: SCE Valley South Subtransmission Project (VSSP), Riverside County, California – Expanded Project (extending south of originally proposed VSSP project)

Dear David C. Hanna,

Thank you for inviting us to submit comments on the SCE Valley South Subtransmission Project. This letter is written on behalf of the Rincon Band of Luiseño Indians. Rincon is submitting these comments concerning your Project's potential impact on Luiseño cultural resources.

The Rincon Band has concerns for impacts to historic and cultural resources and findings of significant cultural value that could be disturbed or destroyed and are considered culturally significant to the Luiseño people. This is to inform you, your identified location is within the Aboriginal Territory of the Luiseno people, but is not within Rincon's Historic boundaries. We refer you to Pechanga Band of Luiseño Indians or Soboba Band of Luiseño Indians who are closer to your project area. In addition, we recommend a Native American Monitor be present during any and all ground disturbances.

Also, please contact the Native American Heritage Commission and they will assist with a referral to other tribes in the project area. We request you update your contact information for Rincon and send any future letters and correspondence to the Rincon Tribal Chairman and the Tribal Historic Preservation Office in the Cultural Resource Department, 1 W. Tribal Road, Valley Center, CA 92082 (760) 297-2635.

Note that our address has changed. Please update your records to replace the previous address of PO Box 68, Valley Center, CA 92082 with the following address: 1 W. Tribal Road, Valley Center, CA 92082.

Thank you for this opportunity to protect and preserve our cultural assets.

RINCON BAND OF LUISEÑO INDIANS

Culture Committee

1 W. Tribal Road · Valley Center, California 92082 ·
(760) 297-2622 or·(760) 297-2635 & Fax:(760) 297-2639

Sincerely,

Rose Duro
Rincon Culture Committee Chairman

July 26, 2013

Attn: David C. Hanna, Jr., SCE Archaeologist
Southern California Edison
1218 Fifth Avenue
Monrovia, CA 91016

**Re: SCE Valley South Substation Project (VSSP), Riverside County, California-
EXPANDED PROJECT (extending south of originally proposed VSSP project)**

The Soboba Band of Luiseño Indians appreciates your observance of Tribal Cultural Resources and their preservation in your project. The information provided to us on said project has been assessed through our Cultural Resource Department, where it was concluded that although it is outside the existing reservation, the project area does fall within the bounds of our Luiseño Tribal Traditional Use Areas. It is in close proximity to other known sites and is a shared use area that was used in ongoing trade between the various tribal bands, not considered as a location occupied by one existing band. Therefore it is regarded as highly sensitive to the people of Soboba.

Soboba Band of Luiseño Indians is requesting the following:

1. To initiate a consultation with the Project Developer and Land owner.

2. The transfer of information to the Soboba Band of Luiseno Indians regarding the progress of this project should be done as soon as new developments occur.

3. Soboba Band of Luiseño Indians continues to act as a consulting tribal entity for this project.

4. Working in and around traditional use areas intensifies the possibility of encountering cultural resources during the construction/excavation phase. For this reason the Soboba Band of Luiseño Indians requests that Native American Monitor(s) from the Soboba Band of Luiseño Indians Cultural Resource Department to be present during any ground disturbing proceedings. Including surveys and archaeological testing.

5. Request that proper procedures be taken and requests of the tribe be honored
(Please see the attachment)

The Soboba Band of Luiseno Indians is requesting a face-to-face meeting between a representative from Southern California Edison and the Soboba Cultural Resource Department. Please contact me at your earliest convenience either by email or phone in order to make arrangements.

Sincerely,

Joseph Ontiveros
Director of Cultural Resources
Soboba Band of Luiseño Indians
P.O. Box 487
San Jacinto, CA 92581
Phone (951) 654-5544 ext. 4137
Cell (951) 663-5279
jontiveros@soboba-nsn.gov

Cultural Items (Artifacts). Ceremonial items and items of cultural patrimony reflect traditional religious beliefs and practices of the Soboba Band. The Developer should agree to return all Native American ceremonial items and items of cultural patrimony that may be found on the project site to the Soboba Band for appropriate treatment. In addition, the Soboba Band requests the return of all other cultural items (artifacts) that are recovered during the course of archaeological investigations. When appropriate and agreed upon in advance, the Developer's archeologist may conduct analyses of certain artifact classes if required by CEQA, Section 106 of NHPA, the mitigation measures or conditions of approval for the Project. This may include but is not limited or restricted to include shell, bone, ceramic, stone or other artifacts.

The Developer should waive any and all claims to ownership of Native American ceremonial and cultural artifacts that may be found on the Project site. Upon completion of authorized and mandatory archeological analysis, the Developer should return said artifacts to the Soboba Band within a reasonable time period agreed to by the Parties and not to exceed (30) days from the initial recovery of the items.

Treatment and Disposition of Remains

A. The Soboba Band shall be allowed, under California Public Resources Code § 5097.98 (a), to (1) inspect the site of the discovery and (2) make determinations as to how the human remains and grave goods shall be treated and disposed of with appropriate dignity.

B. The Soboba Band, as MLD, shall complete its inspection within twenty-four (24) hours of receiving notification from either the Developer or the NAHC, as required by California Public Resources Code § 5097.98 (a). The Parties agree to discuss in good faith what constitutes "appropriate dignity" as that term is used in the applicable statutes.

C. Reburial of human remains shall be accomplished in compliance with the California Public Resources Code § 5097.98 (a) and (b). The Soboba Band, as the MLD in consultation with the Developer, shall make the final discretionary determination regarding the appropriate disposition and treatment of human remains.

D. All parties are aware that the Soboba Band may wish to rebury the human remains and associated ceremonial and cultural items (artifacts) on or near, the site of their discovery, in an area that shall not be subject to future subsurface disturbances. The Developer should accommodate on-site reburial in a location mutually agreed upon by the Parties.

E. The term "human remains" encompasses more than human bones because the Soboba Band's traditions periodically necessitated the ceremonial burning of human remains. Grave goods are those artifacts associated with any human remains. These items, and other funerary remnants and their ashes are to be treated in the same manner as human bone fragments or bones that remain intact.

Coordination with County Coroner's Office. The Lead Agencies and the Developer should immediately contact both the Coroner and the Soboba Band in the event that any human remains are discovered during implementation of the Project. If the Coroner recognizes the human remains to be those of a Native American, or has reason to believe that they are those of a Native American, the Coroner shall ensure that notification is provided to the NAHC within twenty-four (24) hours of the determination, as required by California Health and Safety Code § 7050.5 (c).

Non-Disclosure of Location Reburials. It is understood by all parties that unless otherwise required by law, the site of any reburial of Native American human remains or cultural artifacts shall not be disclosed and shall not be governed by public disclosure requirements of the California Public Records Act. The Coroner, parties, and Lead Agencies, will be asked to withhold public disclosure information related to such reburial, pursuant to the specific exemption set forth in California Government Code § 6254 (r).
Ceremonial items and items of cultural patrimony reflect traditional religious beliefs and practices of the Soboba Band. The Developer agrees to return all Native American ceremonial items and items of cultural patrimony that may be found on the project site to the Soboba Band for appropriate treatment. In addition, the Soboba Band requests the return of all other cultural items (artifacts) that are recovered during the course of archaeological investigations. Where appropriate and agreed upon in advance, Developer's archeologist may conduct analyses of certain artifact classes if required by CEQA, Section 106 of NHPA, the mitigation measures or conditions of approval for the Project. This may include but is not limited or restricted to include shell, bone, ceramic, stone or other artifacts.

Public Involvement

SCE encourages communication and outreach to local communities, local businesses, elected and appointed officials, and other interested parties. SCE's goal is to ensure that it understands and addresses, where possible, issues of interest or potential concern regarding its proposed projects.

SCE conducted an open house and distributed mailers with project-related information as part of the public involvement for the Valley South Subtransmission Project:

Below is a detailed description of the public involvement activities that SCE conducted for the Proposed Project.

Project Information for the Public

Project Website

SCE's website (www.sce.com) provides information about the project, including a description and map and estimated timeline of activities.

Project Hotline

SCE created an informational hotline for the project where local residents can call with questions about the project. This hotline will be maintained through the project's regulatory review and approval process.

Public Outreach

Jurisdictional Briefings

SCE consulted with representatives from the California Public Utilities Commission (CPUC), Riverside County; City of Menifee; City of Murrieta; and City of Temecula, as described in detail in Chapter 1. Communications with these agencies occurred primarily between 2011 to 2014.

Outreach to Community and Business Organizations

SCE sent letters requesting comments from the following tribal entities: Cahuilla Band of Indians, Los Coyotes Band of Mission Indians, Morongo Band of Mission Indians, Pala Band of Mission Indians, Pauma & Yulma Reservation, Pechanga Band of Mission Indians, Pechanga Cultural Resources Department, Ramona Band of Cahuilla Mission Indians, Rincon Band of Mission Indians, Santa Rosa Band of Mission Indians, Soboba Band of Luiseno Indians, and William J Pink. SCE received responses from the following Native American tribes: Cahuilla Tribal Environmental Protection Office, Pala Tribal Historic Preservation Office, Pechanga Cultural Resources Office of the Temecula Band of Luiseno Mission Indians, the Cultural Committee of the Rincon Band of Luiseno Indians and Soboba Band of Luiseno Indians. The SCE Tribal Liaison Brian McDonald placed telephone calls to the tribal respondents and SCE sent comment response letters to Cahuilla, Pechanga, and Soboba.

SCE also reached out to community members through distribution of a mailer and postcard, which are provided in Appendix D.

Valley South Subtransmission Project Update

Louis Davis, SCE Region Manager

April 11, 2013

Proposed Project Overview

- The Valley South Subtransmission Project includes the following:
  - Construction of a 115 kilovolt (kV) subtransmission line from SCE's existing Valley Substation in Menifee and ending east of SCE's existing Auld Substation in Murrieta. The proposed 115 kV subtransmission line would be approximately 12 miles in length.
  - Install communication equipment at area substation to support the proposed project
  - Equipment modifications at Valley Substation

Project Purpose & Need

- To serve current and projected demand for electricity and maintain electric system reliability in the cities of:
  - Murrieta, Menifee, Temecula, Wildomar and portions of adjacent unincorporated Riverside County, such as Winchester and French Valley (approximately 100,000 metered customers)
- In the near future, it is projected that the existing electrical system will be unable to reliably serve all customers in the area without additional capacity.


PERRIS
VALLEY SUBSTATION
MENIFEE ROAD
HEMET
SIMPSON ROAD
MENIFEE
NEWPORT ROAD
CANYON LAKE
LAKE ELSINORE
215
PREFERRED ROUTE
SCOTT ROAD
RIVERSIDE COUNTY
BRIGGS ROAD
LEON ROAD
79
ALTERNATIVE ROUTE
WILDOMAR
15
AULD SUBSTATION
215
BENTON ROAD
MURRIETA
TEMECULA
15
74
LEGEND
Substation
Preferred Route
Alternative Route
Valley South Study Area

Anticipated Project Timeline

- Late 2013 – SCE files project with the California Public Utilities Commission
- 2014 – Project decision expected
- 2015 – Project construction to begin
- 2017 – Anticipated Project in-service date

Public Outreach

- Previous Outreach
  - Early 2011: Conducted initial stakeholder briefings
  - Mid 2012: Conducted additional stakeholder briefings
  - November 2012: Project website launched
  - December 2012: SCE hosted project open house, invitation/project overview mailed to property owners along preferred and alternative routes

Public Outreach

- Future Outreach
  - Additional briefings with stakeholders prior to submitting application to CPUC
  - Mail project fact sheet to property owners prior to submitting application to CPUC
  - Update project website after submitting application to CPUC
  - Conduct media outreach as necessary

Additional Information

- Project Hotline: 866.785.7057
- Website: www.sce.com/valleysouth
- Louis Davis, SCE Public Affairs: 951.249.8468

Other Local Projects

- **Alberhill System Project** – Awaiting release of draft environmental impact report from the PUC, expected sometime in 2013

- **Devers Palo Verde No. 2** – Construction expected to be complete by 3rd Quarter 2013

- **Valley Ivyglen Subtransmission Project** – SCE currently working on pre-construction activities

Thank you for your time.

We welcome any questions you may have.

- BACK UP SLIDES –
  USE AS NEEDED

CPUC General Order 131-D

- SCE is a public utility regulated by California Public Utilities Commission (CPUC)
- Under CPUC General Order 131-D, the CPUC has exclusive jurisdiction over the location and construction of public utilities facilities
- GO 131-D was adopted by the CPUC to be responsive to:
  - the requirements of CEQA;
  - the need for public notice and the opportunity for affected parties to be heard by the CPUC; and
  - the obligations of utilities to serve their customers in a timely and efficient manner.

CPUC General Order 131-D- Cont

- SCE must seek and receive CPUC approval prior to the construction
- Affected jurisdictions and other interested parties will have an opportunity to review and comment upon SCE's application before the CPUC makes a decision
- Prior to construction, SCE will still need to obtain the appropriate local ministerial permits

Proponent's Environmental Assessment (PEA)

- The CPUC requires that SCE include in its application, an environmental assessment for the project – referred to as a Proponent's Environmental Assessment (PEA)

- The PEA will:
  - Provide a description of the Proposed Project and its alternatives.
  - Evaluate potential impacts for all California Environmental Quality Act (CEQA) resource categories.
  - Consider potential impacts during both construction and operation.

- The PEA is intended to be the means by which the CPUC can quickly focus upon potentially significant environmental impacts of a project and may be used as an aid by the CPUC in preparing the Initial Study to determine whether to prepare a Mitigated Negative Declaration (MND) or an Environmental Impact Report (EIR)

Application and Review Process

SCE plans project scope, site, route, engineering and various alternatives and communicates with local jurisdictions and the public.

SCE develops and files the Proponent's Environmental Assessment (PEA) and application, including testimony.

CPUC reviews PEA, may hold public scoping meeting and/or engage in agency consultation, issues a Draft EIR or MND for review, and may hold public meetings.

CPUC finalizes the EIR or MND, addressing public comment. Evidentiary hearings may be held by the Administrative Law Judge (ALJ).

ALJ writes a proposed decision. CPUC Commissioners may have alternates, and parties are invited to comment.

CPUC certifies the EIR or MND and approves the proposed decision or alternate decision or denies project.

Public Involvement

- Public outreach and communications are critical elements of SCE's planning process
- Opportunities for the public to learn more about the proposed project, ask questions and submit comments will be available through future public meetings and mailings
- SCE will meet with local property owners, local government officials, and other interested parties throughout all phases of this project

*Make sure to like us on **Facebook** and follow us on **Twitter** to get energy efficiency tips, breaking news and crucial safety information.*
www.facebook.com/socaledison www.twitter.com/socaledison

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GO1 QUAD 4C 474B
ROSEMEAD CA 91770

The Approval Process

SCE will need to submit an application for project approval to the California Public Utilities Commission (CPUC), which is the state regulatory agency that sets electricity rates and authorizes the construction of certain electrical facilities. SCE's application will include a Proponent's Environmental Assessment, which will evaluate the environmental impacts of the project. Project review and approvals may be needed from other agencies; these agencies will be identified as the project moves forward.

Project Timeline

The formal environmental review of this project will be initiated when SCE submits our application to the CPUC, which we estimate will be in late spring 2013. We are currently preparing the project application, and are committed to having an open dialogue with the community to keep you informed and answer any questions you may have.

Public Outreach

As part of its public outreach process, SCE invites you to learn more about the project. SCE will host a project open house for the public to learn about the proposed project, view maps of potential line routes, provide feedback, and ask questions.

You Are Invited

PUBLIC OPEN HOUSE
Monday, December 3, 2012, 5:00 – 7:00 p.m.
Southern California Edison
Menifee Service Center
26100 Menifee Road
Menifee, CA 92585

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INSIDE: Important information regarding a proposed SCE project

You Are Invited to a Public Open House
Monday, December 3, 2012, 5-7 p.m
Southern California Edison
Menifee Service Center
26100 Menifee Road
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FALL 2012
PROJECT UPDATE

SOUTHERN CALIFORNIA EDISON®
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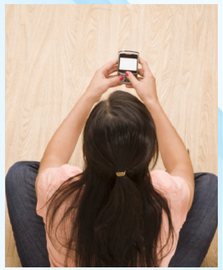
Valley South Subtransmission Project

Powering the Region for the 21st Century



Valley South Subtransmission Project

The Valley South Subtransmission Project is Southern California Edison's (SCE) proposal to upgrade the region's existing electrical infrastructure and improve the overall electrical reliability in the cities of Menifee, Murrieta. Temecula, Wildomar and portions of unincorporated Riverside County including Winchester and Murrieta Hot Springs.

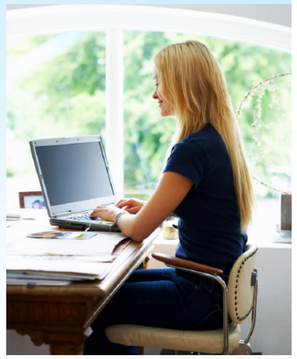
Project Need

Portions of SCE's existing electrical infrastructure serving the area are near or at their operating limits. The proposed project addresses increasing electrical usage by residents and businesses in the area and is necessary for SCE to continue safely providing reliable power to our customers. Much of the electrical infrastructure that serves our communities today was built decades ago, when the typical household's electrical needs were very different.

Project Description

The project includes the following:

- Construction of a new 115 kilovolt (kV) subtransmission line from SCE's existing Valley Substation in Menifee and ending east of SCE's existing Auld Substation in Murrieta. The proposed 115 kV subtransmission line would be approximately 12 miles in length.
- Install communication equipment at area substations to support the proposed Valley South Subtransmission Project
- Equipment modifications at Valley Substation



About Southern California Edison

An Edison International (NYSE:EIX) company, Southern California Edison is one of the nation's largest electric utilities, serving a population of more than 14 million via 4.9 million customer accounts in a 50,000-square-mile service area within Central, Coastal, and Southern California. SCE is committed to expanding and renewing essential distribution and transmission networks in our service territory, making the power grid greener and more reliable for our customers.

Project Contact Information

For more information about the project, please call the project hotline at 1-866-785-7057 or visit www.sce.com/valleysouth. If you have questions or comments about the project, please contact your local SCE public affairs representative:

For Riverside County: Louis Davis
Louis.Davis@sce.com or 951-249-8468

For Menifee: Ray Hicks
Raymond.Hicks@sce.com or 951-928-8238

For Murrieta: Viet Tran
Viet.Tran@sce.com or 951-249-8466

We'd love to hear from you!

___ Please send me updates about the project via email (be sure to provide email address below).

___ Please contact me regarding a question I have about this project (fill out contact information).

Contact Information

NAME _____

ADDRESS _____

CITY _____

STATE _____ ZIP _____

TEL _____

EMAIL _____

PREFERRED METHOD OF CONTACT _____

Comment/Question: _____

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SAVE THE DATE!

You're Invited to an Open House

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You Are Invited

Southern California Edison Company (SCE) invites you to attend an open house for the Valley South Subtransmission Project. The purpose of the open house is to provide project specific information and answer questions that you may have. The project team will have project maps and other materials available for viewing. Please plan to attend the open house listed below.

PUBLIC OPEN HOUSE

Monday, December 3, 2012, 5:00 – 7:00 p.m.

Southern California Edison

Menifee Service Center

26100 Menifee Road

Menifee, CA 92585

QUESTIONS? **Toll-Free Information Line: (866) 785-7057 Website: www.sce.com/valleysouth**

About the Project

SCE is proposing the Valley South Subtransmission Project to help meet electrical demand in the region, strengthen the area's electrical grid, and allow SCE to maintain safe, reliable electrical service. The project will primarily consist of a 115 kilovolt (kV) subtransmission line from SCE's existing Valley Substation in Menifee and ending east of SCE's existing Auld Substation in Murrieta. The proposed 115 kV subtransmission line would be approximately 12 miles in length.

*Make sure to like us on **Facebook** and follow us on **Twitter** to get energy efficiency tips, breaking news and crucial safety information.*

www.facebook.com/socaledison ***www.twitter.com/socaledison***

WELCOME

To Southern California Edison Company's

Valley South Subtransmission Project

OPEN HOUSE

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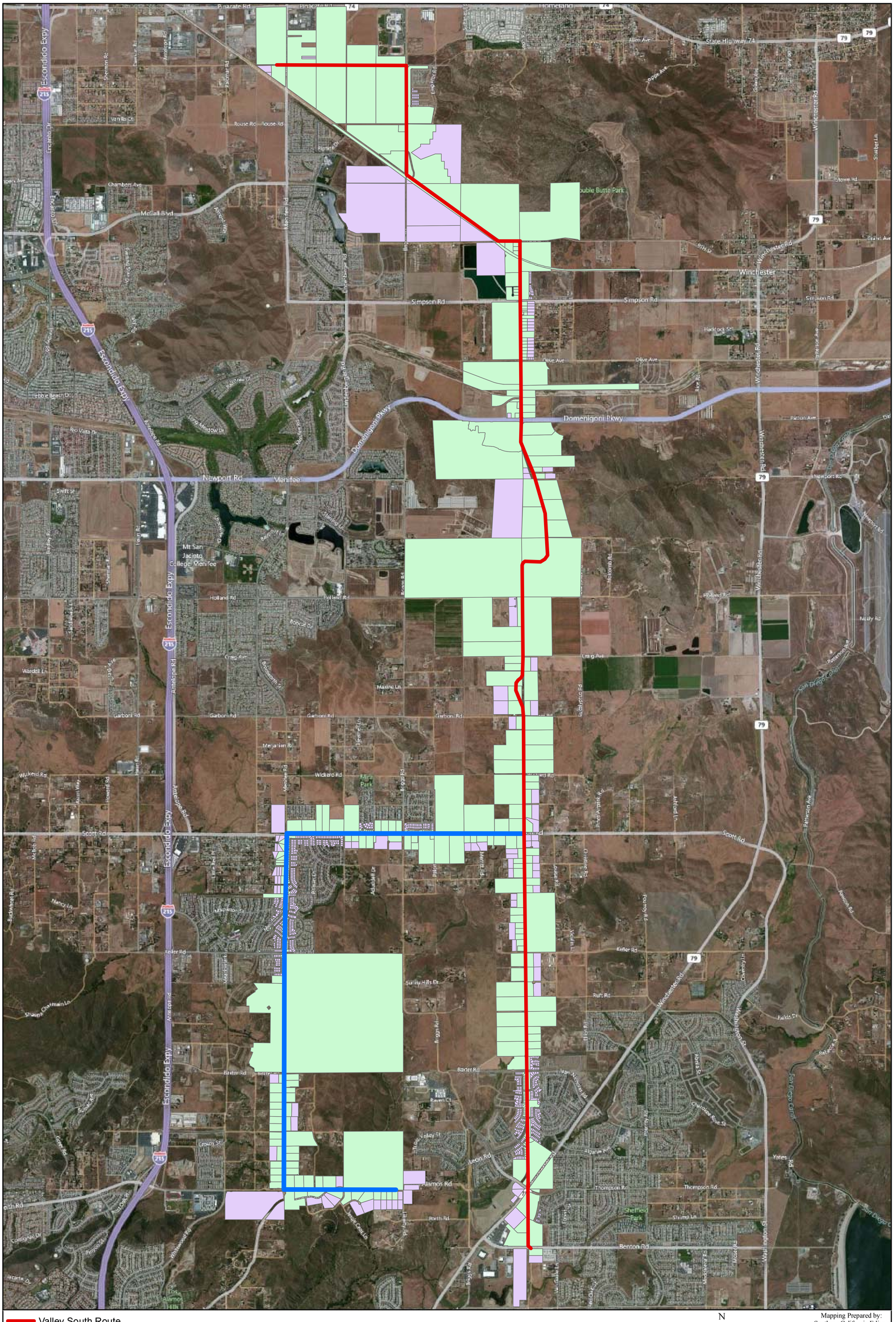
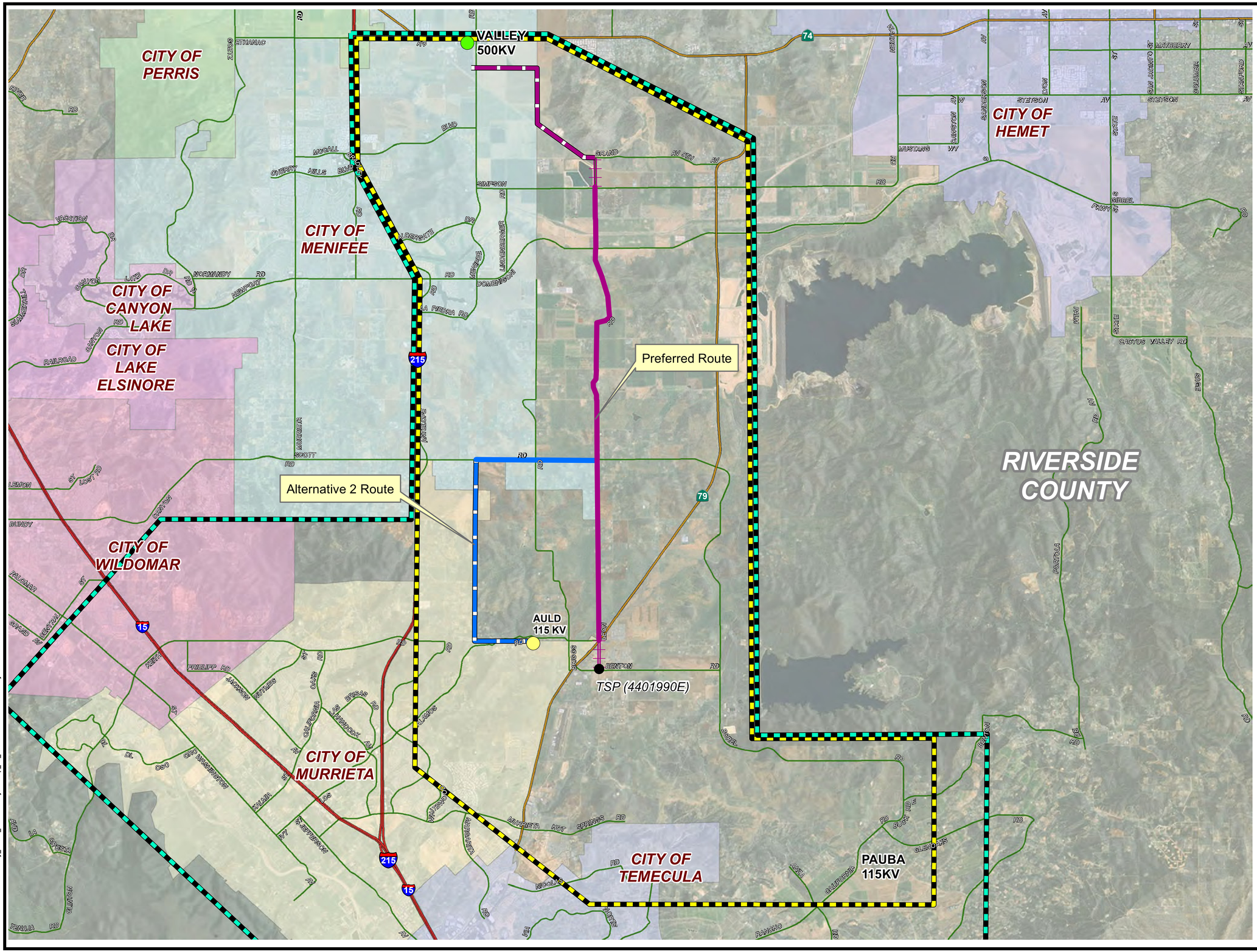


Valley South Ownership

Mapping Prepared by:
Southern California Edison
Real Properties
GIS Mapping
H. Steve Eimer
Date: 2/24/2012

EDISON

Valley-South Subtransmission Project
Proposed Route Analysis
Preferred and Alternative Routes
County of Riverside
10-23-2012



Legend

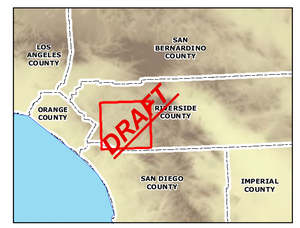
Substations

- 115
- 500
- Preferred Route
- Alternative 2 Route
- Route Runs Along Subtransmission Line
- Route Runs Along Subtransmission Line
- Vally South Energy Need Area
- Vally South Study Area

N

1 inch = 8,000 feet

0 0.475 0.95 1.9 Miles



Features depicted herein are planning level accuracy, and intended for informational purposes only. Distances and locations may be distorted at this scale. Always consult with the proper legal documents or agencies regarding such features.

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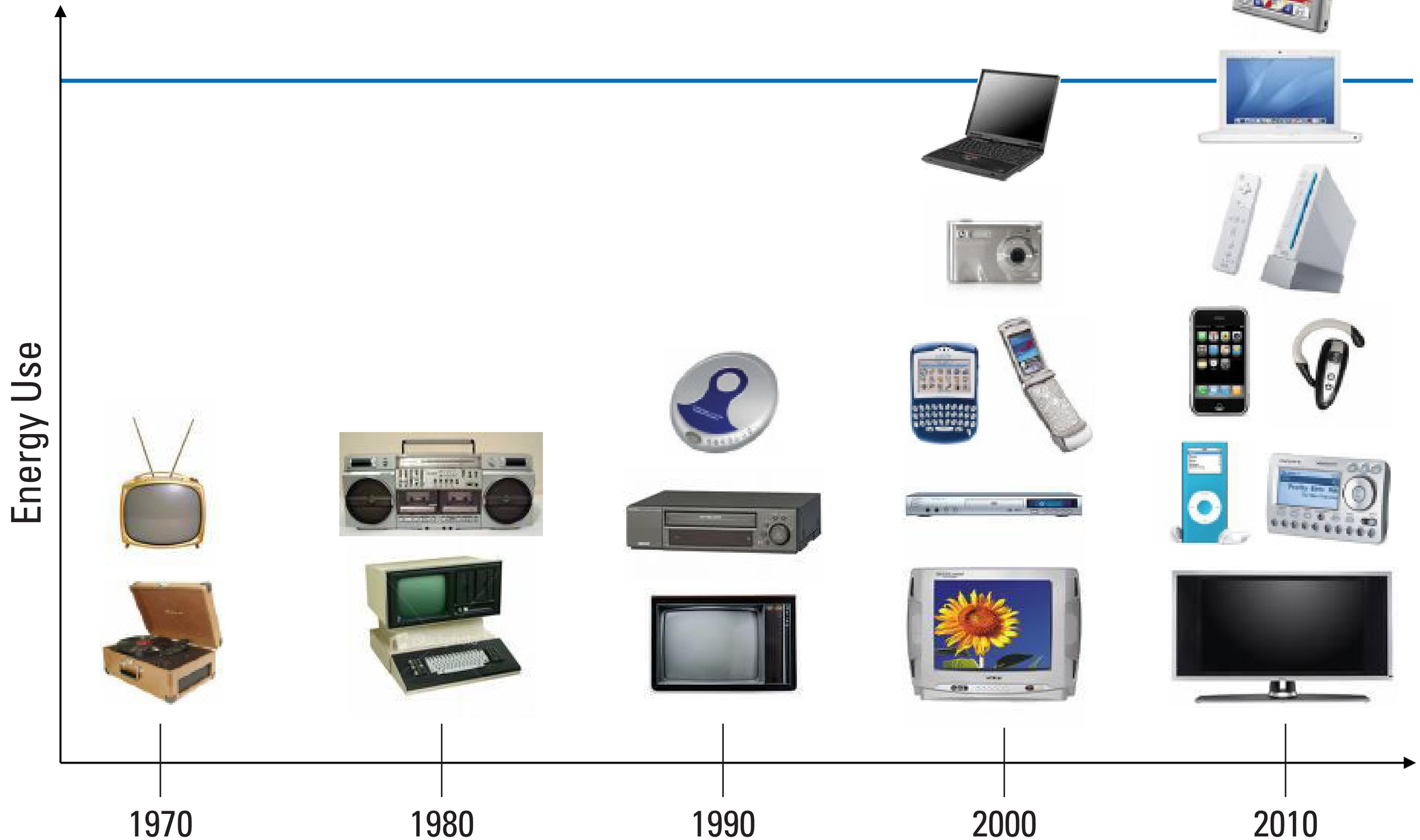
Filename: Valley_South_Route Analysis Map_v9_10232012.mxd Created by: IT Date:10/23/2012

Bigger "Plug Load"



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Project Approval Process

Project Planning

SCE plans project scope, site, route, engineering and various alternatives; communicates with local jurisdictions and the public

Project Application

SCE develops and files an application for the project, which will include a Proponent's Environmental Assessment

Agency Environmental Review

Agencies review application; prepare environmental documents; hold opportunities for public comment

Agency Decision

Agencies complete their environmental review and will each issue a decision regarding SCE's proposed work

Valley South Subtransmission Project

If you have any questions about the project, please contact us at the project hotline

(866)785-7057

select option 4

or visit the project website at

www.sce.com/valleysouth

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View of the existing condition as seen from Suzi Lane, east of Shree Road, looking north.

The Approval Process

SCE will need to submit an application for project approval to the California Public Utilities Commission (CPUC), which is the state regulatory agency that sets electricity rates and authorizes the construction of certain electrical facilities. SCE's application will include a Proponent's Environmental Assessment, which will evaluate the environmental impacts of the project. Project review and approvals may be needed from other agencies.

Project Timeline

- **Late 2014/Early 2015:** Anticipated date we will submit our Permission to Construct (PTC) Application to the CPUC.
- **Late 2017:** Anticipated start of construction.
- **Late 2019:** Anticipated project completion date.

Project Contact Information

For more information about the project, please call the project hotline at 1-866-785-7057 or visit www.sce.com/valleysouth. If you have questions or comments about the project, please contact your local SCE public affairs representative:

For Riverside County: Louis Davis
Louis.Davis@sce.com or 951-249-8468

For Menifee: Ray Hicks
Raymond.Hicks@sce.com or 951-928-8238

For Murrieta and Temecula: Jeremy Goldman
Jeremy.Goldman@sce.com or 951-249-8466

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SEPTEMBER 2014
PROJECT UPDATE

SOUTHERN CALIFORNIA EDISON®
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Valley South Subtransmission Project

Powering the Region for the 21st Century

Simulated view of the proposed project from a neighborhood trail along Old Leon Road, looking southwest.

Valley South Subtransmission Project

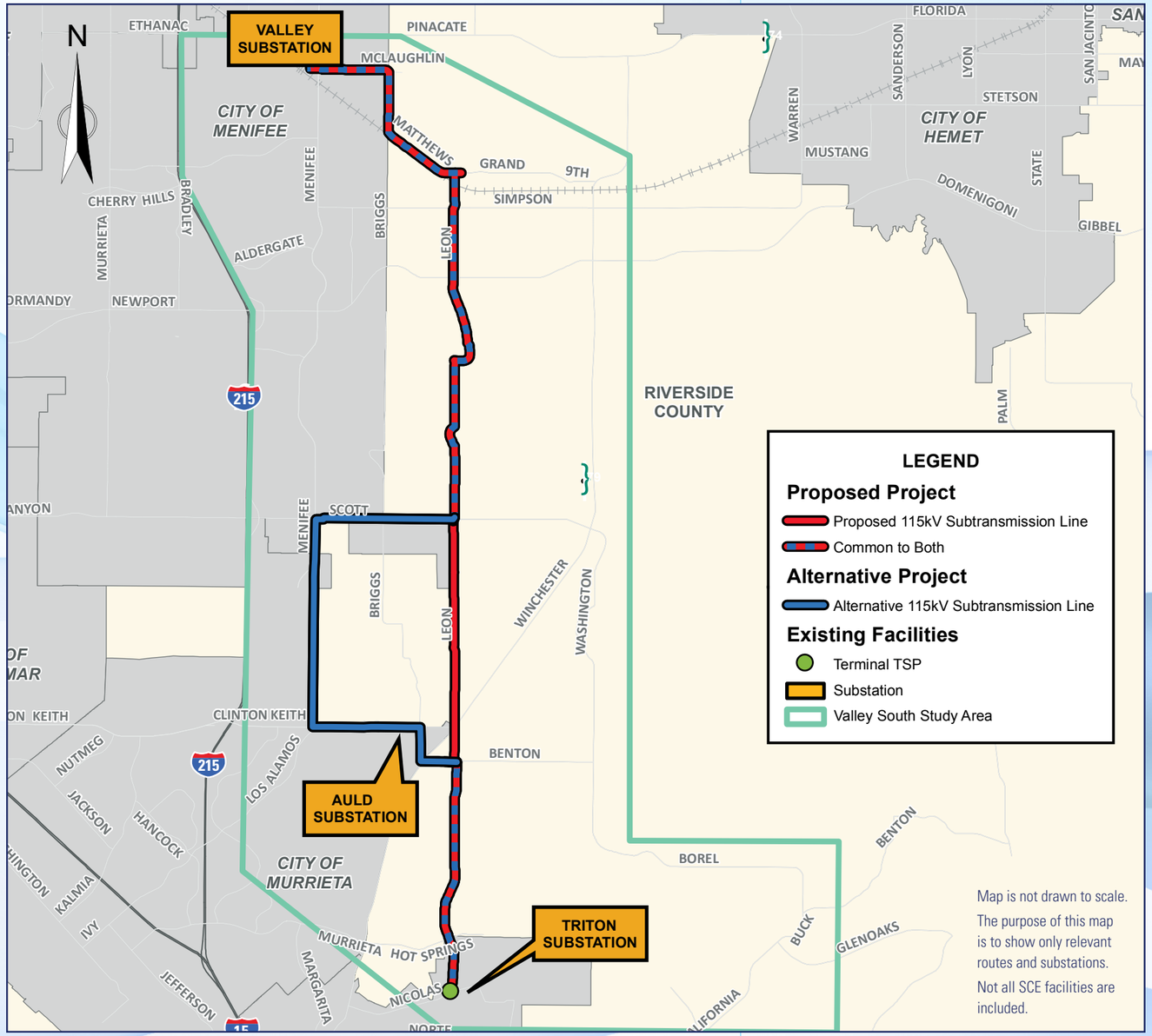
The Valley South Subtransmission Project is Southern California Edison's proposal to upgrade the region's existing electrical infrastructure and improve overall electrical reliability in the cities of Menifee, Murrieta, Temecula, Wildomar and portions of southwestern Riverside County including French Valley and Winchester.

Project Need

Portions of SCE's existing electrical infrastructure serving the area are near or at their operating limits. Much of the electrical infrastructure that serves our communities today was built decades ago, when the typical household's electrical needs were very different. The proposed project addresses increasing electrical usage by residents and businesses in the area. The proposed project is necessary for SCE to continue safely providing reliable power to our customers.

Project Description

- The proposed project will be approximately 15 miles in length
- Construction of a new 115 kilovolt (kV) subtransmission line from our existing Valley Substation in Menifee and ending east of our existing Auld Substation in Murrieta
- Reconducter (install new conductor wires) on approximately 3.4 miles of an existing 115 kV line from east of our existing Auld Substation in Murrieta to west of our existing Triton Substation in Temecula
- Install communication equipment inside mechanical buildings at existing area substations to support the proposed Valley South Subtransmission Project
- Equipment modifications at Valley Substation in Menifee



The Project in Your Area

Menifee

Near Valley Substation: Install new 115 kV subtransmission line and equipment modifications at the Valley Substation.

Near Scott Road: This area is part of the alternative route. If the alternative route is selected instead of the preferred route, then we would install new 115 kV subtransmission line.

Murrieta

This area is part of the alternative route. If the alternative route is selected instead of the preferred route, then we would install new 115 kV subtransmission line.

Riverside County

North of Benton Road: Install new 115 kV subtransmission line.

South of Benton Road: Reconducter (install new conductor wires) on an existing 115 kV line.

Temecula

Reconducter (install new conductor wires) on an existing 115 kV line.

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SAVE THE DATE!

You're Invited to a Public Information Session

You Are Invited

Southern California Edison Company (SCE) invites you to attend a public information session for the Valley South Subtransmission Project. The purpose of the public information session is to provide project specific information and answer questions that you may have. The project team will have project maps and other materials available for viewing.

PUBLIC INFORMATION SESSION

Tuesday, November 18, 2014, 6:00-8:00 p.m.
Monte Vista Elementary
37420 Via Mira Mosa
Murrieta CA 92563

QUESTIONS? **Toll-Free Information Line: (866) 785-7057 Website: www.sce.com/valleysouth**

About the Project

SCE is proposing the Valley South Subtransmission Project to help meet electrical demand in the region, strengthen the area's electrical grid, and allow SCE to safely maintain, reliable electrical service. The project will primarily consist of a new 115 kilovolt (kV) subtransmission line from SCE's existing Valley Substation in Menifee and ending east of SCE's existing Auld Substation in Murrieta. The project will also install new wires on an existing 115 kV line from east of Auld Substation to west of our existing Triton Substation in Temecula. The proposed project would be approximately 15 miles in length.

*Make sure to like us on **Facebook** and follow us on **Twitter** to get energy efficiency tips, breaking news and crucial safety information.*

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Appendix E: Construction Emission Calculations

Valley South Subtransmission Line Project

Appendix E-1 - Construction Emission Calculations (Controlled)

Appendix E-1 Index (Controlled Emissions Summary)	
Table No.	**Table Name**
Table 1	Total Daily Criteria Pollutant Emissions by Project Component
Table 2	Peak Daily Criteria Pollutant Emissions for Overlapping Project Components
Table 3	Onsite Daily Criteria Pollutant Emissions by Construction Phase
Table 4	Maximum Daily Onsite Criteria Pollutant Emissions
Table 5	Localized Significance Threshold Analysis
Table 6	Total Greenhouse Gas Emissions by Construction Phase
Table 7	Substation Modifications
Table 8	Survey
Table 9	Marshalling Yard
Table 10	Roads and Landing Work
Table 11	Tree Trimming and Removal
Table 12	Guard Structure Installation
Table 13	Relocate Conductor and Groundwire
Table 14	Existing Wood Poles and LWS Poles Removal
Table 15	Tubular Steel Pole Foundations Installation
Table 16	Tubular Steel Pole Haul
Table 17	Tubular Steel Pole Assembly
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Table 19	Wood Guy Stub Pole/LWS Pole Haul
Table 20	Wood/LWS Pole Assembly
Table 21	Install Wood/Wood Guy Stub Pole/LWS Pole
Table 22	Reconfigure Existing Structures
Table 23	Install Conductor & GW
Table 24	Guard Structure Removal
Table 25	Restoration
Table 26	Vault Installation
Table 27	Duct Bank Installation
Table 28	Install Underground Cable
Table 29	Relocate Existing Conductor
Table 30	Wood Pole Removal
Table 31	Install Distribution Underground Cable
Table 32	Control Building Communications Room
Table 33	Operational Emissions
Table 34	SCAB Offroad Emission Factors
Table 35	SCAB Onroad Emission Factors - Passenger and Delivery Vehicles
Table 36	SCAB Onroad Emission Factors - Heavy Duty Diesel
Table 37	Motor Vehicle Entrained Road Dust Emission Factors
Table 38	Fugitive Dust Emission Factors

Table 1
Construction Emissions Summary
Total Daily Criteria Pollutant Emissions by Project Component

Phase	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)
Substation Modifications						
Substation Modifications	3.75	23.06	21.85	0.07	3.26	0.91
Subtransmission Source Line Construction						
Survey	0.19	1.67	0.44	0.00	5.88	0.59
Marshalling Yard	3.67	21.51	14.18	0.06	20.58	2.55
Roads and Landing Work	2.63	13.55	4.62	0.04	13.48	2.33
Tree Trimming and Removal	2.22	11.67	10.82	0.02	6.39	1.12
Guard Structure Installation	2.17	11.29	9.17	0.03	17.75	2.14
Relocate Conductor and Groundwire	6.05	29.98	25.96	0.10	36.06	4.43
Existing Wood Poles and LWS Poles Removal	2.32	13.33	9.02	0.04	14.83	1.77
Tubular Steel Pole Foundations Installation	2.15	12.78	10.33	0.04	15.20	1.86
Tubular Steel Pole Haul	0.94	4.21	1.00	0.01	8.73	0.89
Tubular Steel Pole Assembly	1.74	8.67	4.14	0.03	17.59	1.90
Tubular Steel Pole Erection	1.60	7.95	3.12	0.02	14.71	1.57
Wood Guy Stub Pole/LWS Pole Haul	0.93	4.16	1.08	0.01	8.73	0.89
Wood/LWS Pole Assembly	1.74	8.67	4.14	0.03	17.59	1.90
Install Wood/Wood Guy Stub Pole/LWS Pole	2.68	15.83	11.22	0.04	17.76	2.13
Reconfigure Existing Structures	2.17	12.64	4.31	0.03	12.31	1.35
Install Conductor & GW	7.92	41.40	36.51	0.13	4.56	1.69
Guard Structure Removal	1.84	9.83	6.52	0.03	14.75	1.70
Restoration	1.56	9.07	3.08	0.03	15.78	1.49
Vault Installation	2.37	12.80	6.24	0.04	3.47	0.47
Duct Bank Installation	1.17	8.27	6.53	0.02	2.99	0.49
Install Underground Cable	4.15	24.04	26.92	0.06	3.65	1.42
Distribution Relocation						
Relocate Existing Conductor	1.10	6.60	6.91	0.02	14.67	1.46
Wood Pole Removal	1.02	6.01	6.54	0.02	7.83	0.77
Install Distribution Underground Cable	2.21	13.72	11.94	0.04	13.63	1.65
Telecommunications Construction						
Control Building Communications Room	2.10	12.60	13.09	0.03	1.07	0.08

Notes:
VOC = volatile organic compounds
CO = carbon monoxide
NOX = nitrogen oxides
SOX = sulfur oxides
PM10 = suspended particulate matter measuring less than 10 microns
PM2.5 = suspended particulate matter measuring less than 2.5 micron
lb/day = pounds per day

Table 2
Construction Emissions Summary
Peak Daily Criteria Pollutant Emissions for Overlapping Project Components

Construction Component	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)
Substation Modification						
Substation Modifications	3.75	23.06	21.85	0.07	3.26	0.91
Maximum	**3.75**	**23.06**	**21.85**	**0.07**	**3.26**	**0.91**
Subtransmission Line Construction						
Survey, Marshalling Yard, Tree Trimming and Removal	6.08	34.84	25.43	0.08	32.84	4.26
Roads & Landing Work, Tubular Steel Pole Installation, Vault Installation, Duct Bank Installation, Reconfigure Existing Structures, Wood Guy Stub Pole/LWS Haul	11.42	64.21	33.12	0.19	56.18	7.39
Roads & Landing Work, Tubular Steel Pole Installation, Wood Guy Stub Pole/LWS Haul, Wood Guy Stub Pole/LWS Pole Assembly, Install Wood Poles	10.13	54.98	31.41	0.16	72.77	9.12
Roads & Landing Work, Tubular Steel Pole Installation, Tubular Steel Pole Haul, Tubular Steel Pole Assembly, Tubular Steel Pole Erection	9.06	47.15	23.22	0.14	69.71	8.55
Install Underground Cable	4.15	24.04	26.92	0.06	3.65	1.42
Relocate Groundwire	6.05	29.98	25.96	0.10	36.06	4.43
Guard Structure Installation	2.17	11.29	9.17	0.03	17.75	2.14
Install Conductor and Groundwire	7.92	41.40	36.51	0.13	4.56	1.69
Restoration, Existing Wood Pole Removal, Guard Structure Removal	5.71	32.23	18.62	0.09	45.36	4.96
Maximum	**11.42**	**64.21**	**36.51**	**0.19**	**72.77**	**9.12**
Distribution Relocation						
All	4.32	26.33	25.39	0.07	36.14	3.88
Maximum	**4.32**	**26.33**	**25.39**	**0.07**	**36.14**	**3.88**
Telecommunications Construction						
All	2.10	12.60	13.09	0.03	1.07	0.08
Maximum	**2.10**	**12.60**	**13.09**	**0.03**	**1.07**	**0.08**
Peak Daily Emissions[a]	**21.59**	**126.20**	**96.84**	**0.37**	**113.23**	**13.99**
SCAQMD Mass Daily Thresholds (lb/day) =	**75**	**550**	**100**	**150**	**150**	**55**
Exceed Thresholds (Y/N)?	**N**	**N**	**N**	**N**	**N**	**N**

[a] Peak daily construction emissions are the sum of highest daily emissions generated during concurrent construction activities associated with the substation modifications; subtransmission line; distribution relocation; and, installation of telecommunication equipment at existing SCE substations.

Table 3
Construction Emissions Summary
Onsite Daily Criteria Pollutant Emissions by Construction Phase

Construction Component	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)
Substation Construction						
Substation Modifications	2.35	14.86	9.79	0.04	1.51	0.40
Subtransmission Line Construction						
Marshalling Yard	0.77	3.99	3.41	0.01	4.93	0.62
Tree Trimming and Removal	1.98	9.73	10.10	0.02	0.57	0.53
Guard Structure Installation	1.82	8.56	7.72	0.03	0.42	0.38
Relocate Conductor and Groundwire	1.98	10.70	7.81	0.03	0.33	0.30
Existing Wood Poles and LWS Poles Removal	1.98	10.70	7.81	0.03	0.33	0.30
Tubular Steel Pole Foundations Installation	1.60	9.19	6.52	0.02	0.44	0.29
Tubular Steel Pole Haul	0.72	2.45	0.33	0.01	0.01	0.01
Tubular Steel Pole Assembly	1.31	5.15	2.80	0.02	0.16	0.15
Tubular Steel Pole Erection	1.19	4.52	2.01	0.02	0.11	0.10
Wood Guy Stub Pole/LWS Pole Haul	0.72	2.45	0.33	0.01	0.01	0.01
Wood/LWS Pole Assembly	1.31	5.15	2.80	0.02	0.16	0.15
Install Wood/Wood Guy Stub Pole/LWS Pole	2.33	13.15	9.70	0.03	0.42	0.37
Reconfigure Existing Structures	1.31	5.15	2.80	0.02	0.16	0.15
Install Conductor & GW	7.00	33.06	35.59	0.11	1.56	1.43
Guard Structure Removal	1.51	7.20	5.32	0.02	0.25	0.23
Vault Installation	1.88	9.43	3.15	0.03	2.84	0.33
Duct Bank Installation	0.69	5.05	3.56	0.01	2.38	0.36
Install Underground Cable	3.78	20.96	26.05	0.05	3.16	1.37
Distribution Relocation						
Relocate Existing Conductor	0.84	4.65	5.77	0.01	0.28	0.00
Wood Pole Removal	0.84	4.65	5.77	0.01	0.28	0.00
Install Distribution Underground Cable	1.83	10.68	10.62	0.03	0.33	0.31
Telecommunications Construction						
Control Building Communications Room	1.77	9.78	12.36	0.03	0.62	0.03

Table 4
Construction Emissions Summary
Maximum Daily Onsite Criteria Pollutant Emissions

Construction Component[a]	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)
Substation Modification						
Substation Modifications	2.35	14.86	9.79	0.04	1.51	0.40
Maximum	**2.35**	**14.86**	**9.79**	**0.04**	**1.51**	**0.40**
Subtransmission Line Construction[b]						
Marshalling Yard	0.77	3.99	3.41	0.01	4.93	0.62
Tree Trimming and Removal	1.98	9.73	10.10	0.02	0.57	0.53
Guard Structure Installation	0.36	1.71	1.54	0.01	0.08	0.08
Relocate Conductor and Groundwire	1.98	10.70	7.81	0.03	0.33	0.30
Existing Wood Poles and LWS Poles Removal	0.22	1.19	0.87	0.00	0.04	0.03
Tubular Steel Pole Foundations Installation	1.60	9.19	6.52	0.02	0.44	0.29
Tubular Steel Pole Haul	0.12	0.41	0.06	0.00	0.00	0.00
Tubular Steel Pole Assembly	1.31	5.15	2.80	0.02	0.16	0.15
Tubular Steel Pole Erection	1.19	4.52	2.01	0.02	0.11	0.10
Wood Guy Stub Pole/LWS Pole Haul	0.12	0.41	0.06	0.00	0.00	0.00
Wood/LWS Pole Assembly	0.33	1.29	0.70	0.00	0.04	0.04
Install Wood/Wood Guy Stub Pole/LWS Pole	0.15	0.82	0.61	0.00	0.03	0.02
Reconfigure Existing Structures	0.33	1.29	0.70	0.00	0.04	0.04
Install Conductor & GW	3.50	16.53	17.80	0.06	0.78	0.72
Guard Structure Removal	0.22	1.03	0.76	0.00	0.04	0.03
Maximum	**3.50**	**16.53**	**17.80**	**0.06**	**4.93**	**0.72**
Subtransmission Line Construction at Valley Substation						
Vault Installation	1.88	9.43	3.15	0.03	2.84	0.33
Duct Bank Installation	0.69	5.05	3.56	0.01	2.38	0.36
Install Underground Cable	3.78	20.96	26.05	0.05	3.16	1.37
Maximum	**3.78**	**20.96**	**26.05**	**0.05**	**3.16**	**1.37**
Distribution Relocation						
All	3.51	19.98	22.17	0.06	0.90	0.31
Maximum	**3.51**	**19.98**	**22.17**	**0.06**	**0.90**	**0.31**
Telecommunications Construction						
All	1.77	9.78	12.36	0.03	0.62	0.03
Maximum	**1.77**	**9.78**	**12.36**	**0.03**	**0.62**	**0.03**
Peak Daily Construction Emissions - Onsite[b]	**3.78**	**20.96**	**26.05**	**0.06**	**3.16**	**1.37**

[a] The construction phases within a group could all occur at the same time at the same location.

The following Subtransmission Source Line construction activity emissions were divided by the following number of working locations per day:

Guard Structure Installation: 5 structures per day
Wood/LWS Pole Removal: 9 poles per day
TSP Foundations Installation: 1 foundation per day
Wood and LWS Pole Haul: 6 locations per day
Wood and LWS Pole Assembly: 4 poles per day
Wood and LWS Pole Installation: 4 poles per day
TSP Haul: 6 locations per day
TSP Assembly: 1 pole per day
TSP Erection: 1 pole per day
Reconfigure Existing Structures: 4 structures per day
Conductor Installation: 1 pull, and 1 tension site per day
Guard Structure Removal: 7 structures per day
Vault Installation: 1 vault per day
Duct Bank Installation: 1 location per day

[b] Survey, roadwork and restoration were excluded from the LST analysis because these activities would occur over a distance of approximately 1 mile along the Proposed 115 kV Subtransmission Line, instead of at a single location, each day.

Table 5
Construction Emissions
Localized Significance Threshold Analysis

Pollutant	Maximum Daily Onsite Emissions (lb/day)	Receptor Distance (m)	Allowable Emissions Interpolation[a]					Allowable Exceeded?
			Distance 1 (m)	Emissions 1 (lb/day)	Distance 2 (m)	Emissions 2 (lb/day)	Interpolated Emissions (lb/day)[b]	
Substation Modifications[c]								
CO	14.86	205	100	1,746	200	4,339	4,469	No
NOx	9.79	205	100	212	200	335	341	No
PM10	1.51	205	100	30	200	67	69	No
PM2.5	0.40	205	100	8	200	20	21	No
Subtransmission Line Construction[c]								
CO	16.53	25	25	750	50	1,105	750	No
NOx	17.80	25	25	162	50	203	162	No
PM10	4.93	25	25	4	50	12	4	Yes
PM2.5	0.72	25	25	3	50	4	3	No
Subtransmission Line Construction at Valley 500/115 kV Substation[c]								
CO	20.96	205	100	1,746	200	4,339	4,469	No
NOx	26.05	205	100	212	200	335	341	No
PM10	3.16	205	100	30	200	67	69	No
PM2.5	1.37	205	100	8	200	20	21	No
Distribution Relocation[d]								
CO	19.98	25	25	750	50	1,105	750	No
NOx	22.17	25	25	162	50	203	162	No
PM10	0.90	25	25	4	50	12	4	No
PM2.5	0.31	25	25	3	50	4	3	No
Telecommunications Construction[e]								
CO	9.78	25	25	750	50	1,105	750	No
NOx	12.36	25	25	162	50	203	162	No
PM10	0.62	25	25	4	50	12	4	No
PM2.5	0.03	25	25	3	50	4	3	No

[a] Allowable emissions are from Appendix C to Final Localized Significance Methodology, SCAQMD, revised October 2009, downloaded from http://www.aqmd.gov/ceqa/handbook/LST/LST.html

[b] Interpolated emissions = Emissions 1 + (Receptor distance - Distance 1) x (Emissions 2 - Emissions 1) / (Distance 2 - Distance 1)

[c] Closest sensitive receptor is located approximately 200 meters north of the northern fenceline of Valley Substation. Allowable emissions are for a 5-acre site

[d] Closest sensitive receptor is located within 25 meters east and west of the Proposed Subtransmission Line and areas where distribution relocation would occur. Allowable emissions are for a 1-acre site.

[e] Closest sensitive receptor is located with 150 and 200 meters from either Triton Substation or Valley Substation. Allowable emissions are for a 1 acre site.

Table 6
Construction Emissions Summary
Total Greenhouse Gas Emissions by Construction Phase

Phase	CO2e (MT)
Substation Construction	
Substation Modifications	64.48
Subtransmission Source Line Construction	
Survey	2.41
Marshalling Yard	509.06
Roads and Landing Work	60.56
Tree Trimming & Removal	11.31
Guard Structure Installation	12.84
Relocate Conductor and Groundwire	32.42
Existing Wood Poles and LWS Poles Removal	9.32
Tubular Steel Pole Foundations Installation	97.09
Tubular Steel Pole Haul	6.13
Tubular Steel Pole Assembly	36.22
Tubular Steel Pole Erection	33.61
Wood Guy Stub Pole/LWS Pole Haul	32.43
Wood/LWS Pole Assembly	78.48
Install Wood/Wood Guy Stub Pole/LWS Pole	126.65
Reconfigure Existing Structures	20.00
Install Conductor & GW	415.82
Guard Structure Removal	11.24
Restoration	16.08
Vault Installation	16.81
Duct Bank Installation	6.65
Install Underground Cable	4.99
Distribution Relocation	
Relocate Existing Conductor	122.08
Wood Pole Removal	26.94
Install Distribution Underground Cable	35.38
Telecommunications Construction	
Control Building Communications Room	5.39
Total	**1794.38**

Table 7
Substation Construction Emissions
Substation Modifications

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	2.33	14.76	9.60	0.04	0.29	0.27	35.8
Onsite Motor Vehicle Exhaust	0.02	0.10	0.19	0.00	0.01	0.01	0.5
Onsite Motor Vehicle Fugitive PM	--	--	--	--	1.20	0.12	
Earthwork Fugitive PM	--	--	--	--	0.01	0.00	
Onsite Total	**2.35**	**14.86**	**9.79**	**0.04**	**1.51**	**0.40**	**36.3**
Offsite Motor Vehicle Exhaust	1.40	8.21	12.05	0.04	0.64	0.51	28.2
Offsite Motor Vehicle Fugitive PM	--	--	--	--	1.10	0.00	
Offsite Total	**1.40**	**8.21**	**12.05**	**0.04**	**1.75**	**0.51**	**28.2**
Total	**3.75**	**23.06**	**21.85**	**0.07**	**3.26**	**0.91**	**64.5**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Skid Steer Loader	80	1	15	7
Backhoe	80	1	15	7
Foundation Auger	80	1	5	7
Boom Truck	300	1	30	7
Lift Truck	200	1	30	7
Concrete Mixer Truck	350	4	5	4

Construction Equipment Exhaust Emission Factors

Equipment	Horse-power	VOC (lb/hr)[a]	CO (lb/hr)[a]	NOX (lb/hr)[a]	SOX (lb/hr)[a]	PM10 (lb/hr)[a]	PM2.5 (lb/hr)[b]	CO2 (lb/hr)[a]	CH4 (lb/hr)[a]	Category
Skid Steer Loader	80	0.025	0.268	0.142	0.001	0.001	0.001	42.762	0.002	Skid Steer Loaders
Backhoe	80	0.043	0.343	0.170	0.001	0.001	0.001	51.728	0.004	Tractors/Loaders/Backhoes
Foundation Auger	80	0.031	0.467	0.230	0.001	0.001	0.001	77.122	0.003	Bore/Drill Rigs
Boom Truck	300	0.120	0.409	0.055	0.002	0.002	0.002	180.101	0.011	Cranes
Lift Truck	200	0.105	0.581	0.722	0.001	0.035	0.033	132.743	0.009	Manlifts
Concrete Mixer Truck	350	0.009	0.042	0.054	0.000	0.002	0.002	7.248	0.001	Concrete Mixers

a From Table 34

[b] Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006, http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

Construction Equipment Daily Criteria Pollutant Exhaust Emissions

Equipment	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Skid Steer Loader	0.17	1.88	0.99	0.00	0.00	0.00
Backhoe	0.30	2.40	1.19	0.00	0.01	0.01
Foundation Auger	0.22	3.27	1.61	0.01	0.01	0.01
Boom Truck	0.84	2.86	0.39	0.01	0.01	0.01
Lift Truck	0.73	4.07	5.05	0.01	0.25	0.23
Concrete Mixer Truck	0.06	0.29	0.38	0.00	0.02	0.01
Total	**2.33**	**14.76**	**9.60**	**0.04**	**0.29**	**0.27**

[a] Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

Construction Equipment Total Greenhouse Gas Emissions

Equipment	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Skid Steer Loader	2.0	0.0	2.0
Backhoe	2.5	0.0	2.5
Foundation Auger	1.2	0.0	1.2
Boom Truck	17.2	0.0	17.2
Lift Truck	12.6	0.0	12.7
Concrete Mixer Truck	0.3	0.0	0.3
Total	**35.8**	**0.0**	**35.8**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 34

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Table 7
Substation Construction Emissions
Substation Modifications

Motor Vehicle Usage

Vehicle	Number	Days Used	Hours Used/ Day	Miles/ Day/ Veh.[a]
Onsite				
Boom Truck	1	30	N/A	1
Crew Truck	3	40	N/A	1
Flat Bed Truck	1	40	N/A	1
Lift Truck	1	30	N/A	1
Dump Truck	3	15	N/A	1
Water Truck	1	15	N/A	1
Concrete Mixer Truck	4	5	N/A	1
Offsite				
Boom Truck	1	30	N/A	5
Crew Truck	3	40	N/A	5
Flat Bed Truck	1	40	N/A	5
Lift Truck	1	30	N/A	5
Dump Truck	3	15	N/A	180
Water Truck	1	15	N/A	5
Concrete Mixer Truck	4	5	N/A	50
Worker Commute	10	30	N/A	60

[a] Onsite travel assumed to be 1 mile per day.

[a] Offsite truck travel based on location of Staging Area 1 (0.25 miles from Valley Substation) and up to 10 trips per day per vehicle; offsite concrete mixer truck (vendor) based on estimated 50 mile roundtrip distance; offsite worker commute based on estimated 60 mile roundtrip distance.

VMT estimation basis:	Value	Units	Basis
	0.5	miles/roundtrip/haul truck	Based on roundtrip distance from Valley Substation to Staging Area 1
	10	roundtrips/day/haul truck	Assumption
	5	miles/day/haul truck	Calculation
	60	miles/roundtrip/dump truck	Based on roundtrip distance to/from the San Timoteo Sanitary Landfill
	3	roundtrips/day/dump truck	Assumption
	180	miles/day/dump truck	Calculation
	50	miles/roundtrip/vendor trip	Vendor roundtrip distance, assumption
	60	miles/roundtrip/worker commute	Assumption

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Onsite									
Boom Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Crew Truck	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Flat Bed Truck	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Lift Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Dump Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Water Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Concrete Mixer Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Offsite									
Boom Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Crew Truck	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Flat Bed Truck	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Lift Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Dump Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Water Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Concrete Mixer Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Worker Commute	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

a From Table 35 or Table 36

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Onsite						
Boom Truck	0.00	0.01	0.02	0.00	0.00	0.00
Crew Truck	0.00	0.03	0.03	0.00	0.00	0.00
Flat Bed Truck	0.00	0.01	0.01	0.00	0.00	0.00
Lift Truck	0.00	0.01	0.02	0.00	0.00	0.00
Dump Truck	0.00	0.02	0.05	0.00	0.00	0.00
Water Truck	0.00	0.01	0.02	0.00	0.00	0.00
Concrete Mixer Truck	0.01	0.02	0.06	0.00	0.00	0.00
Onsite Total	**0.02**	**0.10**	**0.19**	**0.00**	**0.01**	**0.01**
Offsite						
Boom Truck	0.01	0.03	0.08	0.00	0.00	0.00
Crew Truck	0.02	0.14	0.15	0.00	0.01	0.00
Flat Bed Truck	0.01	0.05	0.05	0.00	0.00	0.00
Lift Truck	0.01	0.03	0.08	0.00	0.00	0.00
Dump Truck	0.71	3.27	8.24	0.02	0.41	0.34
Water Truck	0.01	0.03	0.08	0.00	0.00	0.00
Concrete Mixer Truck	0.26	1.21	3.05	0.01	0.15	0.12
Worker Commute	0.38	3.45	0.33	0.01	0.06	0.04
Offsite Total	**1.40**	**8.21**	**12.05**	**0.04**	**0.64**	**0.51**
Total	**1.42**	**8.30**	**12.25**	**0.04**	**0.65**	**0.52**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Table 7
Substation Construction Emissions
Substation Modifications

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			
Boom Truck	0.1	0.0	0.1
Crew Truck	0.2	0.0	0.2
Flat Bed Truck	0.1	0.0	0.1
Lift Truck	0.1	0.0	0.1
Dump Truck	0.1	0.0	0.1
Water Truck	0.0	0.0	0.0
Concrete Mixer Truck	0.0	0.0	0.0
Onsite Total	**0.5**	**0.0**	**0.5**
Offsite			
Boom Truck	0.3	0.0	0.3
Crew Truck	0.8	0.0	0.8
Flat Bed Truck	0.3	0.0	0.3
Lift Truck	0.3	0.0	0.3
Dump Truck	15.5	0.0	15.5
Water Truck	0.1	0.0	0.1
Concrete Mixer Truck	1.9	0.0	1.9
Worker Commute	9.0	0.0	9.0
Offsite Total	**28.2**	**0.0**	**28.2**
Total	**28.6**	**0.0**	**28.6**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle	PM10 Emission Factor (lb/mi)[a]	PM2.5 Emission Factor (lb/mi)[a]	PM10 Emissions (lb/day)[b]	PM2.5 Emissions (lb/day)[b]
Onsite							
Boom Truck	1	Paved	0.8	0.001	0.000	0.00	0.00
Crew Truck	3	Paved	0.8	0.001	0.000	0.00	0.00
Flat Bed Truck	1	Paved	0.8	0.001	0.000	0.00	0.00
Lift Truck	1	Paved	0.8	0.001	0.000	0.00	0.00
Dump Truck	3	Paved	0.8	0.001	0.000	0.00	0.00
Water Truck	1	Paved	0.8	0.001	0.000	0.00	0.00
Concrete Mixer Truck	4	Paved	0.8	0.001	0.000	0.00	0.00
Boom Truck	1	Unpaved - private	0.3	0.367	0.037	0.09	0.01
Crew Truck	3	Unpaved - private	0.3	0.367	0.037	0.28	0.03
Flat Bed Truck	1	Unpaved - private	0.3	0.367	0.037	0.09	0.01
Lift Truck	1	Unpaved - private	0.3	0.367	0.037	0.09	0.01
Dump Truck	3	Unpaved - private	0.3	0.367	0.037	0.28	0.03
Concrete Mixer Truck	4	Unpaved - private	0.3	0.367	0.037	0.37	0.04
Onsite Total						**1.20**	**0.12**
Offsite							
Boom Truck	1	Paved	5	0.001	0.000	0.00	0.00
Crew Truck	3	Paved	5	0.001	0.000	0.01	0.00
Flat Bed Truck	1	Paved	5	0.001	0.000	0.00	0.00
Lift Truck	1	Paved	5	0.001	0.000	0.00	0.00
Dump Truck	3	Paved	180	0.001	0.000	0.43	0.00
Water Truck	1	Paved	5	0.001	0.000	0.00	0.00
Concrete Mixer Truck	4	Paved	50	0.001	0.000	0.16	0.00
Worker Commute	10	Paved	60	0.001	0.000	0.48	0.00
Offsite Total						**1.10**	**0.00**
Total						**2.30**	**0.12**

[a] Assumes 75% onsite vehicle miles travelled (VMT) occur on paved areas within substation perimeter and 25% of VMT occur on unpaved areas within substation perimeter.

[b] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

c From Table 36

Earthwork Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM10 Emission Factor[a]	PM2.5 Emission Factor[a]	PM10 (lb/day)[b]	PM2.5 (lb/day)[b]
Soil Handling	CY/day	5.5	1.75E-03	3.65E-04	0.01	0.00
Bulldozing, Scraping and Grading	hr/day		0.613	0.128	0.00	0.00
Storage Pile Wind Erosion	acres		4.4	0.92	0.00	0.00
Total					**0.01**	**0.00**

a From Table 37

b Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

c Activity level calculation:

Description	Value	Units	Source
Substation equipment foundation, cut	82.44	CY	Table 3.7 Substation Cut and Fill Grading Summary
Activity duration	15	days	Table 3.9-B Substation Construction Equipment and Workforce Estimates
Daily activity level	5.5	CY/day	calculation

Table 8
Subtransmission Line Construction Emissions
Survey

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.00	0.00	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
Onsite Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.0**
Offsite Motor Vehicle Exhaust	0.19	1.67	0.44	0.00	0.03	0.02	2.4
Offsite Motor Vehicle Fugitive PM	--	--	--	--	5.84	0.56	
Offsite Total	**0.19**	**1.67**	**0.44**	**0.00**	**5.88**	**0.59**	**2.4**
Total	**0.19**	**1.67**	**0.44**	**0.00**	**5.88**	**0.59**	**2.4**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
None				

Construction Equipment Exhaust Emission Factors

Equipment	Horse-power	VOC (lb/hr)[a]	CO (lb/hr)[a]	NOX (lb/hr)[a]	SOX (lb/hr)[a]	PM10 (lb/hr)[a]	PM2.5 (lb/hr)[b]	CO2 (lb/hr)[a]	CH4 (lb/hr)[a]
None		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

a From Table 34

[b] Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006, http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

Construction Equipment Daily Criteria Pollutant Exhaust Emissions

Equipment	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
None	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

[a] Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

Construction Equipment Total Greenhouse Gas Emissions

Equipment	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
None	0.0	0.0	0.0
Total	**0.0**	**0.0**	**0.0**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 34

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Usage

Vehicle	Number	Days Used	Hours Used/ Day	Miles/ Day/ Veh.
Onsite				
1-Ton Truck, 4x4	2	15	N/A	2
Offsite				
1-Ton Truck, 4x4	2	15	N/A	15.4
Worker Commute	4	15	N/A	60

[a] Onsite travel during survey work assumed to be 2 miles roundtrip.

[a] Offsite travel assumed to be 15.4 miles per day, equal to 1/2 total distance of Proposed Project x 2 trips/day; offsite worker commute based on estimated 60 mile roundtrip distance.

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Onsite									
None									
Offsite									
1-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Worker Commute	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

a From Table 35 or Table 36

Table 8
Subtransmission Line Construction Emissions
Survey

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Onsite						
1-Ton Truck, 4x4	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Offsite						
1-Ton Truck, 4x4	0.04	0.28	0.30	0.00	0.01	0.01
Worker Commute	0.15	1.38	0.13	0.00	0.02	0.01
Offsite Total	**0.19**	**1.67**	**0.44**	**0.00**	**0.03**	**0.02**
Total	**0.19**	**1.67**	**0.44**	**0.00**	**0.03**	**0.02**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			
1-Ton Truck, 4x4	0.0	0.0	0.0
Onsite Total	**0.0**	**0.0**	**0.0**
Offsite			
1-Ton Truck, 4x4	0.6	0.0	0.6
Worker Commute	1.8	0.0	1.8
Offsite Total	**2.4**	**0.0**	**2.4**
Total	**2.4**	**0.0**	**2.4**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle[a]	PM10 Emission Factor (lb/mi)[b]	PM2.5 Emission Factor (lb/mi)[b]	PM10 Emissions (lb/day)[c]	PM2.5 Emissions (lb/day)[c]
Onsite							
1-Ton Truck, 4x4							
Onsite Total						**0.00**	**0.00**
Offsite							
1-Ton Truck, 4x4	2	Paved	8.5	0.001	0.000	0.01	0.00
1-Ton Truck, 4x4	2	Unpaved - private	4.2	0.367	0.037	3.08	0.31
1-Ton Truck, 4x4	2	Unpaved - public	2.7	0.473	0.047	2.56	0.25
Worker Commute	4	Paved	60	0.001	0.000	0.19	0.00
Offsite Total						**5.84**	**0.56**
Total						**5.84**	**0.56**

a Of the 15.4 mile alignment, 8.5 miles occur on paved roadways and 6.9 miles occur on unpaved roadways (2.7 miles are unpaved public roadways and 4.2 miles are unpaved private roadways). Daily VMT per vehicle assumes 1/2 total distance of Proposed Project x 2 trips per day.

b From Table 36

[c] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Earthwork Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM10 Emission Factor[a]	PM2.5 Emission Factor[a]	PM10 (lb/day)[b]	PM2.5 (lb/day)[b]
Soil Handling	CY/day		1.75E-03	3.65E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		0.613	0.128	0.00	0.00
Storage Pile Wind Erosion	acres		4.4	0.92	0.00	0.00
Total					**0.00**	**0.00**

a From Table 38

[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 9
Subtransmission Line Construction Emissions
Marshalling Yard

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	0.75	3.91	3.22	0.01	0.15	0.14	127.3
Onsite Motor Vehicle Exhaust	0.02	0.08	0.19	0.00	0.01	0.01	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	4.77	0.47	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
Onsite Total	**0.77**	**3.99**	**3.41**	**0.01**	**4.93**	**0.62**	**127.3**
Offsite Motor Vehicle Exhaust	0.15	1.38	0.13	0.00	0.02	0.01	0.0
Offsite Motor Vehicle Fugitive PM	--	--	--	--	0.19	0.00	
Offsite Total	**0.15**	**1.38**	**0.13**	**0.00**	**0.21**	**0.01**	**0.0**
Total (for 4 Marshalling Yards)	**3.67**	**21.51**	**14.18**	**0.06**	**20.58**	**2.55**	**509.06**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Rough Terrain Forklift	125	1	260	6
Boom/Crane Truck	350	1	260	2

Construction Equipment Exhaust Emission Factors

Equipment	Horse-power	VOC (lb/hr)[a]	CO (lb/hr)[a]	NOX (lb/hr)[a]	SOX (lb/hr)[a]	PM10 (lb/hr)[a]	PM2.5 (lb/hr)[b]	CO2 (lb/hr)[a]	CH4 (lb/hr)[a]	Category
Rough Terrain Forklift	125	0.085	0.516	0.518	0.001	0.025	0.023	119.580	0.008	Forklift
Boom/Crane Truck	350	0.120	0.409	0.055	0.002	0.002	0.002	180.101	0.011	Cranes

a From Table 34

[b] Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006, http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

Construction Equipment Daily Criteria Pollutant Exhaust Emissions

Equipment	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Rough Terrain Forklift	0.51	3.10	3.11	0.01	0.15	0.14
Boom/Crane Truck	0.24	0.82	0.11	0.00	0.00	0.00
Total	**0.75**	**3.91**	**3.22**	**0.01**	**0.15**	**0.14**

[a] Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

Construction Equipment Total Greenhouse Gas Emissions

Equipment	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Rough Terrain Forklift	84.6	0.0	84.7
Boom/Crane Truck	42.5	0.0	42.5
Total	**127.1**	**0.0**	**127.3**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 34

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Usage

Vehicle	Number	Days Used	Hours Used/ Day	Miles/ Day/ Veh.[a]
Onsite				
1-Ton Truck, 4x4	1	260	N/A	1
Boom/Crane Truck	1	260	N/A	1
Water Truck	1	260	N/A	10
Truck, Semi-Tractor	1	260	N/A	1
Offsite				
Worker Commute	4	260	N/A	60

[a] Onsite travel assummed to be 1 mile per day; water truck travel based on 8 hrs/day x 5 MPH x 0.25 usage factor.

[a] Offsite worker commute based on estimated 60 mile roundtrip distance.

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Onsite									
1-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Boom/Crane Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Water Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Truck, Semi-Tractor	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Offsite									
Worker Commute	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

a From Table 35 or Table 36

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Onsite						
1-Ton Truck, 4x4	0.00	0.01	0.01	0.00	0.00	0.00
Boom/Crane Truck	0.00	0.01	0.02	0.00	0.00	0.00
Water Truck	0.01	0.06	0.15	0.00	0.01	0.01
Truck, Semi-Tractor	0.00	0.01	0.02	0.00	0.00	0.00
Onsite Total	**0.02**	**0.08**	**0.19**	**0.00**	**0.01**	**0.01**
Worker Commute	0.15	1.38	0.13	0.00	0.02	0.01
Offsite Total	**0.15**	**1.38**	**0.13**	**0.00**	**0.02**	**0.01**
Total	**0.17**	**1.46**	**0.33**	**0.00**	**0.03**	**0.02**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Table 9
Subtransmission Line Construction Emissions
Marshalling Yard

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			
1-Ton Truck, 4x4	0.3	0.0	0.0
Boom/Crane Truck	0.5	0.0	0.0
Water Truck	5.0	0.0	0.0
Truck, Semi-Tractor	0.5	0.0	0.0
Onsite Total	**6.3**	**0.0**	**0.0**
Worker Commute	31.3	0.0	0.0
Offsite Total	**31.3**	**0.0**	**0.0**
Total	**37.6**	**0.0**	**0.0**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle	PM10 Emission Factor (lb/mi)[a]	PM2.5 Emission Factor (lb/mi)[a]	PM10 Emissions (lb/day)[b]	PM2.5 Emissions (lb/day)[b]
Onsite							
1-Ton Truck, 4x4	1	Unpaved - private	1	0.367	0.037	0.37	0.04
Boom/Crane Truck	1	Unpaved - private	1	0.367	0.037	0.37	0.04
Water Truck	1	Unpaved - private	10	0.367	0.037	3.67	0.37
Truck, Semi-Tractor	1	Unpaved - private	1	0.367	0.037	0.37	0.04
Onsite Total						**4.77**	**0.47**
Offsite							
Worker Commute	4	Paved	60	0.001	0.000	0.19	0.00
Offsite Total						**0.19**	**0.00**
Total						**4.96**	**0.47**

a From Table 37

[b] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Earthwork Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM10 Emission Factor[a]	PM2.5 Emission Factor[a]	PM10 (lb/day)[b]	PM2.5 (lb/day)[b]
Soil Handling	CY/day		1.75E-03	3.65E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		0.613	0.128	0.00	0.00
Storage Pile Wind Erosion	acres		4.4	0.92	0.00	0.00
Total					**0.00**	**0.00**

a From Table 38

[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 10
Subtransmission Line Construction Emissions
Roads and Landing Work

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	2.39	11.56	3.95	0.03	0.03	0.03	52.2
Onsite Motor Vehicle Exhaust	0.00	0.01	0.02	0.00	0.00	0.00	0.1
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.00	0.00	
Earthwork Fugitive PM	--	--	--	--	8.77	1.82	
Onsite Total	**2.39**	**11.57**	**3.97**	**0.03**	**8.81**	**1.86**	**52.3**
Offsite Motor Vehicle Exhaust	0.24	1.98	0.65	0.00	0.05	0.04	8.3
Offsite Motor Vehicle Fugitive PM	--	--	--	--	4.62	0.43	
Offsite Total	**0.24**	**1.98**	**0.65**	**0.00**	**4.67**	**0.47**	**8.3**
Total	**2.63**	**13.55**	**4.62**	**0.04**	**13.48**	**2.33**	**60.6**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Backhoe/Front Loader	125	1	39	4
Track Type Dozer	150	1	39	4
Motor Grader	250	1	39	6
Drum Type Compactor	100	1	39	6
Excavator	250	1	39	4

Construction Equipment Exhaust Emission Factors

Equipment	Horse-power	VOC (lb/hr)[a]	CO (lb/hr)[a]	NOX (lb/hr)[a]	SOX (lb/hr)[a]	PM10 (lb/hr)[a]	PM2.5 (lb/hr)[b]	CO2 (lb/hr)[a]	CH4 (lb/hr)[a]	Category
Backhoe/Front Loader	125	0.067	0.584	0.263	0.001	0.001	0.001	101.387	0.006	Tractors/Loaders/Backhoes
Track Type Dozer	150	0.168	0.819	0.334	0.001	0.002	0.001	129.477	0.015	Rubber Tired Dozers
Motor Grader	250	0.111	0.378	0.049	0.002	0.002	0.002	172.113	0.010	Graders
Drum Type Compactor	100	0.068	0.392	0.178	0.001	0.001	0.001	58.989	0.006	Rollers
Excavator	250	0.093	0.332	0.050	0.002	0.002	0.002	158.683	0.008	Excavators

a From Table 34

b Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5
and PM 2.5 Significance Thresholds, SCAQMD, October 2006,
http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

Construction Equipment Daily Criteria Pollutant Exhaust Emissions

Equipment	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Backhoe/Front Loader	0.27	2.34	1.05	0.00	0.00	0.00
Track Type Dozer	0.67	3.28	1.34	0.01	0.01	0.01
Motor Grader	0.67	2.27	0.29	0.01	0.01	0.01
Drum Type Compactor	0.41	2.35	1.07	0.00	0.00	0.00
Excavator	0.37	1.33	0.20	0.01	0.01	0.01
Total	**2.39**	**11.56**	**3.95**	**0.03**	**0.03**	**0.03**

[a] Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

Construction Equipment Total Greenhouse Gas Emissions

Equipment	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Backhoe/Front Loader	7.2	0.0	7.2
Track Type Dozer	9.2	0.0	9.2
Motor Grader	18.3	0.0	18.3
Drum Type Compactor	6.3	0.0	6.3
Excavator	11.2	0.0	11.2
Total	**52.1**	**0.0**	**52.2**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x
days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 34

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Usage

Vehicle	Number[a]	Days Used	Hours Used/ Day	Miles/ Day/ Veh.[a]
Onsite				
Water Truck	1	39	N/A	1.5
Offsite				
Water Truck	1	39	N/A	12
1-Ton Truck, 4x4	1	39	N/A	12
Lowboy Truck/Trailer	1	39	N/A	12
Worker Commute	5	39	N/A	60

[a] Onsite truck travel based on 3 trips/day x 0.5/roundtrip

[a] Onsite truck travel based on 3 trips/day x 0.5/roundtrip

[a] Offsite travel assumed to be 12 miles per day, equal to 1/2 total distance of Segment 1 of the Proposed Project x 2 trips/day; offsite worker commute based on estimated 60 mile roundtrip distance.

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Onsite									
Water Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Offsite									
Water Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
1-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Lowboy Truck/Trailer	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Worker Commute	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

a From Table 35 or Table 36

Table 10
Subtransmission Line Construction Emissions
Roads and Landing Work

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Onsite						
Water Truck	0.00	0.01	0.02	0.00	0.00	0.00
Onsite Total	**0.00**	**0.01**	**0.02**	**0.00**	**0.00**	**0.00**
Offsite						
Water Truck	0.02	0.07	0.18	0.00	0.01	0.01
1-Ton Truck, 4x4	0.02	0.11	0.12	0.00	0.00	0.00
Lowboy Truck/Trailer	0.02	0.07	0.18	0.00	0.01	0.01
Worker Commute	0.19	1.73	0.17	0.00	0.03	0.02
Offsite Total	**0.24**	**1.98**	**0.65**	**0.00**	**0.05**	**0.04**
Total	**0.24**	**1.99**	**0.67**	**0.00**	**0.05**	**0.04**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			
Water Truck	0.1	0.0	0.1
Onsite Total	**0.1**	**0.0**	**0.1**
Offsite			
Water Truck	0.9	0.0	0.9
1-Ton Truck, 4x4	0.6	0.0	0.6
Lowboy Truck/Trailer	0.9	0.0	0.9
Worker Commute	5.9	0.0	5.9
Offsite Total	**8.3**	**0.0**	**8.3**
Total	**8.4**	**0.0**	**8.4**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle[a]	PM10 Emission Factor (lb/mi)[b]	PM2.5 Emission Factor (lb/mi)[b]	PM10 Emissions (lb/day)[c]	PM2.5 Emissions (lb/day)[c]
Onsite							
Water Truck	1	Paved	1.5	0.001	0.000	0.00	0.00
Onsite Total						**0.00**	**0.00**
Offsite							
Water Truck	1	Paved	7.7	0.001	0.000	0.01	0.00
1-Ton Truck, 4x4	1	Paved	7.7	0.001	0.000	0.01	0.00
Lowboy Truck/Trailer	1	Paved	7.7	0.001	0.000	0.01	0.00
Water Truck	1	Unpaved - private	1.9	0.367	0.037	0.70	0.07
1-Ton Truck, 4x4	1	Unpaved - private	1.9	0.367	0.037	0.70	0.07
Lowboy Truck/Trailer	1	Unpaved - private	1.9	0.367	0.037	0.70	0.07
1-Ton Truck, 4x4	1	Unpaved - public	2.4	0.473	0.047	1.14	0.11
Lowboy Truck/Trailer	1	Unpaved - public	2.4	0.473	0.047	1.14	0.11
Worker Commute	5	Paved	60	0.001	0.000	0.24	0.00
Offsite Total						**4.62**	**0.43**
Total						**4.62**	**0.43**

a For Segment 1 of the Proposed Project, 7.7 miles occur on paved roadways and 4.3 miles occur on unpaved roadways (2.4 miles are unpaved public roadways and 1.9 miles are unpaved private roadways). Daily VMT per vehicle assumes 1/2 total distance of Proposed Project x 2 trips per day. No additional roads&landing work is required along the 3.4 miles associated with Segment 2 of the Proposed Project.
b From Table 36
[c] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Earthwork Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM10 Emission Factor[a]	PM2.5 Emission Factor[a]	PM10 (lb/day)[b]	PM2.5 (lb/day)[b]
Soil Handling[c]	CY/day		1.75E-03	3.65E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day	10	0.613	0.128	6.13	1.28
Storage Pile Wind Erosion[d]	acres	0.6	4.4	0.92	2.64	0.55
Total					**8.77**	**1.82**

a From Table 38
[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]
[c] Based on excavating and backfilling 8.0 acres to 1.5' depth over 14 days
[d] Based on 8.0 acres total over 14 days

Table 11
Subtransmission Line Construction Emissions
Tree Trimming & Removal

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Ex	1.98	9.73	10.10	0.02	0.57	0.53	8.7
Onsite Motor Vehicle Exhau	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugiti	--	--	--	--	0.00	0.00	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
Onsite Total	**1.98**	**9.73**	**10.10**	**0.02**	**0.57**	**0.53**	**8.7**
Offsite Motor Vehicle Exhau	0.24	1.95	0.72	0.00	0.06	0.04	2.6
Offsite Motor Vehicle Fugiti	--	--	--	--	5.76	0.55	
Offsite Total	**0.24**	**1.95**	**0.72**	**0.00**	**5.81**	**0.59**	**2.6**
Total	**2.22**	**11.67**	**10.82**	**0.02**	**6.39**	**1.12**	**11.3**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Manlift/Bucket Truck	250	1	12	8
Chipper	48	1	12	8
Stump Grinder	30	1	12	4

Construction Equipment Exhaust Emission Factors

Equipment	Horse-power	VOC (lb/hr)[a]	CO (lb/hr)[a]	NOX (lb/hr)[a]	SOX (lb/hr)[a]	PM10 (lb/hr)[a]	PM2.5 (lb/hr)[b]	CO2 (lb/hr)[a]	CH4 (lb/hr)[a]	Category
Manlift/Bucket Truck	250	0.105	0.581	0.722	0.001	0.035	0.033	132.743	0.009	Manlifts
Chipper	48	0.095	0.423	0.361	0.001	0.024	0.022	44.016	0.009	Crushing/Proc. Equipment
Stump Grinder	30	0.095	0.423	0.361	0.001	0.024	0.022	44.016	0.009	Crushing/Proc. Equipment

a From Table 34

[b] Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006, http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

Construction Equipment Daily Criteria Pollutant Exhaust Emissions

Equipment	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Manlift/Bucket Truck	0.84	4.65	5.77	0.01	0.28	0.26
Chipper	0.76	3.38	2.89	0.00	0.19	0.18
Stump Grinder	0.38	1.69	1.44	0.00	0.10	0.09
Total	**1.98**	**9.73**	**10.10**	**0.02**	**0.57**	**0.53**

[a] Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

Construction Equipment Total Greenhouse Gas Emissions

Equipment	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Manlift/Bucket Truck	5.8	0.0	5.8
Chipper	1.9	0.0	1.9
Stump Grinder	1.0	0.0	1.0
Total	**8.7**	**0.0**	**8.7**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 34

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Usage

Vehicle	Number[a]	Days Used	Hours Used/ Day	Miles/ Day/ Veh.[a]
Onsite				
None	0		N/A	1.5
Offsite				
1-Ton Truck, 4x4	1	12	N/A	12
Debris Haul Truck	1	12	N/A	12
Manlift/Bucket Truck	1	12	N/A	12
Worker Commute	5	12	N/A	60

[a] Onsite truck travel based on 3 trips/day x 0.5/roundtrip

[a] Onsite truck travel based on 3 trips/day x 0.5/roundtrip

[a] Offsite travel assumed to be 12 miles per day, equal to 1/2 total distance of Segment 1 of the Proposed Project x 2 trips/day; offsite worker commute based on estimated 60 mile roundtrip distance.

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Onsite									
None	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Offsite									
1-Ton Truck, 4x4	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Debris Haul Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Manlift/Bucket Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Worker Commute	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

a From Table 35 or Table 36

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Onsite						
None	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Offsite						
1-Ton Truck, 4x4	0.02	0.07	0.18	0.00	0.01	0.01
Debris Haul Truck	0.02	0.07	0.18	0.00	0.01	0.01
Manlift/Bucket Truck	0.02	0.07	0.18	0.00	0.01	0.01
Worker Commute	0.19	1.73	0.17	0.00	0.03	0.02
Offsite Total	**0.24**	**1.95**	**0.72**	**0.00**	**0.06**	**0.04**
Total	**0.24**	**1.95**	**0.72**	**0.00**	**0.06**	**0.04**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Table 11
Subtransmission Line Construction Emissions
Tree Trimming & Removal

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			
None	0.0	0.0	0.0
Onsite Total	**0.0**	**0.0**	**0.0**
Offsite			
1-Ton Truck, 4x4	0.3	0.0	0.3
Debris Haul Truck	0.3	0.0	0.3
Manlift/Bucket Truck	0.3	0.0	0.3
Worker Commute	1.8	0.0	1.8
Offsite Total	**2.6**	**0.0**	**2.6**
Total	**2.6**	**0.0**	**2.6**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle[a]	PM10 Emission Factor (lb/mi)[b]	PM2.5 Emission Factor (lb/mi)[b]	PM10 Emissions (lb/day)[c]	PM2.5 Emissions (lb/day)[c]
Onsite							
None	0	Paved					
Onsite Total						**0.00**	**0.00**
Offsite							
1-Ton Truck, 4x4	1	Paved	7.7	0.001	0.000	0.01	0.00
Debris Haul Truck	1	Paved	7.7	0.001	0.000	0.01	0.00
Manlift/Bucket Truck	1	Paved	7.7	0.001	0.000	0.01	0.00
1-Ton Truck, 4x4	1	Unpaved - private	1.9	0.367	0.037	0.70	0.07
Debris Haul Truck	1	Unpaved - private	1.9	0.367	0.037	0.70	0.07
Manlift/Bucket Truck	1	Unpaved - private	1.9	0.367	0.037	0.70	0.07
1-Ton Truck, 4x4	1	Unpaved - public	2.4	0.473	0.047	1.14	0.11
Debris Haul Truck	1	Unpaved - public	2.4	0.473	0.047	1.14	0.11
Manlift/Bucket Truck	1	Unpaved - public	2.4	0.473	0.047	1.14	0.11
Worker Commute	5	Paved	60	0.001	0.000	0.24	0.00
Offsite Total						**5.76**	**0.55**
Total						**5.76**	**0.55**

a For Segment 1 of the Proposed Project, 7.7 miles occur on paved roadways and 4.3 miles occur on unpaved roadways (2.4 miles are unpaved public roadways and 1.9 miles are unpaved private roadways). Daily VMT per vehicle assumes 1/2 total distance of Proposed Project x 2 trips per day. No additional roads&landing work is required along the 3.4 miles associated with Segment 2 of the Proposed Project.

b From Table 36

[c] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Earthwork Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM10 Emission Factor[a]	PM2.5 Emission Factor[a]	PM10 (lb/day)[b]	PM2.5 (lb/day)[b]
Soil Handling[c]	CY/day		1.75E-03	3.65E-04	0.00	0.00
Bulldozing, Scraping and G	hr/day		0.613	0.128	0.00	0.00
Storage Pile Wind Erosion[c]	acres		4.4	0.92	0.00	0.00
Total					**0.00**	**0.00**

a From Table 38

[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 12
Subtransmission Line Construction Emissions
Guard Structure Installation

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	1.82	8.56	7.72	0.03	0.42	0.38	9.8
Onsite Motor Vehicle Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.00	0.00	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
Onsite Total	**1.82**	**8.56**	**7.72**	**0.03**	**0.42**	**0.38**	**9.8**
Offsite Motor Vehicle Exhaust	0.35	2.73	1.44	0.01	0.09	0.07	3.0
Offsite Motor Vehicle Fugitive PM	--	--	--	--	17.24	1.69	
Offsite Total	**0.35**	**2.73**	**1.44**	**0.01**	**17.33**	**1.76**	**3.0**
Total	**2.17**	**11.29**	**9.17**	**0.03**	**17.75**	**2.14**	**12.8**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Compressor Trailer	60	1	9	4
Manlift/Bucket Truck	250	1	9	4
Boom/Crane Truck	350	1	9	6
Auger Truck	210	1	9	4

Construction Equipment Exhaust Emission Factors

Equipment	Horse-power	VOC (lb/hr)[a]	CO (lb/hr)[a]	NOX (lb/hr)[a]	SOX (lb/hr)[a]	PM10 (lb/hr)[a]	PM2.5 (lb/hr)[b]	CO2 (lb/hr)[a]	CH4 (lb/hr)[a]	Category
Compressor Trailer	60	0.058	0.313	0.394	0.001	0.025	0.023	63.607	0.005	Air Compressors
Manlift/Bucket Truck	250	0.105	0.581	0.722	0.001	0.035	0.033	132.743	0.009	Manlifts
Boom/Crane Truck	350	0.120	0.409	0.055	0.002	0.002	0.002	180.101	0.011	Cranes
Auger Truck	210	0.111	0.633	0.733	0.001	0.041	0.038	132.309	0.010	Drill Rigs

a From Table 34

[b] Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006, http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

Construction Equipment Daily Criteria Pollutant Exhaust Emissions

Equipment	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Compressor Trailer	0.23	1.25	1.57	0.00	0.10	0.09
Manlift/Bucket Truck	0.42	2.32	2.89	0.01	0.14	0.13
Boom/Crane Truck	0.72	2.45	0.33	0.01	0.01	0.01
Auger Truck	0.44	2.53	2.93	0.01	0.16	0.15
Total	**1.82**	**8.56**	**7.72**	**0.03**	**0.42**	**0.38**

[a] Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

Construction Equipment Total Greenhouse Gas Emissions

Equipment	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Compressor Trailer	1.0	0.0	1.0
Manlift/Bucket Truck	2.2	0.0	2.2
Boom/Crane Truck	4.4	0.0	4.4
Auger Truck	2.2	0.0	2.2
Total	**9.8**	**0.0**	**9.8**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 34

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Usage

Vehicle	Number	Days Used	Hours Used/ Day	Miles/ Day/ Veh.[a]
Onsite				
None				
Offsite				
3/4-Ton Truck, 4x4	1	9	8	15.4
1-Ton Truck, 4x4	1	9	8	15.4
Manlift/Bucket Truck	1	9	4	15.4
Boom/Crane Truck	1	9	6	15.4
Auger Truck	1	9	4	15.4
Extendable Flat Bed Pole Truck	1	9	8	15.4
Worker Commute	6	9	N/A	60

[a] Offsite travel assumed to be 15.4 miles per day, equal to 1/2 total distance of Proposed Project x 2 trips/day; offsite worker commute based on estimated 60 mile roundtrip distance.

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Onsite									
None		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Offsite									
3/4-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
1-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Manlift/Bucket Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Boom/Crane Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Auger Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Extendable Flat Bed Pole Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Worker Commute	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

a From Table 35 or Table 36

Table 12
Subtransmission Line Construction Emissions
Guard Structure Installation

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Onsite						
None	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Offsite						
3/4-Ton Truck, 4x4	0.02	0.14	0.15	0.00	0.01	0.00
1-Ton Truck, 4x4	0.02	0.14	0.15	0.00	0.01	0.00
Manlift/Bucket Truck	0.02	0.09	0.24	0.00	0.01	0.01
Boom/Crane Truck	0.02	0.09	0.24	0.00	0.01	0.01
Auger Truck	0.02	0.09	0.24	0.00	0.01	0.01
Extendable Flat Bed Pole Truck	0.02	0.09	0.24	0.00	0.01	0.01
Worker Commute	0.23	2.07	0.20	0.00	0.03	0.02
Offsite Total	**0.35**	**2.73**	**1.44**	**0.01**	**0.09**	**0.07**
Total	**0.35**	**2.73**	**1.44**	**0.01**	**0.09**	**0.07**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			
None	0.0	0.0	0.0
Onsite Total	**0.0**	**0.0**	**0.0**
Offsite			
3/4-Ton Truck, 4x4	0.2	0.0	0.2
1-Ton Truck, 4x4	0.2	0.0	0.2
Manlift/Bucket Truck	0.3	0.0	0.3
Boom/Crane Truck	0.3	0.0	0.3
Auger Truck	0.3	0.0	0.3
Extendable Flat Bed Pole Truck	0.3	0.0	0.3
Worker Commute	1.6	0.0	1.6
Offsite Total	**3.0**	**0.0**	**3.0**
Total	**3.0**	**0.0**	**3.0**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle[a]	PM10 Emission Factor (lb/mi)[b]	PM2.5 Emission Factor (lb/mi)[b]	PM10 Emissions (lb/day)[c]	PM2.5 Emissions (lb/day)[c]
Onsite							
None							
Onsite Total						**0.00**	**0.00**
Offsite							
3/4-Ton Truck, 4x4	1	Paved	8.5	0.001	0.000	0.01	0.00
1-Ton Truck, 4x4	1	Paved	8.5	0.001	0.000	0.01	0.00
Manlift/Bucket Truck	1	Paved	8.5	0.001	0.000	0.01	0.00
Boom/Crane Truck	1	Paved	8.5	0.001	0.000	0.01	0.00
Auger Truck	1	Paved	8.5	0.001	0.000	0.01	0.00
Extendable Flat Bed Pole Truck	1	Paved	8.5	0.001	0.000	0.01	0.00
3/4-Ton Truck, 4x4	1	Unpaved - private	4.2	0.367	0.037	1.54	0.15
1-Ton Truck, 4x4	1	Unpaved - private	4.2	0.367	0.037	1.54	0.15
Manlift/Bucket Truck	1	Unpaved - private	4.2	0.367	0.037	1.54	0.15
Boom/Crane Truck	1	Unpaved - private	4.2	0.367	0.037	1.54	0.15
Auger Truck	1	Unpaved - private	4.2	0.367	0.037	1.54	0.15
Extendable Flat Bed Pole Truck	1	Unpaved - private	4.2	0.367	0.037	1.54	0.15
3/4-Ton Truck, 4x4	1	Unpaved - public	2.7	0.473	0.047	1.28	0.13
1-Ton Truck, 4x4	1	Unpaved - public	2.7	0.473	0.047	1.28	0.13
Manlift/Bucket Truck	1	Unpaved - public	2.7	0.473	0.047	1.28	0.13
Boom/Crane Truck	1	Unpaved - public	2.7	0.473	0.047	1.28	0.13
Auger Truck	1	Unpaved - public	2.7	0.473	0.047	1.28	0.13
Extendable Flat Bed Pole Truck	1	Unpaved - public	2.7	0.473	0.047	1.28	0.13
Worker Commute	6	Paved	60	0.001	0.000	0.29	0.00
Offsite Total						**17.24**	**1.69**
Total						**17.24**	**1.69**

a Of the 15.4 mile alignment, 8.5 miles occur on paved roadways and 6.9 miles occur on unpaved roadways (2.7 miles are unpaved public roadways and 4.2 miles are unpaved private roadways). Daily VMT per vehicle assumes 1/2 total distance of Proposed Project x 2 trips per day.

b From Table 36

[c] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Earthwork Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM10 Emission Factor[a]	PM2.5 Emission Factor[a]	PM10 (lb/day)[b]	PM2.5 (lb/day)[b]
Soil Handling	CY/day		1.75E-03	3.65E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		0.613	0.128	0.00	0.00
Storage Pile Wind Erosion	acres		4.4	0.92	0.00	0.00
Total					**0.00**	**0.00**

a From Table 38

[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 13
Subtransmission Line Construction Emissions
Relocate Conductor and Groundwire

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	5.04	21.85	22.64	0.08	0.95	0.88	25.9
Onsite Motor Vehicle Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.00	0.00	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
Onsite Total	**5.04**	**21.85**	**22.64**	**0.08**	**0.95**	**0.88**	**25.9**
Offsite Motor Vehicle Exhaust	1.00	8.13	3.32	0.02	0.24	0.18	6.6
Offsite Motor Vehicle Fugitive PM	--	--	--	--	34.86	3.37	
Offsite Total	**1.00**	**8.13**	**3.32**	**0.02**	**35.11**	**3.55**	**6.6**
Total	**6.05**	**29.98**	**25.96**	**0.10**	**36.06**	**4.43**	**32.4**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Manlift/Bucket Truck	250	2	7	8
Boom/Crane Truck	350	2	7	8
Bull Wheel Puller	16	1	7	6
Sock Line Puller	300	1	7	6
Static Truck/Tensioner	350	1	7	6

Construction Equipment Exhaust Emission Factors

Equipment	Horse-power	VOC (lb/hr)[a]	CO (lb/hr)[a]	NOX (lb/hr)[a]	SOX (lb/hr)[a]	PM10 (lb/hr)[a]	PM2.5 (lb/hr)[b]	CO2 (lb/hr)[a]	CH4 (lb/hr)[a]	Category
Manlift/Bucket Truck	250	0.105	0.581	0.722	0.001	0.035	0.033	132.743	0.009	Manlifts
Boom/Crane Truck	350	0.120	0.409	0.055	0.002	0.002	0.002	180.101	0.011	Cranes
Bull Wheel Puller	16	0.016	0.054	0.101	0.000	0.004	0.003	13.217	0.001	Other Construction Equipment
Sock Line Puller	300	0.112	0.474	0.800	0.002	0.028	0.025	254.238	0.010	Other Construction Equipment
Static Truck/Tensioner	350	0.112	0.474	0.800	0.002	0.028	0.025	254.238	0.010	Other Construction Equipment

a From Table 34

[b] Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006, http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

Construction Equipment Daily Criteria Pollutant Exhaust Emissions

Equipment	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Manlift/Bucket Truck	1.68	9.30	11.55	0.02	0.57	0.52
Boom/Crane Truck	1.92	6.54	0.88	0.03	0.03	0.03
Bull Wheel Puller	0.10	0.33	0.60	0.00	0.02	0.02
Sock Line Puller	0.67	2.85	4.80	0.01	0.17	0.15
Static Truck/Tensioner	0.67	2.85	4.80	0.01	0.17	0.15
Total	**5.04**	**21.85**	**22.64**	**0.08**	**0.95**	**0.88**

[a] Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

Construction Equipment Total Greenhouse Gas Emissions

Equipment	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Manlift/Bucket Truck	6.7	0.0	6.8
Boom/Crane Truck	9.1	0.0	9.2
Bull Wheel Puller	0.3	0.0	0.3
Sock Line Puller	4.8	0.0	4.8
Static Truck/Tensioner	4.8	0.0	4.8
Total	**25.8**	**0.0**	**25.9**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 34

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Usage

Vehicle	Number	Days Used	Hours Used/ Day	Miles/ Day/ Veh.[a]
Onsite				
None				0
Offsite				
1-Ton Truck, 4x4	2	7	4	15.4
Manlift/Bucket Truck	2	7	8	15.4
Boom/Crane Truck	2	7	8	15.4
Bull Wheel Puller	1	7	6	15.4
Sock Line Puller	1	7	6	15.4
Static Truck/Tensioner	1	7	6	15.4
Material Handling Truck	1	7	8	15.4
Lowboy Truck/Trailer	2	7	4	15.4
Worker Commute	20	7	N/A	60

[a] Offsite travel assumed to be 15.4 miles per day, equal to 1/2 total distance of Proposed Project x 2 trips/day; offsite worker commute based on estimated 60 mile roundtrip distance.

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Onsite									
None		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Offsite									
1-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Manlift/Bucket Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Boom/Crane Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Bull Wheel Puller	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Sock Line Puller	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Static Truck/Tensioner	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Material Handling Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Lowboy Truck/Trailer	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Worker Commute	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

a From Table 35 or Table 36

Table 13
Subtransmission Line Construction Emissions
Relocate Conductor and Groundwire

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Onsite						
None	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Offsite						
1-Ton Truck, 4x4	0.04	0.28	0.30	0.00	0.01	0.01
Manlift/Bucket Truck	0.04	0.19	0.47	0.00	0.02	0.02
Boom/Crane Truck	0.04	0.19	0.47	0.00	0.02	0.02
Bull Wheel Puller	0.02	0.09	0.24	0.00	0.01	0.01
Sock Line Puller	0.02	0.09	0.24	0.00	0.01	0.01
Static Truck/Tensioner	0.02	0.09	0.24	0.00	0.01	0.01
Material Handling Truck	0.02	0.09	0.24	0.00	0.01	0.01
Lowboy Truck/Trailer	0.04	0.19	0.47	0.00	0.02	0.02
Worker Commute	0.76	6.91	0.67	0.01	0.11	0.07
Offsite Total	**1.00**	**8.13**	**3.32**	**0.02**	**0.24**	**0.18**
Total	**1.00**	**8.13**	**3.32**	**0.02**	**0.24**	**0.18**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			
None	0.0	0.0	0.0
Onsite Total	**0.0**	**0.0**	**0.0**
Offsite			
1-Ton Truck, 4x4	0.3	0.0	0.3
Manlift/Bucket Truck	0.4	0.0	0.4
Boom/Crane Truck	0.4	0.0	0.4
Bull Wheel Puller	0.2	0.0	0.2
Sock Line Puller	0.2	0.0	0.2
Static Truck/Tensioner	0.2	0.0	0.2
Material Handling Truck	0.2	0.0	0.2
Lowboy Truck/Trailer	0.4	0.0	0.4
Worker Commute	4.2	0.0	4.2
Offsite Total	**6.6**	**0.0**	**6.6**
Total	**6.6**	**0.0**	**6.6**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle[a]	PM10 Emission Factor (lb/mi)[b]	PM2.5 Emission Factor (lb/mi)[b]	PM10 Emissions (lb/day)[c]	PM2.5 Emissions (lb/day)[c]
Onsite							
None	0						
Onsite Total						**0.00**	**0.00**
Offsite							
1-Ton Truck, 4x4	2	Paved	8.5	0.001	0.000	0.01	0.00
Manlift/Bucket Truck	2	Paved	8.5	0.001	0.000	0.01	0.00
Boom/Crane Truck	2	Paved	8.5	0.001	0.000	0.01	0.00
Bull Wheel Puller	1	Paved	8.5	0.001	0.000	0.01	0.00
Sock Line Puller	1	Paved	8.5	0.001	0.000	0.01	0.00
Static Truck/Tensioner	1	Paved	8.5	0.001	0.000	0.01	0.00
Material Handling Truck	1	Paved	8.5	0.001	0.000	0.01	0.00
Lowboy Truck/Trailer	2	Paved	8.5	0.001	0.000	0.01	0.00
1-Ton Truck, 4x4	2	Unpaved - private	4.2	0.367	0.037	3.08	0.31
Manlift/Bucket Truck	2	Unpaved - private	4.2	0.367	0.037	3.08	0.31
Boom/Crane Truck	2	Unpaved - private	4.2	0.367	0.037	3.08	0.31
Bull Wheel Puller	1	Unpaved - private	4.2	0.367	0.037	1.54	0.15
Sock Line Puller	1	Unpaved - private	4.2	0.367	0.037	1.54	0.15
Static Truck/Tensioner	1	Unpaved - private	4.2	0.367	0.037	1.54	0.15
Material Handling Truck	1	Unpaved - private	4.2	0.367	0.037	1.54	0.15
Lowboy Truck/Trailer	2	Unpaved - private	4.2	0.367	0.037	3.08	0.31
1-Ton Truck, 4x4	2	Unpaved - public	2.7	0.473	0.047	2.56	0.25
Manlift/Bucket Truck	2	Unpaved - public	2.7	0.473	0.047	2.56	0.25
Boom/Crane Truck	2	Unpaved - public	2.7	0.473	0.047	2.56	0.25
Bull Wheel Puller	1	Unpaved - public	2.7	0.473	0.047	1.28	0.13
Sock Line Puller	1	Unpaved - public	2.7	0.473	0.047	1.28	0.13
Static Truck/Tensioner	1	Unpaved - public	2.7	0.473	0.047	1.28	0.13
Material Handling Truck	1	Unpaved - public	2.7	0.473	0.047	1.28	0.13
Lowboy Truck/Trailer	2	Unpaved - public	2.7	0.473	0.047	2.56	0.25
Worker Commute	20	Paved	60	0.001	0.000	0.96	0.00
Offsite Total						**34.86**	**3.37**
Total						**34.86**	**3.37**

a Of the 15.4 mile alignment, 8.5 miles occur on paved roadways and 6.9 miles occur on unpaved roadways (2.7 miles are unpaved public roadways and 4.2 miles are unpaved private roadways). Daily VMT per vehicle assumes 1/2 total distance of Proposed Project x 2 trips per day.

b From Table 36

[c] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Earthwork Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM10 Emission Factor[a]	PM2.5 Emission Factor[a]	PM10 (lb/day)[b]	PM2.5 (lb/day)[b]
Soil Handling	CY/day		1.75E-03	3.65E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		0.613	0.128	0.00	0.00
Storage Pile Wind Erosion	acres		4.4	0.92	0.00	0.00
Total					**0.00**	**0.00**

a From Table 38

[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 14
Subtransmission Line Construction Emissions
Existing Wood Poles and LWS Poles Removal

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	1.98	10.70	7.81	0.03	0.33	0.30	7.5
Onsite Motor Vehicle Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.00	0.00	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
Onsite Total	**1.98**	**10.70**	**7.81**	**0.03**	**0.33**	**0.30**	**7.5**
Offsite Motor Vehicle Exhaust	0.33	2.64	1.21	0.01	0.08	0.06	1.9
Offsite Motor Vehicle Fugitive PM	--	--	--	--	14.41	1.40	
Offsite Total	**0.33**	**2.64**	**1.21**	**0.01**	**14.50**	**1.47**	**1.9**
Total	**2.32**	**13.33**	**9.02**	**0.04**	**14.83**	**1.77**	**9.3**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Compressor Trailer	60	1	6	4
Backhoe/Front Loader	125	1	6	6
Manlift/Bucket Truck	250	1	6	6
Boom/Crane Truck	350	1	6	6

Construction Equipment Exhaust Emission Factors

Equipment	Horse-power	VOC (lb/hr)[a]	CO (lb/hr)[a]	NOX (lb/hr)[a]	SOX (lb/hr)[a]	PM10 (lb/hr)[a]	PM2.5 (lb/hr)[b]	CO2 (lb/hr)[a]	CH4 (lb/hr)[a]	Category
Compressor Trailer	60	0.058	0.313	0.394	0.001	0.025	0.023	63.607	0.005	Air Compressors
Backhoe/Front Loader	125	0.067	0.584	0.263	0.001	0.001	0.001	101.387	0.006	Tractors/Loaders/Backhoes
Manlift/Bucket Truck	250	0.105	0.581	0.722	0.001	0.035	0.033	132.743	0.009	Manlifts
Boom/Crane Truck	350	0.120	0.409	0.055	0.002	0.002	0.002	180.101	0.011	Cranes

a From Table 34

[b] Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006, http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

Construction Equipment Daily Criteria Pollutant Exhaust Emissions

Equipment	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Compressor Trailer	0.23	1.25	1.57	0.00	0.10	0.09
Backhoe/Front Loader	0.40	3.51	1.58	0.01	0.01	0.01
Manlift/Bucket Truck	0.63	3.49	4.33	0.01	0.21	0.20
Boom/Crane Truck	0.72	2.45	0.33	0.01	0.01	0.01
Total	**1.98**	**10.70**	**7.81**	**0.03**	**0.33**	**0.30**

[a] Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

Construction Equipment Total Greenhouse Gas Emissions

Equipment	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Compressor Trailer	0.7	0.0	0.7
Backhoe/Front Loader	1.7	0.0	1.7
Manlift/Bucket Truck	2.2	0.0	2.2
Boom/Crane Truck	2.9	0.0	2.9
Total	**7.5**	**0.0**	**7.5**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 34

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Usage

Vehicle	Number	Days Used	Hours Used/ Day	Miles/ Day/ Veh.[a]
Onsite				
None				
Offsite				
1-Ton Truck, 4x4	2	6	N/A	15.4
Manlift/Bucket Truck	1	6	N/A	15.4
Boom/Crane Truck	1	6	N/A	15.4
Flat Bed Pole Truck	1	6	N/A	15.4
Worker Commute	6	6	N/A	60

[a] Offsite travel assumed to be 15.4 miles per day, equal to 1/2 total distance of Proposed Project x 2 trips/day; offsite worker commute based on estimated 60 mile roundtrip distance.

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Onsite									
None									
Offsite									
1-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Manlift/Bucket Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Boom/Crane Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Flat Bed Pole Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Worker Commute	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

a From Table 35 or Table 36

Table 14
Subtransmission Line Construction Emissions
Existing Wood Poles and LWS Poles Removal

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Onsite						
None	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Offsite						
1-Ton Truck, 4x4	0.04	0.28	0.30	0.00	0.01	0.01
Manlift/Bucket Truck	0.02	0.09	0.24	0.00	0.01	0.01
Boom/Crane Truck	0.02	0.09	0.24	0.00	0.01	0.01
Flat Bed Pole Truck	0.02	0.09	0.24	0.00	0.01	0.01
Worker Commute	0.23	2.07	0.20	0.00	0.03	0.02
Offsite Total	**0.33**	**2.64**	**1.21**	**0.01**	**0.08**	**0.06**
Total	**0.33**	**2.64**	**1.21**	**0.01**	**0.08**	**0.06**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			
None	0.0	0.0	0.0
Onsite Total	**0.0**	**0.0**	**0.0**
Offsite			
1-Ton Truck, 4x4	0.2	0.0	0.2
Manlift/Bucket Truck	0.2	0.0	0.2
Boom/Crane Truck	0.2	0.0	0.2
Flat Bed Pole Truck	0.2	0.0	0.2
Worker Commute	1.1	0.0	1.1
Offsite Total	**1.9**	**0.0**	**1.9**
Total	**1.9**	**0.0**	**1.9**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle[a]	PM10 Emission Factor (lb/mi)[b]	PM2.5 Emission Factor (lb/mi)[b]	PM10 Emissions (lb/day)[c]	PM2.5 Emissions (lb/day)[c]
Onsite							
None							
Onsite Total						**0.00**	**0.00**
Offsite							
1-Ton Truck, 4x4	2	Paved	8.5	0.001	0.000	0.01	0.00
Manlift/Bucket Truck	1	Paved	8.5	0.001	0.000	0.01	0.00
Boom/Crane Truck	1	Paved	8.5	0.001	0.000	0.01	0.00
Flat Bed Pole Truck	1	Paved	8.5	0.001	0.000	0.01	0.00
1-Ton Truck, 4x4	2	Unpaved - private	4.2	0.367	0.037	3.08	0.31
Manlift/Bucket Truck	1	Unpaved - private	4.2	0.367	0.037	1.54	0.15
Boom/Crane Truck	1	Unpaved - private	4.2	0.367	0.037	1.54	0.15
Flat Bed Pole Truck	1	Unpaved - private	4.2	0.367	0.037	1.54	0.15
1-Ton Truck, 4x4	2	Unpaved - public	2.7	0.473	0.047	2.56	0.25
Manlift/Bucket Truck	1	Unpaved - public	2.7	0.473	0.047	1.28	0.13
Boom/Crane Truck	1	Unpaved - public	2.7	0.473	0.047	1.28	0.13
Flat Bed Pole Truck	1	Unpaved - public	2.7	0.473	0.047	1.28	0.13
Worker Commute	6	Paved	60	0.001	0.000	0.29	0.00
Offsite Total						**14.41**	**1.40**
Total						**14.41**	**1.40**

a Of the 15.4 mile alignment, 8.5 miles occur on paved roadways and 6.9 miles occur on unpaved roadways (2.7 miles are unpaved public roadways and 4.2 miles are unpaved private roadways). Daily VMT per vehicle assumes 1/2 total distance of Proposed Project x 2 trips per day.

b From Table 36

[c] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Earthwork Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM10 Emission Factor[a]	PM2.5 Emission Factor[a]	PM10 (lb/day)[b]	PM2.5 (lb/day)[b]
Soil Handling	CY/day		1.75E-03	3.65E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		0.613	0.128	0.00	0.00
Storage Pile Wind Erosion	acres		4.4	0.92	0.00	0.00
Total					**0.00**	**0.00**

a From Table 38

[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 15
Subtransmission Line Construction Emissions
Tubular Steel Pole Foundations Installation

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	1.60	9.19	6.52	0.02	0.28	0.25	59.0
Onsite Motor Vehicle Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.00	0.00	
Earthwork Fugitive PM	--	--	--	--	0.17	0.03	
Onsite Total	**1.60**	**9.19**	**6.52**	**0.02**	**0.44**	**0.29**	**59.0**
Offsite Motor Vehicle Exhaust	0.55	3.59	3.82	0.01	0.21	0.17	38.1
Offsite Motor Vehicle Fugitive PM	--	--	--	--	14.54	1.40	
Offsite Total	**0.55**	**3.59**	**3.82**	**0.01**	**14.76**	**1.57**	**38.1**
Total	**2.15**	**12.78**	**10.33**	**0.04**	**15.20**	**1.86**	**97.1**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Backhoe/Front Loader	125	1	60	6
Boom/Crane Truck	350	1	60	4
Auger Truck	210	1	60	6
Concrete Mixer Truck	350	3	60	2

Construction Equipment Exhaust Emission Factors

Equipment	Horse-power	VOC (lb/hr)[a]	CO (lb/hr)[a]	NOX (lb/hr)[a]	SOX (lb/hr)[a]	PM10 (lb/hr)[a]	PM2.5 (lb/hr)[b]	CO2 (lb/hr)[a]	CH4 (lb/hr)[a]	Category
Backhoe/Front Loader	125	0.067	0.584	0.263	0.001	0.001	0.001	101.387	0.006	Tractors/Loaders/Backhoes
Boom/Crane Truck	350	0.120	0.409	0.055	0.002	0.002	0.002	180.101	0.011	Cranes
Auger Truck	210	0.111	0.633	0.733	0.001	0.041	0.038	132.309	0.010	Drill Rigs
Concrete Mixer Truck	350	0.009	0.042	0.054	0.000	0.002	0.002	7.248	0.001	Concrete Mixers

a From Table 34

b Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5
and PM 2.5 Significance Thresholds, SCAQMD, October 2006,
http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

Construction Equipment Daily Criteria Pollutant Exhaust Emissions

Equipment	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Backhoe/Front Loader	0.40	3.51	1.58	0.01	0.01	0.01
Boom/Crane Truck	0.48	1.63	0.22	0.01	0.01	0.01
Auger Truck	0.67	3.80	4.40	0.01	0.25	0.23
Concrete Mixer Truck	0.05	0.25	0.32	0.00	0.01	0.01
Total	**1.60**	**9.19**	**6.52**	**0.02**	**0.28**	**0.25**

[a] Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

Construction Equipment Total Greenhouse Gas Emissions

Equipment	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Backhoe/Front Loader	16.6	0.0	16.6
Boom/Crane Truck	19.6	0.0	19.6
Auger Truck	21.6	0.0	21.6
Concrete Mixer Truck	1.2	0.0	1.2
Total	**59.0**	**0.0**	**59.0**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x
days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 34

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Usage

Vehicle	Number[a]	Days Used	Hours Used/ Day	Miles/ Day/ Veh.[a]
Onsite				
None				
Offsite				
3/4-Ton Truck, 4x4	1	60	N/A	15.4
Boom/Crane Truck	1	60	N/A	15.4
Auger Truck	1	60	N/A	15.4
Water Truck	1	60	N/A	15.4
Dump Truck	1	60	N/A	15.4
Material Handling Truck	1	60	N/A	15.4
Concrete Mixer Truck	3	60	N/A	50
Worker Commute	6	60	N/A	60

[a] Onsite travel assumed to be 15.4 miles per day, equal to 2x total distance on Proposed Project (7.7 miles/day); offsite worker commute based on estimated 60 mile roundtrip distance; offsite concrete mixer truck (vendor) based on estimated 50 mile roundtrip distance.

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Onsite									
None									
Offsite									
3/4-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Boom/Crane Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Auger Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Water Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Dump Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Material Handling Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Concrete Mixer Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Worker Commute	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

a From Table 35 or Table 36

Table 15
Subtransmission Line Construction Emissions
Tubular Steel Pole Foundations Installation

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Onsite						
None	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Offsite						
3/4-Ton Truck, 4x4	0.02	0.14	0.15	0.00	0.01	0.00
Boom/Crane Truck	0.02	0.09	0.24	0.00	0.01	0.01
Auger Truck	0.02	0.09	0.24	0.00	0.01	0.01
Water Truck	0.02	0.09	0.24	0.00	0.01	0.01
Dump Truck	0.02	0.09	0.24	0.00	0.01	0.01
Material Handling Truck	0.02	0.09	0.24	0.00	0.01	0.01
Concrete Mixer Truck	0.20	0.91	2.29	0.01	0.12	0.09
Worker Commute	0.23	2.07	0.20	0.00	0.03	0.02
Offsite Total	**0.55**	**3.59**	**3.82**	**0.01**	**0.21**	**0.17**
Total	**0.55**	**3.59**	**3.82**	**0.01**	**0.21**	**0.17**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			
None	0.0	0.0	0.0
Onsite Total	**0.0**	**0.0**	**0.0**
Offsite			
3/4-Ton Truck, 4x4	1.2	0.0	1.2
Boom/Crane Truck	1.8	0.0	1.8
Auger Truck	1.8	0.0	1.8
Water Truck	1.8	0.0	1.8
Dump Truck	1.8	0.0	1.8
Material Handling Truck	1.8	0.0	1.8
Concrete Mixer Truck	17.2	0.0	17.2
Worker Commute	10.8	0.0	10.9
Offsite Total	**38.0**	**0.0**	**38.1**
Total	**38.0**	**0.0**	**38.1**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle[a]	PM10 Emission Factor (lb/mi)[b]	PM2.5 Emission Factor (lb/mi)[b]	PM10 Emissions (lb/day)[c]	PM2.5 Emissions (lb/day)[c]
Onsite							
None							
Onsite Total						**0.00**	**0.00**
Offsite							
3/4-Ton Truck, 4x4	1	Paved	8.5	0.001	0.000	0.01	0.00
Boom/Crane Truck	1	Paved	8.5	0.001	0.000	0.01	0.00
Auger Truck	1	Paved	8.5	0.001	0.000	0.01	0.00
Water Truck	1	Paved	8.5	0.001	0.000	0.01	0.00
Dump Truck	1	Paved	8.5	0.001	0.000	0.01	0.00
Material Handling Truck	1	Paved	8.5	0.001	0.000	0.01	0.00
Concrete Mixer Truck	3	Paved	50	0.001	0.000	0.12	0.00
3/4-Ton Truck, 4x4	1	Unpaved - private	4.2	0.367	0.037	1.54	0.15
Boom/Crane Truck	1	Unpaved - private	4.2	0.367	0.037	1.54	0.15
Auger Truck	1	Unpaved - private	4.2	0.367	0.037	1.54	0.15
Dump Truck	1	Unpaved - private	4.2	0.367	0.037	1.54	0.15
Material Handling Truck	1	Unpaved - private	4.2	0.367	0.037	1.54	0.15
3/4-Ton Truck, 4x4	1	Unpaved - public	2.7	0.473	0.047	1.28	0.13
Boom/Crane Truck	1	Unpaved - public	2.7	0.473	0.047	1.28	0.13
Auger Truck	1	Unpaved - public	2.7	0.473	0.047	1.28	0.13
Dump Truck	1	Unpaved - public	2.7	0.473	0.047	1.28	0.13
Material Handling Truck	1	Unpaved - public	2.7	0.473	0.047	1.28	0.13
Worker Commute	6	Paved	60	0.001	0.000	0.29	0.00
Offsite Total						**14.54**	**1.40**
Total						**14.54**	**1.40**

a Of the 15.4 mile alignment, 8.5 miles occur on paved roadways and 6.9 miles occur on unpaved roadways (2.7 miles are unpaved public roadways and 4.2 miles are unpaved private roadways). Daily VMT per vehicle assumes 1/2 total distance of Proposed Project x 2 trips per day.

b From Table 36

[c] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Earthwork Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM10 Emission Factor[a]	PM2.5 Emission Factor[a]	PM10 (lb/day)[b]	PM2.5 (lb/day)[b]
Soil Handling[c]	CY/day	95	1.75E-03	3.65E-04	0.17	0.03
Bulldozing, Scraping and Grading	hr/day		0.613	0.128	0.00	0.00
Storage Pile Wind Erosion	acres		4.4	0.92	0.00	0.00
Total					**0.17**	**0.03**

a From Table 38

[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

[c] Based on excavating one foundation per day at max. 95 CY per foundation

Table 16
Subtransmission Line Construction Emissions
Tubular Steel Pole Haul

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	0.72	2.45	0.33	0.01	0.01	0.01	4.4
Onsite Motor Vehicle Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.00	0.00	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
Onsite Total	**0.72**	**2.45**	**0.33**	**0.01**	**0.01**	**0.01**	**4.4**
Offsite Motor Vehicle Exhaust	0.22	1.76	0.67	0.00	0.05	0.03	1.7
Offsite Motor Vehicle Fugitive PM	--	--	--	--	8.67	0.84	
Offsite Total	**0.22**	**1.76**	**0.67**	**0.00**	**8.71**	**0.88**	**1.7**
Total	**0.94**	**4.21**	**1.00**	**0.01**	**8.73**	**0.89**	**6.1**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Boom/Crane Truck	350	1	9	6

Construction Equipment Exhaust Emission Factors

Equipment	Horse-power	VOC (lb/hr)[a]	CO (lb/hr)[a]	NOX (lb/hr)[a]	SOX (lb/hr)[a]	PM10 (lb/hr)[a]	PM2.5 (lb/hr)[b]	CO2 (lb/hr)[a]	CH4 (lb/hr)[a]	Category
Boom/Crane Truck	350	0.120	0.409	0.055	0.002	0.002	0.002	180.101	0.011	Cranes

a From Table 34

[b] Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006, http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

Construction Equipment Daily Criteria Pollutant Exhaust Emissions

Equipment	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Boom/Crane Truck	0.72	2.45	0.33	0.01	0.01	0.01
Total	**0.72**	**2.45**	**0.33**	**0.01**	**0.01**	**0.01**

[a] Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

Construction Equipment Total Greenhouse Gas Emissions

Equipment	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Boom/Crane Truck	4.4	0.0	4.4
Total	**4.4**	**0.0**	**4.4**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]

Emission factors are in Table 34

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Usage

Vehicle	Number	Days Used	Hours Used/ Day	Miles/ Day/ Veh.[a]
Onsite				
None				0
Offsite				
3/4-Ton Truck, 4x4	1	9	N/A	15.4
Boom/Crane Truck	1	9	N/A	15.4
Flat Bed Pole Truck	1	9	N/A	15.4
Worker Commute	4	9	N/A	60

[a] Offsite travel assumed to be 15.4 miles per day, equal to 1/2 total distance of Proposed Project x 2 trips/day; offsite worker commute based on estimated 60 mile roundtrip distance; offsite concrete mixer truck (vendor) based on estimated 50 mile roundtrip distance.

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Onsite									
None									
Offsite									
3/4-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Boom/Crane Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Flat Bed Pole Truck	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Worker Commute	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

a From Table 35 or Table 36

Table 16
Subtransmission Line Construction Emissions
Tubular Steel Pole Haul

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Onsite						
None	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Offsite						
3/4-Ton Truck, 4x4	0.02	0.14	0.15	0.00	0.01	0.00
Boom/Crane Truck	0.02	0.09	0.24	0.00	0.01	0.01
Flat Bed Pole Truck	0.02	0.14	0.15	0.00	0.01	0.00
Worker Commute	0.15	1.38	0.13	0.00	0.02	0.01
Offsite Total	**0.22**	**1.76**	**0.67**	**0.00**	**0.05**	**0.03**
Total	**0.22**	**1.76**	**0.67**	**0.00**	**0.05**	**0.03**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			
None	0.0	0.0	0.0
Onsite Total	**0.0**	**0.0**	**0.0**
Offsite			
3/4-Ton Truck, 4x4	0.2	0.0	0.2
Boom/Crane Truck	0.3	0.0	0.3
Flat Bed Pole Truck	0.2	0.0	0.2
Worker Commute	1.1	0.0	1.1
Offsite Total	**1.7**	**0.0**	**1.7**
Total	**1.7**	**0.0**	**1.7**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle[a]	PM10 Emission Factor (lb/mi)[b]	PM2.5 Emission Factor (lb/mi)[b]	PM10 Emissions (lb/day)[c]	PM2.5 Emissions (lb/day)[c]
Onsite							
None	0						
Onsite Total						**0.00**	**0.00**
Offsite							
3/4-Ton Truck, 4x4	1	Paved	8.5	0.001	0.000	0.01	0.00
Boom/Crane Truck	1	Paved	8.5	0.001	0.000	0.01	0.00
Flat Bed Pole Truck	1	Paved	8.5	0.001	0.000	0.01	0.00
3/4-Ton Truck, 4x4	1	Unpaved - private	4.2	0.367	0.037	1.54	0.15
Boom/Crane Truck	1	Unpaved - private	4.2	0.367	0.037	1.54	0.15
Flat Bed Pole Truck	1	Unpaved - private	4.2	0.367	0.037	1.54	0.15
3/4-Ton Truck, 4x4	1	Unpaved - public	2.7	0.473	0.047	1.28	0.13
Boom/Crane Truck	1	Unpaved - public	2.7	0.473	0.047	1.28	0.13
Flat Bed Pole Truck	1	Unpaved - public	2.7	0.473	0.047	1.28	0.13
Worker Commute	4	Paved	60	0.001	0.000	0.19	0.00
Offsite Total						**8.67**	**0.84**
Total						**8.67**	**0.84**

a Of the 15.4 mile alignment, 8.5 miles occur on paved roadways and 6.9 miles occur on unpaved roadways (2.7 miles are unpaved public roadways and 4.2 miles are unpaved private roadways). Daily VMT per vehicle assumes 1/2 total distance of Proposed Project x 2 trips per day.

b From Table 36

[c] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Earthwork Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM10 Emission Factor[a]	PM2.5 Emission Factor[a]	PM10 (lb/day)[b]	PM2.5 (lb/day)[b]
Soil Handling	CY/day		1.75E-03	3.65E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		0.613	0.128	0.00	0.00
Storage Pile Wind Erosion	acres		4.4	0.92	0.00	0.00
Total					**0.00**	**0.00**

a From Table 38

[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 17
Subtransmission Line Construction Emissions
Tubular Steel Pole Assembly

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	1.31	5.15	2.80	0.02	0.16	0.15	24.8
Onsite Motor Vehicle Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.00	0.00	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
Onsite Total	**1.31**	**5.15**	**2.80**	**0.02**	**0.16**	**0.15**	**24.8**
Offsite Motor Vehicle Exhaust	0.43	3.52	1.34	0.01	0.09	0.07	11.4
Offsite Motor Vehicle Fugitive PM	--	--	--	--	17.34	1.69	
Offsite Total	**0.43**	**3.52**	**1.34**	**0.01**	**17.43**	**1.75**	**11.4**
Total	**1.74**	**8.67**	**4.14**	**0.03**	**17.59**	**1.90**	**36.2**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Compressor Trailer	60	1	30	6
Boom/Crane Truck	350	1	30	8

Construction Equipment Exhaust Emission Factors

Equipment	Horse-power	VOC (lb/hr)[a]	CO (lb/hr)[a]	NOX (lb/hr)[a]	SOX (lb/hr)[a]	PM10 (lb/hr)[a]	PM2.5 (lb/hr)[b]	CO2 (lb/hr)[a]	CH4 (lb/hr)[a]	Category
Compressor Trailer	60	0.058	0.313	0.394	0.001	0.025	0.023	63.607	0.005	Air Compressors
Boom/Crane Truck	350	0.120	0.409	0.055	0.002	0.002	0.002	180.101	0.011	Cranes

a From Table 34

b Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006, http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

Construction Equipment Daily Criteria Pollutant Exhaust Emissions

Equipment	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Compressor Trailer	0.35	1.88	2.36	0.00	0.15	0.14
Boom/Crane Truck	0.96	3.27	0.44	0.01	0.02	0.01
Total	**1.31**	**5.15**	**2.80**	**0.02**	**0.16**	**0.15**

[a] Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

Construction Equipment Total Greenhouse Gas Emissions

Equipment	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Compressor Trailer	5.2	0.0	5.2
Boom/Crane Truck	19.6	0.0	19.6
Total	**24.8**	**0.0**	**24.8**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 34

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Usage

Vehicle	Number	Days Used	Hours Used/ Day	Miles/ Day/ Veh.
Onsite				
None				0
Offsite				
3/4-Ton Truck, 4x4	2	30	N/A	15.4
1-Ton Truck, 4x4	2	30	N/A	15.4
Material Handling Truck	1	30	N/A	15.4
Boom/Crane Truck	1	30	N/A	15.4
Worker Commute	8	30	N/A	60

[a] Offsite travel assumed to be 15.4 miles per day, equal to 1/2 total distance of Proposed Project x 2 trips/day; offsite worker commute based on estimated 60 mile roundtrip distance; offsite concrete mixer truck (vendor) based on estimated 50 mile roundtrip distance.

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Onsite									
None		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Offsite									
3/4-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
1-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Material Handling Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Boom/Crane Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Worker Commute	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

a From Table 35 or Table 36

Table 17
Subtransmission Line Construction Emissions
Tubular Steel Pole Assembly

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Onsite						
None	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Offsite						
3/4-Ton Truck, 4x4	0.04	0.28	0.30	0.00	0.01	0.01
1-Ton Truck, 4x4	0.04	0.28	0.30	0.00	0.01	0.01
Material Handling Truck	0.02	0.09	0.24	0.00	0.01	0.01
Boom/Crane Truck	0.02	0.09	0.24	0.00	0.01	0.01
Worker Commute	0.30	2.76	0.27	0.01	0.05	0.03
Offsite Total	**0.43**	**3.52**	**1.34**	**0.01**	**0.09**	**0.07**
Total	**0.43**	**3.52**	**1.34**	**0.01**	**0.09**	**0.07**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			
None	0.0	0.0	0.0
Onsite Total	**0.0**	**0.0**	**0.0**
Offsite			
3/4-Ton Truck, 4x4	1.2	0.0	1.2
1-Ton Truck, 4x4	1.2	0.0	1.2
Material Handling Truck	0.9	0.0	0.9
Boom/Crane Truck	0.9	0.0	0.9
Worker Commute	7.2	0.0	7.2
Offsite Total	**11.4**	**0.0**	**11.4**
Total	**11.4**	**0.0**	**11.4**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle[a]	PM10 Emission Factor (lb/mi)[b]	PM2.5 Emission Factor (lb/mi)[b]	PM10 Emissions (lb/day)[c]	PM2.5 Emissions (lb/day)[c]
Onsite							
None	0						
Onsite Total						**0.00**	**0.00**
Offsite							
3/4-Ton Truck, 4x4	2	Paved	8.5	0.001	0.000	0.01	0.00
1-Ton Truck, 4x4	2	Paved	8.5	0.001	0.000	0.01	0.00
Material Handling Truck	1	Paved	8.5	0.001	0.000	0.01	0.00
Boom/Crane Truck	1	Paved	8.5	0.001	0.000	0.01	0.00
3/4-Ton Truck, 4x4	2	Unpaved - private	4.2	0.367	0.037	3.08	0.31
1-Ton Truck, 4x4	2	Unpaved - private	4.2	0.367	0.037	3.08	0.31
Material Handling Truck	1	Unpaved - private	4.2	0.367	0.037	1.54	0.15
Boom/Crane Truck	1	Unpaved - private	4.2	0.367	0.037	1.54	0.15
3/4-Ton Truck, 4x4	2	Unpaved - public	2.7	0.473	0.047	2.56	0.25
1-Ton Truck, 4x4	2	Unpaved - public	2.7	0.473	0.047	2.56	0.25
Material Handling Truck	1	Unpaved - public	2.7	0.473	0.047	1.28	0.13
Boom/Crane Truck	1	Unpaved - public	2.7	0.473	0.047	1.28	0.13
Worker Commute	8	Paved	60	0.001	0.000	0.38	0.00
Offsite Total						**17.34**	**1.69**
Total						**17.34**	**1.69**

a Of the 15.4 mile alignment, 8.5 miles occur on paved roadways and 6.9 miles occur on unpaved roadways (2.7 miles are unpaved public roadways and 4.2 miles are unpaved private roadways). Daily VMT per vehicle assumes 1/2 total distance of Proposed Project x 2 trips per day.

b From Table 36

[c] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Earthwork Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM10 Emission Factor[a]	PM2.5 Emission Factor[a]	PM10 (lb/day)[b]	PM2.5 (lb/day)[b]
Soil Handling	CY/day		1.75E-03	3.65E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		0.613	0.128	0.00	0.00
Storage Pile Wind Erosion	acres		4.4	0.92	0.00	0.00
Total					**0.00**	**0.00**

a From Table 38

[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 18
Subtransmission Line Construction Emissions
Tubular Steel Pole Erection

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	1.19	4.52	2.01	0.02	0.11	0.10	23.1
Onsite Motor Vehicle Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.00	0.00	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
Onsite Total	**1.19**	**4.52**	**2.01**	**0.02**	**0.11**	**0.10**	**23.1**
Offsite Motor Vehicle Exhaust	0.41	3.43	1.11	0.01	0.08	0.06	10.5
Offsite Motor Vehicle Fugitive PM	--	--	--	--	14.51	1.40	
Offsite Total	**0.41**	**3.43**	**1.11**	**0.01**	**14.59**	**1.46**	**10.5**
Total	**1.60**	**7.95**	**3.12**	**0.02**	**14.71**	**1.57**	**33.6**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Compressor Trailer	60	1	30	4
Boom/Crane Truck	350	1	30	8

Construction Equipment Exhaust Emission Factors

Equipment	Horse-power	VOC (lb/hr)[a]	CO (lb/hr)[a]	NOX (lb/hr)[a]	SOX (lb/hr)[a]	PM10 (lb/hr)[a]	PM2.5 (lb/hr)[b]	CO2 (lb/hr)[a]	CH4 (lb/hr)[a]	Category
Compressor Trailer	60	0.058	0.313	0.394	0.001	0.025	0.023	63.607	0.005	Air Compressors
Boom/Crane Truck	350	0.120	0.409	0.055	0.002	0.002	0.002	180.101	0.011	Cranes

a From Table 34

[b] Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006, http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

Construction Equipment Daily Criteria Pollutant Exhaust Emissions

Equipment	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Compressor Trailer	0.23	1.25	1.57	0.00	0.10	0.09
Boom/Crane Truck	0.96	3.27	0.44	0.01	0.02	0.01
Total	**1.19**	**4.52**	**2.01**	**0.02**	**0.11**	**0.10**

[a] Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

Construction Equipment Total Greenhouse Gas Emissions

Equipment	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Compressor Trailer	3.5	0.0	3.5
Boom/Crane Truck	19.6	0.0	19.6
Total	**23.1**	**0.0**	**23.1**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 34

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Usage

Vehicle	Number	Days Used	Hours Used/ Day	Miles/ Day/ Veh.[a]
Onsite				
None				0
Offsite				
3/4-Ton Truck, 4x4	2	30	N/A	15.4
1-Ton Truck, 4x4	2	30	N/A	15.4
Boom/Crane Truck	1	30	N/A	15.4
Worker Commute	8	30	N/A	60

[a] Offsite travel assumed to be 15.4 miles per day, equal to 1/2 total distance of Proposed Project x 2 trips/day; offsite worker commute based on estimated 60 mile roundtrip distance; offsite concrete mixer truck (vendor) based on estimated 50 mile roundtrip distance.

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Onsite									
None		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Offsite									
3/4-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
1-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Boom/Crane Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Worker Commute	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

a From Table 35 or Table 36

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Onsite						
None	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Offsite						
3/4-Ton Truck, 4x4	0.04	0.28	0.30	0.00	0.01	0.01
1-Ton Truck, 4x4	0.04	0.28	0.30	0.00	0.01	0.01
Boom/Crane Truck	0.02	0.09	0.24	0.00	0.01	0.01
Worker Commute	0.30	2.76	0.27	0.01	0.05	0.03
Offsite Total	**0.41**	**3.43**	**1.11**	**0.01**	**0.08**	**0.06**
Total	**0.41**	**3.43**	**1.11**	**0.01**	**0.08**	**0.06**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Table 18
Subtransmission Line Construction Emissions
Tubular Steel Pole Erection

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			
None	0.0	0.0	0.0
Onsite Total	**0.0**	**0.0**	**0.0**
Offsite			
3/4-Ton Truck, 4x4	1.2	0.0	1.2
1-Ton Truck, 4x4	1.2	0.0	1.2
Boom/Crane Truck	0.9	0.0	0.9
Worker Commute	7.2	0.0	7.2
Offsite Total	**10.5**	**0.0**	**10.5**
Total	**10.5**	**0.0**	**10.5**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle[a]	PM10 Emission Factor (lb/mi)[b]	PM2.5 Emission Factor (lb/mi)[b]	PM10 Emissions (lb/day)[c]	PM2.5 Emissions (lb/day)[c]
Onsite							
None	0						
Onsite Total						**0.00**	**0.00**
Offsite							
3/4-Ton Truck, 4x4	2	Paved	8.5	0.001	0.000	0.01	0.00
1-Ton Truck, 4x4	2	Paved	8.5	0.001	0.000	0.01	0.00
Boom/Crane Truck	1	Paved	8.5	0.001	0.000	0.01	0.00
3/4-Ton Truck, 4x4	2	Unpaved - private	4.2	0.367	0.037	3.08	0.31
1-Ton Truck, 4x4	2	Unpaved - private	4.2	0.367	0.037	3.08	0.31
Boom/Crane Truck	1	Unpaved - private	4.2	0.367	0.037	1.54	0.15
3/4-Ton Truck, 4x4	2	Unpaved - public	2.7	0.473	0.047	2.56	0.25
1-Ton Truck, 4x4	2	Unpaved - public	2.7	0.473	0.047	2.56	0.25
Boom/Crane Truck	1	Unpaved - public	2.7	0.473	0.047	1.28	0.13
Worker Commute	8	Paved	60	0.001	0.000	0.38	0.00
Offsite Total						**14.51**	**1.40**
Total						**14.51**	**1.40**

a Of the 15.4 mile alignment, 8.5 miles occur on paved roadways and 6.9 miles occur on unpaved roadways (2.7 miles are unpaved public roadways and 4.2 miles are unpaved private roadways). Daily VMT per vehicle assumes 1/2 total distance of Proposed Project x 2 trips per day.

b From Table 36

[c] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Earthwork Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM10 Emission Factor[a]	PM2.5 Emission Factor[a]	PM10 (lb/day)[b]	PM2.5 (lb/day)[b]
Soil Handling	CY/day		1.75E-03	3.65E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		0.613	0.128	0.00	0.00
Storage Pile Wind Erosion	acres		4.4	0.92	0.00	0.00
Total					**0.00**	**0.00**

a From Table 38

[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 19
Subtransmission Line Construction Emissions
Wood Guy Stub Pole/LWS Pole Haul

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhau	0.72	2.45	0.33	0.01	0.01	0.01	23.1
Onsite Motor Vehicle Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive	--	--	--	--	0.00	0.00	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
Onsite Total	**0.72**	**2.45**	**0.33**	**0.01**	**0.01**	**0.01**	**23.1**
Offsite Motor Vehicle Exhaust	0.21	1.71	0.75	0.00	0.05	0.04	9.4
Offsite Motor Vehicle Fugitive	--	--	--	--	8.67	0.84	
Offsite Total	**0.21**	**1.71**	**0.75**	**0.00**	**8.72**	**0.88**	**9.4**
Total	**0.93**	**4.16**	**1.08**	**0.01**	**8.73**	**0.89**	**32.4**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Boom/Crane Truck	350	1	47	6

Construction Equipment Exhaust Emission Factors

Equipment	Horse-power	VOC (lb/hr)[a]	CO (lb/hr)[a]	NOX (lb/hr)[a]	SOX (lb/hr)[a]	PM10 (lb/hr)[a]	PM2.5 (lb/hr)[b]	CO2 (lb/hr)[a]	CH4 (lb/hr)[a]	Category
Boom/Crane Truck	350	0.120	0.409	0.055	0.002	0.002	0.002	180.101	0.011	Cranes

a From Table 34

[b] Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006, http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

Construction Equipment Daily Criteria Pollutant Exhaust Emissions

Equipment	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Boom/Crane Truck	0.72	2.45	0.33	0.01	0.01	0.01
Total	**0.72**	**2.45**	**0.33**	**0.01**	**0.01**	**0.01**

[a] Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

Construction Equipment Total Greenhouse Gas Emissions

Equipment	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Boom/Crane Truck	23.0	0.0	23.1
Total	**23.0**	**0.0**	**23.1**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 34

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Usage

Vehicle	Number	Days Used	Hours Used/ Day	Miles/ Day/ Veh.[a]
Onsite				
None				
Offsite				
3/4-Ton Truck, 4x4	1	47	N/A	15.4
Boom/Crane Truck	1	47	N/A	15.4
Flat Bed Pole Truck	1	47	N/A	15.4
Worker Commute	4	47	N/A	60

[a] Offsite travel assumed to be 15.4 miles per day, equal to 1/2 total distance of Proposed Project x 2 trips/day; offsite worker commute based on estimated 60 mile roundtrip distance; offsite concrete mixer truck (vendor) bsaed on estimated 50 mile roundtrip distance.

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Onsite									
None		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Offsite									
3/4-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Boom/Crane Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Flat Bed Pole Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Worker Commute	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

a From Table 35 or Table 36

Table 19
Subtransmission Line Construction Emissions
Wood Guy Stub Pole/LWS Pole Haul

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Onsite						
None	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Offsite						
3/4-Ton Truck, 4x4	0.02	0.14	0.15	0.00	0.01	0.00
Boom/Crane Truck	0.02	0.09	0.24	0.00	0.01	0.01
Flat Bed Pole Truck	0.02	0.09	0.24	0.00	0.01	0.01
Worker Commute	0.15	1.38	0.13	0.00	0.02	0.01
Offsite Total	**0.21**	**1.71**	**0.75**	**0.00**	**0.05**	**0.04**
Total	**0.21**	**1.71**	**0.75**	**0.00**	**0.05**	**0.04**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			
None	0.0	0.0	0.0
Onsite Total	**0.0**	**0.0**	**0.0**
Offsite			
3/4-Ton Truck, 4x4	0.9	0.0	0.9
Boom/Crane Truck	1.4	0.0	1.4
Flat Bed Pole Truck	1.4	0.0	1.4
Worker Commute	5.7	0.0	5.7
Offsite Total	**9.4**	**0.0**	**9.4**
Total	**9.4**	**0.0**	**9.4**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle[a]	PM10 Emission Factor (lb/mi)[b]	PM2.5 Emission Factor (lb/mi)[b]	PM10 Emissions (lb/day)[c]	PM2.5 Emissions (lb/day)[c]
Onsite							
None							
Onsite Total						**0.00**	**0.00**
Offsite							
3/4-Ton Truck, 4x4	1	Paved	8.5	0.001	0.000	0.01	0.00
Boom/Crane Truck	1	Paved	8.5	0.001	0.000	0.01	0.00
Flat Bed Pole Truck	1	Paved	8.5	0.001	0.000	0.01	0.00
3/4-Ton Truck, 4x4	1	Unpaved - private	4.2	0.367	0.037	1.54	0.15
Boom/Crane Truck	1	Unpaved - private	4.2	0.367	0.037	1.54	0.15
Flat Bed Pole Truck	1	Unpaved - private	4.2	0.367	0.037	1.54	0.15
3/4-Ton Truck, 4x4	1	Unpaved - public	2.7	0.473	0.047	1.28	0.13
Boom/Crane Truck	1	Unpaved - public	2.7	0.473	0.047	1.28	0.13
Flat Bed Pole Truck	1	Unpaved - public	2.7	0.473	0.047	1.28	0.13
Worker Commute	4	Paved	60	0.001	0.000	0.19	0.00
Offsite Total						**8.67**	**0.84**
Total						**8.67**	**0.84**

a Of the 15.4 mile alignment, 8.5 miles occur on paved roadways and 6.9 miles occur on unpaved roadways (2.7 miles are unpaved public roadways and 4.2 miles are unpaved private roadways). Daily VMT per vehicle assumes 1/2 total distance of Proposed Project x 2 trips per day.

b From Table 36

[c] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Earthwork Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM10 Emission Factor[a]	PM2.5 Emission Factor[a]	PM10 (lb/day)[b]	PM2.5 (lb/day)[b]
Soil Handling	CY/day		1.75E-03	3.65E-04	0.00	0.00
Bulldozing, Scraping and Grad	hr/day		0.613	0.128	0.00	0.00
Storage Pile Wind Erosion	acres		4.4	0.92	0.00	0.00
Total					**0.00**	**0.00**

a From Table 38

[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 20
Subtransmission Line Construction Emissions
Wood/LWS Pole Assembly

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	1.31	5.15	2.80	0.02	0.16	0.15	53.8
Onsite Motor Vehicle Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.00	0.00	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
Onsite Total	**1.31**	**5.15**	**2.80**	**0.02**	**0.16**	**0.15**	**53.8**
Offsite Motor Vehicle Exhaust	0.43	3.52	1.34	0.01	0.09	0.07	24.7
Offsite Motor Vehicle Fugitive PM	--	--	--	--	17.34	1.69	
Offsite Total	**0.43**	**3.52**	**1.34**	**0.01**	**17.43**	**1.75**	**24.7**
Total	**1.74**	**8.67**	**4.14**	**0.03**	**17.59**	**1.90**	**78.5**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Compressor Trailer	60	1	65	6
Boom/Crane Truck	350	1	65	8

Construction Equipment Exhaust Emission Factors

Equipment	Horse-power	VOC (lb/hr)[a]	CO (lb/hr)[a]	NOX (lb/hr)[a]	SOX (lb/hr)[a]	PM10 (lb/hr)[a]	PM2.5 (lb/hr)[b]	CO2 (lb/hr)[a]	CH4 (lb/hr)[a]	Category
Compressor Trailer	60	0.058	0.313	0.394	0.001	0.025	0.023	63.607	0.005	Air Compressors
Boom/Crane Truck	350	0.120	0.409	0.055	0.002	0.002	0.002	180.101	0.011	Cranes

a From Table 34

[b] Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006, http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

Construction Equipment Daily Criteria Pollutant Exhaust Emissions

Equipment	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Compressor Trailer	0.35	1.88	2.36	0.00	0.15	0.14
Boom/Crane Truck	0.96	3.27	0.44	0.01	0.02	0.01
Total	**1.31**	**5.15**	**2.80**	**0.02**	**0.16**	**0.15**

[a] Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

Construction Equipment Total Greenhouse Gas Emissions

Equipment	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Compressor Trailer	11.3	0.0	11.3
Boom/Crane Truck	42.5	0.0	42.5
Total	**53.7**	**0.0**	**53.8**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 34

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Usage

Vehicle	Number	Days Used	Hours Used/ Day	Miles/ Day/ Veh.[a]
Onsite				
None				
Offsite				
3/4-Ton Truck, 4x4	2	65	N/A	15.4
1-Ton Truck, 4x4	2	65	N/A	15.4
Material Handling Truck	1	65	N/A	15.4
Boom/Crane Truck	1	65	N/A	15.4
Worker Commute	8	65	N/A	60

[a] Offsite travel assumed to be 15.4 miles per day, equal to 1/2 total distance of Proposed Project x 2 trips/day; offsite worker commute based on estimated 60 mile roundtrip distance; offsite concrete mixer truck (vendor) bsaed on estimated 50 mile roundtrip distance.

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Onsite									
None		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Offsite									
3/4-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
1-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Material Handling Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Boom/Crane Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Worker Commute	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

a From Table 35 or Table 36

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Onsite						
None	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Offsite						
3/4-Ton Truck, 4x4	0.04	0.28	0.30	0.00	0.01	0.01
1-Ton Truck, 4x4	0.04	0.28	0.30	0.00	0.01	0.01
Material Handling Truck	0.02	0.09	0.24	0.00	0.01	0.01
Boom/Crane Truck	0.02	0.09	0.24	0.00	0.01	0.01
Worker Commute	0.30	2.76	0.27	0.01	0.05	0.03
Offsite Total	**0.43**	**3.52**	**1.34**	**0.01**	**0.09**	**0.07**
Total	**0.43**	**3.52**	**1.34**	**0.01**	**0.09**	**0.07**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Table 20
Subtransmission Line Construction Emissions
Wood/LWS Pole Assembly

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			
None	0.0	0.0	0.0
Onsite Total	**0.0**	**0.0**	**0.0**
Offsite			
3/4-Ton Truck, 4x4	2.6	0.0	2.6
1-Ton Truck, 4x4	2.6	0.0	2.6
Material Handling Truck	1.9	0.0	1.9
Boom/Crane Truck	1.9	0.0	1.9
Worker Commute	15.7	0.0	15.7
Offsite Total	**24.7**	**0.0**	**24.7**
Total	**24.7**	**0.0**	**24.7**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle[a]	PM10 Emission Factor (lb/mi)[b]	PM2.5 Emission Factor (lb/mi)[b]	PM10 Emissions (lb/day)[c]	PM2.5 Emissions (lb/day)[c]
Onsite							
None							
Onsite Total						**0.00**	**0.00**
Offsite							
3/4-Ton Truck, 4x4	2	Paved	8.5	0.001	0.000	0.01	0.00
1-Ton Truck, 4x4	2	Paved	8.5	0.001	0.000	0.01	0.00
Material Handling Truck	1	Paved	8.5	0.001	0.000	0.01	0.00
Boom/Crane Truck	1	Paved	8.5	0.001	0.000	0.01	0.00
3/4-Ton Truck, 4x4	2	Unpaved - private	4.2	0.367	0.037	3.08	0.31
1-Ton Truck, 4x4	2	Unpaved - private	4.2	0.367	0.037	3.08	0.31
Material Handling Truck	1	Unpaved - private	4.2	0.367	0.037	1.54	0.15
Boom/Crane Truck	1	Unpaved - private	4.2	0.367	0.037	1.54	0.15
3/4-Ton Truck, 4x4	2	Unpaved - public	2.7	0.473	0.047	2.56	0.25
1-Ton Truck, 4x4	2	Unpaved - public	2.7	0.473	0.047	2.56	0.25
Material Handling Truck	1	Unpaved - public	2.7	0.473	0.047	1.28	0.13
Boom/Crane Truck	1	Unpaved - public	2.7	0.473	0.047	1.28	0.13
Worker Commute	8	Paved	60	0.001	0.000	0.38	0.00
Offsite Total						**17.34**	**1.69**
Total						**17.34**	**1.69**

a Of the 15.4 mile alignment, 8.5 miles occur on paved roadways and 6.9 miles occur on unpaved roadways (2.7 miles are unpaved public roadways and 4.2 miles are unpaved private roadways). Daily VMT per vehicle assumes 1/2 total distance of Proposed Project x 2 trips per day.

b From Table 36

[c] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Earthwork Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM10 Emission Factor[a]	PM2.5 Emission Factor[a]	PM10 (lb/day)[b]	PM2.5 (lb/day)[b]
Soil Handling	CY/day		1.75E-03	3.65E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		0.613	0.128	0.00	0.00
Storage Pile Wind Erosion	acres		4.4	0.92	0.00	0.00
Total					**0.00**	**0.00**

a From Table 38

[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 21
Subtransmission Line Construction Emissions
Install Wood/Wood Guy Stub Pole/LWS Pole

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	2.33	13.15	9.70	0.03	0.40	0.37	102.3
Onsite Motor Vehicle Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.00	0.00	
Earthwork Fugitive PM	--	--	--	--	0.02	0.01	
Onsite Total	**2.33**	**13.15**	**9.70**	**0.03**	**0.42**	**0.37**	**102.3**
Offsite Motor Vehicle Exhaust	0.35	2.68	1.53	0.01	0.10	0.08	24.3
Offsite Motor Vehicle Fugitive PM	--	--	--	--	17.24	1.69	
Offsite Total	**0.35**	**2.68**	**1.53**	**0.01**	**17.34**	**1.76**	**24.3**
Total	**2.68**	**15.83**	**11.22**	**0.04**	**17.76**	**2.13**	**126.6**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Backhoe/Front Loader	125	1	70	8
Manlift/Bucket Truck	250	1	70	6
Boom/Crane Truck	350	1	70	6
Auger Truck	210	1	70	4

Construction Equipment Exhaust Emission Factors

Equipment	Horse-power	VOC (lb/hr)[a]	CO (lb/hr)[a]	NOX (lb/hr)[a]	SOX (lb/hr)[a]	PM10 (lb/hr)[a]	PM2.5 (lb/hr)[b]	CO2 (lb/hr)[a]	CH4 (lb/hr)[a]	Category
Backhoe/Front Loader	125	0.067	0.584	0.263	0.001	0.001	0.001	101.387	0.006	Tractors/Loaders/Backhoes
Manlift/Bucket Truck	250	0.105	0.581	0.722	0.001	0.035	0.033	132.743	0.009	Manlifts
Boom/Crane Truck	350	0.120	0.409	0.055	0.002	0.002	0.002	180.101	0.011	Cranes
Auger Truck	210	0.111	0.633	0.733	0.001	0.041	0.038	132.309	0.010	Drill Rigs

a From Table 34

b Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006, http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

Construction Equipment Daily Criteria Pollutant Exhaust Emissions

Equipment	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Backhoe/Front Loader	0.54	4.68	2.10	0.01	0.01	0.01
Manlift/Bucket Truck	0.63	3.49	4.33	0.01	0.21	0.20
Boom/Crane Truck	0.72	2.45	0.33	0.01	0.01	0.01
Auger Truck	0.44	2.53	2.93	0.01	0.16	0.15
Total	**2.33**	**13.15**	**9.70**	**0.03**	**0.40**	**0.37**

[a] Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

Construction Equipment Total Greenhouse Gas Emissions

Equipment	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Backhoe/Front Loader	25.8	1.5E-03	25.8
Manlift/Bucket Truck	25.3	1.8E-03	25.3
Boom/Crane Truck	34.3	2.1E-03	34.4
Auger Truck	16.8	1.3E-03	16.8
Total	**102.2**	**0.0**	**102.3**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 34

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Usage

Vehicle	Number	Days Used	Hours Used/ Day	Miles/ Day/ Veh.[a]
Onsite				
None				
Offsite				
1-Ton Truck, 4x4	1	70	N/A	15.4
Manlift/Bucket Truck	1	70	N/A	15.4
Boom/Crane Truck	1	70	N/A	15.4
Auger Truck	1	70	N/A	15.4
Material Handling Truck	1	70	N/A	15.4
Extendable Flat Bed Pole Truck	1	70	N/A	15.4
Worker Commute	6	70	N/A	60

[a] Offsite travel assumed to be 15.4 miles per day, equal to 1/2 total distance of Proposed Project x 2 trips/day; offsite worker commute based on estimated 60 mile roundtrip distance; offsite concrete mixer truck (vendor) bsaed on estimated 50 mile roundtrip distance.

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Onsite									
None		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Offsite									
1-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Manlift/Bucket Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Boom/Crane Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Auger Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Material Handling Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Extendable Flat Bed Pole Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Worker Commute	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

a From Table 35 or Table 36

Table 21
Subtransmission Line Construction Emissions
Install Wood/Wood Guy Stub Pole/LWS Pole

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Onsite						
None	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Offsite						
1-Ton Truck, 4x4	0.02	0.14	0.15	0.00	0.01	0.00
Manlift/Bucket Truck	0.02	0.09	0.24	0.00	0.01	0.01
Boom/Crane Truck	0.02	0.09	0.24	0.00	0.01	0.01
Auger Truck	0.02	0.09	0.24	0.00	0.01	0.01
Material Handling Truck	0.02	0.09	0.24	0.00	0.01	0.01
Extendable Flat Bed Pole Truck	0.02	0.09	0.24	0.00	0.01	0.01
Worker Commute	0.23	2.07	0.20	0.00	0.03	0.02
Offsite Total	**0.35**	**2.68**	**1.53**	**0.01**	**0.10**	**0.08**
Total	**0.35**	**2.68**	**1.53**	**0.01**	**0.10**	**0.08**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			
None	0.0	0.0	0.0
Onsite Total	**0.0**	**0.0**	**0.0**
Offsite			
1-Ton Truck, 4x4	1.4	0.0	1.4
Manlift/Bucket Truck	2.1	0.0	2.1
Boom/Crane Truck	2.1	0.0	2.1
Auger Truck	2.1	0.0	2.1
Material Handling Truck	2.1	0.0	2.1
Extendable Flat Bed Pole Truck	2.1	0.0	2.1
Worker Commute	12.7	0.0	12.7
Offsite Total	**24.3**	**0.0**	**24.3**
Total	**24.3**	**0.0**	**24.3**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle[a]	PM10 Emission Factor (lb/mi)[b]	PM2.5 Emission Factor (lb/mi)[b]	PM10 Emissions (lb/day)[c]	PM2.5 Emissions (lb/day)[c]
Onsite							
None							
Onsite Total						**0.00**	**0.00**
Offsite							
1-Ton Truck, 4x4	1	Paved	8.5	0.001	0.000	0.01	0.00
Manlift/Bucket Truck	1	Paved	8.5	0.001	0.000	0.01	0.00
Boom/Crane Truck	1	Paved	8.5	0.001	0.000	0.01	0.00
Auger Truck	1	Paved	8.5	0.001	0.000	0.01	0.00
Material Handling Truck	1	Paved	8.5	0.001	0.000	0.01	0.00
Extendable Flat Bed Pole Truck	1	Paved	8.5	0.001	0.000	0.01	0.00
1-Ton Truck, 4x4	1	Unpaved - private	4.2	0.367	0.037	1.54	0.15
Manlift/Bucket Truck	1	Unpaved - private	4.2	0.367	0.037	1.54	0.15
Boom/Crane Truck	1	Unpaved - private	4.2	0.367	0.037	1.54	0.15
Auger Truck	1	Unpaved - private	4.2	0.367	0.037	1.54	0.15
Material Handling Truck	1	Unpaved - private	4.2	0.367	0.037	1.54	0.15
Extendable Flat Bed Pole Truck	1	Unpaved - private	4.2	0.367	0.037	1.54	0.15
1-Ton Truck, 4x4	1	Unpaved - public	2.7	0.473	0.047	1.28	0.13
Manlift/Bucket Truck	1	Unpaved - public	2.7	0.473	0.047	1.28	0.13
Boom/Crane Truck	1	Unpaved - public	2.7	0.473	0.047	1.28	0.13
Auger Truck	1	Unpaved - public	2.7	0.473	0.047	1.28	0.13
Material Handling Truck	1	Unpaved - public	2.7	0.473	0.047	1.28	0.13
Extendable Flat Bed Pole Truck	1	Unpaved - public	2.7	0.473	0.047	1.28	0.13
Worker Commute	6	Paved	60	0.001	0.000	0.29	0.00
Offsite Total						**17.24**	**1.69**
Total						**17.24**	**1.69**

a Of the 15.4 mile alignment, 8.5 miles occur on paved roadways and 6.9 miles occur on unpaved roadways (2.7 miles are unpaved public roadways and 4.2 miles are unpaved private roadways). Daily VMT per vehicle assumes 1/2 total distance of Proposed Project x 2 trips per day.

b From Table 36

[c] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Earthwork Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM10 Emission Factor[a]	PM2.5 Emission Factor[a]	PM10 (lb/day)[b]	PM2.5 (lb/day)[b]
Soil Handling	CY/day	14	1.75E-03	3.65E-04	0.02	0.01
Bulldozing, Scraping and Grading	hr/day		0.613	0.128	0.00	0.00
Storage Pile Wind Erosion	acres		4.4	0.92	0.00	0.00
Total					**0.02**	**0.01**

a From Table 38

[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

[c] Based on excavating 3.5 ft. diameter x 10 ft. deep per pole x 274 poles = 976 CY over 69 days

Table 22
Subtransmission Line Construction Emissions
Reconfigure Existing Structures

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	1.31	5.15	2.80	0.02	0.16	0.15	10.8
Onsite Motor Vehicle Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.00	0.00	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
Onsite Total	**1.31**	**5.15**	**2.80**	**0.02**	**0.16**	**0.15**	**10.8**
Offsite Motor Vehicle Exhaust	0.86	7.50	1.50	0.02	0.15	0.10	9.2
Offsite Motor Vehicle Fugitive PM	--	--	--	--	12.00	1.10	
Offsite Total	**0.86**	**7.50**	**1.50**	**0.02**	**12.15**	**1.20**	**9.2**
Total	**2.17**	**12.64**	**4.31**	**0.03**	**12.31**	**1.35**	**20.0**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Compressor Trailer	60	1	13	6
Boom/Crane Truck	350	1	13	8

Construction Equipment Exhaust Emission Factors

Equipment	Horse-power	VOC (lb/hr)[a]	CO (lb/hr)[a]	NOX (lb/hr)[a]	SOX (lb/hr)[a]	PM10 (lb/hr)[a]	PM2.5 (lb/hr)[b]	CO2 (lb/hr)[a]	CH4 (lb/hr)[a]	Category
Compressor Trailer	60	0.058	0.313	0.394	0.001	0.025	0.023	63.607	0.005	Air Compressors
Boom/Crane Truck	350	0.120	0.409	0.055	0.002	0.002	0.002	180.101	0.011	Cranes

a From Table 34

[b] Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006, http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

Construction Equipment Daily Criteria Pollutant Exhaust Emissions

Equipment	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Compressor Trailer	0.35	1.88	2.36	0.00	0.15	0.14
Boom/Crane Truck	0.96	3.27	0.44	0.01	0.02	0.01
Total	**1.31**	**5.15**	**2.80**	**0.02**	**0.16**	**0.15**

[a] Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

Construction Equipment Total Greenhouse Gas Emissions

Equipment	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Compressor Trailer	2.3	0.0	2.3
Boom/Crane Truck	8.5	0.0	8.5
Total	**10.7**	**0.0**	**10.8**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 34

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Usage

Vehicle	Number	Days Used	Hours Used/ Day	Miles/ Day/ Veh.[a]
Onsite				
None				0
Offsite				
3/4-Ton Truck, 4x4	2	13	N/A	12
1-Ton Truck, 4x4	2	13	N/A	12
Material Handling Truck	1	13	N/A	12
Boom/Crane Truck	1	13	N/A	12
Worker Commute	20	13	N/A	60

[a] Offsite travel assumed to be 12 miles per day, equal to 1/2 total distance of Segment 1 of the Proposed Project x 2 trips/day; offsite worker commute based on estimated 60 mile roundtrip distance.

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Onsite									
None		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Offsite									
3/4-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
1-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Material Handling Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Boom/Crane Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Worker Commute	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

a From Table 35 or Table 36

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Onsite						
None	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Offsite						
3/4-Ton Truck, 4x4	0.03	0.22	0.24	0.00	0.01	0.01
1-Ton Truck, 4x4	0.03	0.22	0.24	0.00	0.01	0.01
Material Handling Truck	0.02	0.07	0.18	0.00	0.01	0.01
Boom/Crane Truck	0.02	0.07	0.18	0.00	0.01	0.01
Worker Commute	0.76	6.91	0.67	0.01	0.11	0.07
Offsite Total	**0.86**	**7.50**	**1.50**	**0.02**	**0.15**	**0.10**
Total	**0.86**	**7.50**	**1.50**	**0.02**	**0.15**	**0.10**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Table 22
Subtransmission Line Construction Emissions
Reconfigure Existing Structures

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			
None	0.0	0.0	0.0
Onsite Total	**0.0**	**0.0**	**0.0**
Offsite			
3/4-Ton Truck, 4x4	0.4	0.0	0.4
1-Ton Truck, 4x4	0.4	0.0	0.4
Material Handling Truck	0.3	0.0	0.3
Boom/Crane Truck	0.3	0.0	0.3
Worker Commute	7.8	0.0	7.8
Offsite Total	**9.2**	**0.0**	**9.2**
Total	**9.2**	**0.0**	**9.2**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle[a]	PM10 Emission Factor (lb/mi)[b]	PM2.5 Emission Factor (lb/mi)[b]	PM10 Emissions (lb/day)[c]	PM2.5 Emissions (lb/day)[c]
Onsite							
None	0						
Onsite Total						**0.00**	**0.00**
Offsite							
3/4-Ton Truck, 4x4	2	Paved	7.7	0.001	0.000	0.01	0.00
1-Ton Truck, 4x4	2	Paved	7.7	0.001	0.000	0.01	0.00
Material Handling Truck	1	Paved	7.7	0.001	0.000	0.01	0.00
Boom/Crane Truck	1	Paved	7.7	0.001	0.000	0.01	0.00
3/4-Ton Truck, 4x4	2	Unpaved - private	1.9	0.367	0.037	1.39	0.14
1-Ton Truck, 4x4	2	Unpaved - private	1.9	0.367	0.037	1.39	0.14
Material Handling Truck	1	Unpaved - private	1.9	0.367	0.037	0.70	0.07
Boom/Crane Truck	1	Unpaved - private	1.9	0.367	0.037	0.70	0.07
3/4-Ton Truck, 4x4	2	Unpaved - public	2.4	0.473	0.047	2.27	0.23
1-Ton Truck, 4x4	2	Unpaved - public	2.4	0.473	0.047	2.27	0.23
Material Handling Truck	1	Unpaved - public	2.4	0.473	0.047	1.14	0.11
Boom/Crane Truck	1	Unpaved - public	2.4	0.473	0.047	1.14	0.11
Worker Commute	20	Paved	60	0.001	0.000	0.96	0.00
Offsite Total						**12.00**	**1.10**
Total						**12.00**	**1.10**

a For Segment 1 of the Proposed Project, 7.7 miles occur on paved roadways and 4.3 miles occur on unpaved roadways (2.4 miles are unpaved public roadways and 1.9 miles are unpaved private roadways). Daily VMT per vehicle assumes 1/2 total distance of Proposed Project x 2 trips per day. Existing structures would not be reconfigured along Segment 2 of the Proposed Project.

b From Table 36

[c] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Earthwork Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM10 Emission Factor[a]	PM2.5 Emission Factor[a]	PM10 (lb/day)[b]	PM2.5 (lb/day)[b]
Soil Handling	CY/day		1.75E-03	3.65E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		0.613	0.128	0.00	0.00
Storage Pile Wind Erosion	acres		4.4	0.92	0.00	0.00
Total					**0.00**	**0.00**

a From Table 38

[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 23
Subtransmission Line Construction Emissions
Install Conductor & GW

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	7.00	33.06	35.59	0.11	1.56	1.43	360.5
Onsite Motor Vehicle Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.00	0.00	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
Onsite Total	**7.00**	**33.06**	**35.59**	**0.11**	**1.56**	**1.43**	**360.5**
Offsite Motor Vehicle Exhaust	0.92	8.34	0.91	0.02	0.14	0.09	55.3
Offsite Motor Vehicle Fugitive PM	--	--	--	--	2.86	0.17	
Offsite Total	**0.92**	**8.34**	**0.91**	**0.02**	**3.00**	**0.26**	**55.3**
Total	**7.92**	**41.40**	**36.51**	**0.13**	**4.56**	**1.69**	**415.8**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Backhoe/Front Loader	125	1	75	2
Manlift/Bucket Truck	250	4	75	8
Boom/Crane Truck	350	1	75	8
Boom Truck (guard)	350	4	75	2
Wire Truck/Trailer	10	2	75	6
Sock Line Puller	300	1	75	6
Bull Wheel Puller	16	1	75	6
Static Truck/Tensioner	350	1	75	6

Construction Equipment Exhaust Emission Factors

Equipment	Horse-power	VOC (lb/hr)[a]	CO (lb/hr)[a]	NOX (lb/hr)[a]	SOX (lb/hr)[a]	PM10 (lb/hr)[a]	PM2.5 (lb/hr)[b]	CO2 (lb/hr)[a]	CH4 (lb/hr)[a]	Category
Backhoe/Front Loader	125	0.067	0.584	0.263	0.001	0.001	0.001	101.387	0.006	Tractors/Loaders/Backhoes
Manlift/Bucket Truck	250	0.105	0.581	0.722	0.001	0.035	0.033	132.743	0.009	Manlifts
Boom/Crane Truck	350	0.120	0.409	0.055	0.002	0.002	0.002	180.101	0.011	Cranes
Boom Truck (guard)	350	0.120	0.409	0.055	0.002	0.002	0.002	180.101	0.011	Cranes
Wire Truck/Trailer	10	0.012	0.062	0.074	0.000	0.003	0.003	10.107	0.001	Other Construction Equipment
Sock Line Puller	300	0.112	0.474	0.800	0.002	0.028	0.025	254.238	0.010	Other Construction Equipment
Bull Wheel Puller	16	0.016	0.054	0.101	0.000	0.004	0.003	13.217	0.001	Other Construction Equipment
Static Truck/Tensioner	350	0.112	0.474	0.800	0.002	0.028	0.025	254.238	0.010	Other Construction Equipment

a From Table 34

[b] Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006, http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

Table 23
Subtransmission Line Construction Emissions
Install Conductor & GW

Construction Equipment Daily Criteria Pollutant Exhaust Emissions

Equipment	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Backhoe/Front Loader	0.13	1.17	0.53	0.00	0.00	0.00
Manlift/Bucket Truck	3.36	18.60	23.09	0.05	1.14	1.05
Boom/Crane Truck	0.96	3.27	0.44	0.01	0.02	0.01
Boom Truck (guard)	0.96	3.27	0.44	0.01	0.02	0.01
Wire Truck/Trailer	0.14	0.74	0.88	0.00	0.03	0.03
Sock Line Puller	0.67	2.85	4.80	0.01	0.17	0.15
Bull Wheel Puller	0.10	0.33	0.60	0.00	0.02	0.02
Static Truck/Tensioner	0.67	2.85	4.80	0.01	0.17	0.15
Total	**7.00**	**33.06**	**35.59**	**0.11**	**1.56**	**1.43**

[a] Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

Construction Equipment Total Greenhouse Gas Emissions

Equipment	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Backhoe/Front Loader	6.9	0.0	6.9
Manlift/Bucket Truck	144.5	0.0	144.7
Boom/Crane Truck	49.0	0.0	49.1
Boom Truck (guard)	49.0	0.0	49.1
Wire Truck/Trailer	4.1	0.0	4.1
Sock Line Puller	51.9	0.0	51.9
Bull Wheel Puller	2.7	0.0	2.7
Static Truck/Tensioner	51.9	0.0	51.9
Total	**360.1**	**0.0**	**360.5**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 34

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Usage

Vehicle	Number	Days Used	Hours Used/ Day	Miles/ Day/ Veh.[a]
Onsite				
None				0
Offsite				
1-Ton Truck, 4x4	3	75	4	0.4
Manlift/Bucket Truck	4	75	8	0.4
Boom/Crane Truck	1	75	8	0.4
Boom Truck (guard)	2	75	4	0.4
Dump Truck	1	75	2	0.4
Wire Truck/Trailer	2	75	6	0.4
Sock Line Puller	1	75	6	0.4
Bull Wheel Puller	1	75	6	0.4
Static Truck/Tensioner	1	75	6	0.4
Material Handling Truck	1	75	8	0.4
Lowboy Truck/Trailer	2	75	4	0.4
Worker Commute	24	75	N/A	60

[a] Offsite travel assumed to be 0.2 miles per day x 2 trips/day; offsite worker commute based on estimated 60 mile roundtrip distance.

Table 23
Subtransmission Line Construction Emissions
Install Conductor & GW

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Onsite									
None		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Offsite									
1-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Manlift/Bucket Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Boom/Crane Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Boom Truck (guard)	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Dump Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Wire Truck/Trailer	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Sock Line Puller	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Bull Wheel Puller	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Static Truck/Tensioner	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Material Handling Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Lowboy Truck/Trailer	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Worker Commute	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

a From Table 35 or Table 36

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Onsite						
None	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Offsite						
1-Ton Truck, 4x4	0.00	0.01	0.01	0.00	0.00	0.00
Manlift/Bucket Truck	0.00	0.01	0.02	0.00	0.00	0.00
Boom/Crane Truck	0.00	0.00	0.01	0.00	0.00	0.00
Boom Truck (guard)	0.00	0.00	0.01	0.00	0.00	0.00
Dump Truck	0.00	0.00	0.01	0.00	0.00	0.00
Wire Truck/Trailer	0.00	0.00	0.01	0.00	0.00	0.00
Sock Line Puller	0.00	0.00	0.01	0.00	0.00	0.00
Bull Wheel Puller	0.00	0.00	0.01	0.00	0.00	0.00
Static Truck/Tensioner	0.00	0.00	0.01	0.00	0.00	0.00
Material Handling Truck	0.00	0.00	0.01	0.00	0.00	0.00
Lowboy Truck/Trailer	0.00	0.00	0.01	0.00	0.00	0.00
Worker Commute	0.91	8.29	0.80	0.02	0.14	0.09
Offsite Total	**0.92**	**8.34**	**0.91**	**0.02**	**0.14**	**0.09**
Total	**0.92**	**8.34**	**0.91**	**0.02**	**0.14**	**0.09**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Table 23
Subtransmission Line Construction Emissions
Install Conductor & GW

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			
None	0.0	0.0	0.0
Onsite Total	**0.0**	**0.0**	**0.0**
Offsite			
1-Ton Truck, 4x4	0.1	0.0	0.1
Manlift/Bucket Truck	0.2	0.0	0.2
Boom/Crane Truck	0.1	0.0	0.1
Boom Truck (guard)	0.1	0.0	0.1
Dump Truck	0.1	0.0	0.1
Wire Truck/Trailer	0.1	0.0	0.1
Sock Line Puller	0.1	0.0	0.1
Bull Wheel Puller	0.1	0.0	0.1
Static Truck/Tensioner	0.1	0.0	0.1
Material Handling Truck	0.1	0.0	0.1
Lowboy Truck/Trailer	0.1	0.0	0.1
Worker Commute	54.2	0.0	54.3
Offsite Total	**55.3**	**0.0**	**55.3**
Total	**55.3**	**0.0**	**55.3**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Table 23
Subtransmission Line Construction Emissions
Install Conductor & GW

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle[a]	PM10 Emission Factor (lb/mi)[b]	PM2.5 Emission Factor (lb/mi)[b]	PM10 Emissions (lb/day)[c]	PM2.5 Emissions (lb/day)[c]
Onsite							
None	0						
Onsite Total						**0.00**	**0.00**
Offsite							
1-Ton Truck, 4x4	3	Paved	0.2	0.001	0.000	0.00	0.00
Manlift/Bucket Truck	4	Paved	0.2	0.001	0.000	0.00	0.00
Boom/Crane Truck	1	Paved	0.2	0.001	0.000	0.00	0.00
Boom Truck (guard)	2	Paved	0.2	0.001	0.000	0.00	0.00
Dump Truck	1	Paved	0.2	0.001	0.000	0.00	0.00
Wire Truck/Trailer	2	Paved	0.2	0.001	0.000	0.00	0.00
Sock Line Puller	1	Paved	0.2	0.001	0.000	0.00	0.00
Bull Wheel Puller	1	Paved	0.2	0.001	0.000	0.00	0.00
Static Truck/Tensioner	1	Paved	0.2	0.001	0.000	0.00	0.00
Material Handling Truck	1	Paved	0.2	0.001	0.000	0.00	0.00
Lowboy Truck/Trailer	2	Paved	0.2	0.001	0.000	0.00	0.00
1-Ton Truck, 4x4	3	Unpaved - public	0.2	0.473	0.047	0.28	0.03
Manlift/Bucket Truck	4	Unpaved - public	0.2	0.473	0.047	0.38	0.04
Boom/Crane Truck	1	Unpaved - public	0.2	0.473	0.047	0.09	0.01
Boom Truck (guard)	2	Unpaved - public	0.2	0.473	0.047	0.09	0.01
Dump Truck	1	Unpaved - public	0.2	0.473	0.047	0.09	0.01
Wire Truck/Trailer	2	Unpaved - public	0.2	0.473	0.047	0.19	0.02
Sock Line Puller	1	Unpaved - public	0.2	0.473	0.047	0.09	0.01
Bull Wheel Puller	1	Unpaved - public	0.2	0.473	0.047	0.09	0.01
Static Truck/Tensioner	1	Unpaved - public	0.2	0.473	0.047	0.09	0.01
Material Handling Truck	1	Unpaved - public	0.2	0.473	0.047	0.09	0.01
Lowboy Truck/Trailer	2	Unpaved - public	0.2	0.473	0.047	0.19	0.02
Worker Commute	24	Paved	60	0.001	0.000	1.15	0.00
Offsite Total						**2.86**	**0.17**
Total						**2.86**	**0.17**

[a] Assumes distance travelled on unpaved roadways is 1/2 total distance (0.2 miles/day) x two trips per day

b From Table 37

[c] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Earthwork Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM10 Emission Factor[a]	PM2.5 Emission Factor[a]	PM10 (lb/day)[b]	PM2.5 (lb/day)[b]
Soil Handling	CY/day		1.75E-03	3.65E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		0.613	0.128	0.00	0.00
Storage Pile Wind Erosion	acres		4.4	0.92	0.00	0.00
Total					**0.00**	**0.00**

a From Table 38

[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 24
Subtransmission Line Construction Emissions
Guard Structure Removal

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	1.51	7.20	5.32	0.02	0.25	0.23	8.5
Onsite Motor Vehicle Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.00	0.00	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
Onsite Total	**1.51**	**7.20**	**5.32**	**0.02**	**0.25**	**0.23**	**8.5**
Offsite Motor Vehicle Exhaust	0.33	2.64	1.21	0.01	0.08	0.06	2.8
Offsite Motor Vehicle Fugitive PM	--	--	--	--	14.41	1.40	
Offsite Total	**0.33**	**2.64**	**1.21**	**0.01**	**14.50**	**1.47**	**2.8**
Total	**1.84**	**9.83**	**6.52**	**0.03**	**14.75**	**1.70**	**11.2**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Compressor Trailer	60	1	9	4
Backhoe/Front Loader	125	1	9	2
Manlift/Bucket Truck	250	1	9	4
Boom/Crane Truck	350	1	9	6

Construction Equipment Exhaust Emission Factors

Equipment	Horse-power	VOC (lb/hr)[a]	CO (lb/hr)[a]	NOX (lb/hr)[a]	SOX (lb/hr)[a]	PM10 (lb/hr)[a]	PM2.5 (lb/hr)[b]	CO2 (lb/hr)[a]	CH4 (lb/hr)[a]	Category
Compressor Trailer	60	0.058	0.313	0.394	0.001	0.025	0.023	63.607	0.005	Air Compressors
Backhoe/Front Loader	125	0.067	0.584	0.263	0.001	0.001	0.001	101.387	0.006	Tractors/Loaders/Backhoes
Manlift/Bucket Truck	250	0.105	0.581	0.722	0.001	0.035	0.033	132.743	0.009	Manlifts
Boom/Crane Truck	350	0.120	0.409	0.055	0.002	0.002	0.002	180.101	0.011	Cranes

a From Table 34

[b] Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006, http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

Construction Equipment Daily Criteria Pollutant Exhaust Emissions

Equipment	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Compressor Trailer	0.23	1.25	1.57	0.00	0.10	0.09
Backhoe/Front Loader	0.13	1.17	0.53	0.00	0.00	0.00
Manlift/Bucket Truck	0.42	2.32	2.89	0.01	0.14	0.13
Boom/Crane Truck	0.72	2.45	0.33	0.01	0.01	0.01
Total	**1.51**	**7.20**	**5.32**	**0.02**	**0.25**	**0.23**

[a] Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

Construction Equipment Total Greenhouse Gas Emissions

Equipment	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Compressor Trailer	1.0	0.0	1.0
Backhoe/Front Loader	0.8	0.0	0.8
Manlift/Bucket Truck	2.2	0.0	2.2
Boom/Crane Truck	4.4	0.0	4.4
Total	**8.4**	**0.0**	**8.5**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 34

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Usage

Vehicle	Number	Days Used	Hours Used/ Day	Miles/ Day/ Veh.[a]
Onsite				
None				
Offsite				
3/4-Ton Truck, 4x4	1	9	N/A	15.4
1-Ton Truck, 4x4	1	9	N/A	15.4
Manlift/Bucket Truck	1	9	N/A	15.4
Boom/Crane Truck	1	9	N/A	15.4
Extendable Flat Bed Pole Truck	1	9	N/A	15.4
Worker Commute	6	9	N/A	60

[a] Offsite travel assumed to be 15.4 miles per day, equal to 1/2 total distance of Proposed Project x 2 trips/day; offsite worker commute based on estimated 60 mile roundtrip distance.

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Onsite									
None		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Offsite									
3/4-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
1-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Manlift/Bucket Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Boom/Crane Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Extendable Flat Bed Pole Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Worker Commute	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

a From Table 35 or Table 36

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Onsite						
None	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Offsite						
3/4-Ton Truck, 4x4	0.02	0.14	0.15	0.00	0.01	0.00
1-Ton Truck, 4x4	0.02	0.14	0.15	0.00	0.01	0.00
Manlift/Bucket Truck	0.02	0.09	0.24	0.00	0.01	0.01
Boom/Crane Truck	0.02	0.09	0.24	0.00	0.01	0.01
Extendable Flat Bed Pole Truck	0.02	0.09	0.24	0.00	0.01	0.01
Worker Commute	0.23	2.07	0.20	0.00	0.03	0.02
Offsite Total	**0.33**	**2.64**	**1.21**	**0.01**	**0.08**	**0.06**
Total	**0.33**	**2.64**	**1.21**	**0.01**	**0.08**	**0.06**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Table 24
Subtransmission Line Construction Emissions
Guard Structure Removal

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			
None	0.0	0.0	0.0
Onsite Total	**0.0**	**0.0**	**0.0**
Offsite			
3/4-Ton Truck, 4x4	0.2	0.0	0.2
1-Ton Truck, 4x4	0.2	0.0	0.2
Manlift/Bucket Truck	0.3	0.0	0.3
Boom/Crane Truck	0.3	0.0	0.3
Extendable Flat Bed Pole Truck	0.3	0.0	0.3
Worker Commute	1.6	0.0	1.6
Offsite Total	**2.8**	**0.0**	**2.8**
Total	**2.8**	**0.0**	**2.8**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle[a]	PM10 Emission Factor (lb/mi)[b]	PM2.5 Emission Factor (lb/mi)[b]	PM10 Emissions (lb/day)[c]	PM2.5 Emissions (lb/day)[c]
Onsite							
None							
Onsite Total						**0.00**	**0.00**
Offsite							
3/4-Ton Truck, 4x4	1	Paved	8.5	0.001	0.000	0.01	0.00
1-Ton Truck, 4x4	1	Paved	8.5	0.001	0.000	0.01	0.00
Manlift/Bucket Truck	1	Paved	8.5	0.001	0.000	0.01	0.00
Boom/Crane Truck	1	Paved	8.5	0.001	0.000	0.01	0.00
Extendable Flat Bed Pole Truck	1	Paved	8.5	0.001	0.000	0.01	0.00
3/4-Ton Truck, 4x4	1	Unpaved - private	4.2	0.367	0.037	1.54	0.15
1-Ton Truck, 4x4	1	Unpaved - private	4.2	0.367	0.037	1.54	0.15
Manlift/Bucket Truck	1	Unpaved - private	4.2	0.367	0.037	1.54	0.15
Boom/Crane Truck	1	Unpaved - private	4.2	0.367	0.037	1.54	0.15
Extendable Flat Bed Pole Truck	1	Unpaved - private	4.2	0.367	0.037	1.54	0.15
3/4-Ton Truck, 4x4	1	Unpaved - public	2.7	0.473	0.047	1.28	0.13
1-Ton Truck, 4x4	1	Unpaved - public	2.7	0.473	0.047	1.28	0.13
Manlift/Bucket Truck	1	Unpaved - public	2.7	0.473	0.047	1.28	0.13
Boom/Crane Truck	1	Unpaved - public	2.7	0.473	0.047	1.28	0.13
Extendable Flat Bed Pole Truck	1	Unpaved - public	2.7	0.473	0.047	1.28	0.13
Worker Commute	6	Paved	60	0.001	0.000	0.29	0.00
Offsite Total						**14.41**	**1.40**
Total						**14.41**	**1.40**

a Of the 15.4 mile alignment, 8.5 miles occur on paved roadways and 6.9 miles occur on unpaved roadways (2.7 miles are unpaved public roadways and 4.2 miles are unpaved private roadways). Daily VMT per vehicle assumes 1/2 total distance of Proposed Project x 2 trips per day.

b From Table 36

[c] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Earthwork Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM10 Emission Factor[a]	PM2.5 Emission Factor[a]	PM10 (lb/day)[b]	PM2.5 (lb/day)[b]
Soil Handling	CY/day		1.75E-03	3.65E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		0.613	0.128	0.00	0.00
Storage Pile Wind Erosion	acres		4.4	0.92	0.00	0.00
Total					**0.00**	**0.00**

a From Table 38

[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 25
Subtransmission Line Construction Emissions
Restoration

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	1.21	6.17	2.06	0.02	0.02	0.02	11.4
Onsite Motor Vehicle Exhaust	0.00	0.01	0.02	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.37	0.04	
Earthwork Fugitive PM	--	--	--	--	3.68	0.77	
Onsite Total	**1.21**	**6.18**	**2.07**	**0.02**	**4.07**	**0.82**	**11.4**
Offsite Motor Vehicle Exhaust	0.35	2.89	1.01	0.01	0.08	0.05	4.6
Offsite Motor Vehicle Fugitive PM	--	--	--	--	11.64	0.62	
Offsite Total	**0.35**	**2.89**	**1.01**	**0.01**	**11.71**	**0.67**	**4.6**
Total	**1.56**	**9.07**	**3.08**	**0.03**	**15.78**	**1.49**	**16.1**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Backhoe/Front Loader	125	1	15	4
Motor Grader	250	1	15	6
Drum Type Compactor	100	1	15	4

Construction Equipment Exhaust Emission Factors

Equipment	Horse-power	VOC (lb/hr)[a]	CO (lb/hr)[a]	NOX (lb/hr)[a]	SOX (lb/hr)[a]	PM10 (lb/hr)[a]	PM2.5 (lb/hr)[b]	CO2 (lb/hr)[a]	CH4 (lb/hr)[a]	Category
Backhoe/Front Loader	125	0.067	0.584	0.263	0.001	0.001	0.001	101.387	0.006	Tractors/Loaders/Backhoes
Motor Grader	250	0.111	0.378	0.049	0.002	0.002	0.002	172.113	0.010	Graders
Drum Type Compactor	100	0.068	0.392	0.178	0.001	0.001	0.001	58.989	0.006	Rollers

a From Table 34

[b] Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006, http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

Construction Equipment Daily Criteria Pollutant Exhaust Emissions

Equipment	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Backhoe/Front Loader	0.27	2.34	1.05	0.00	0.00	0.00
Motor Grader	0.67	2.27	0.29	0.01	0.01	0.01
Drum Type Compactor	0.27	1.57	0.71	0.00	0.00	0.00
Total	**1.21**	**6.17**	**2.06**	**0.02**	**0.02**	**0.02**

[a] Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

Construction Equipment Total Greenhouse Gas Emissions

Equipment	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Backhoe/Front Loader	2.8	0.0	2.8
Motor Grader	7.0	0.0	7.0
Drum Type Compactor	1.6	0.0	1.6
Total	**11.4**	**0.0**	**11.4**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 34

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Usage

Vehicle	Number	Days Used	Hours Used/ Day	Miles/ Day/ Veh.[a]
Onsite				
Water Truck	1	15	2	1
Offsite				
1-Ton Crew Cab, 4x4	2	15	4	15.4
Water Truck	1	15	6	15.4
Lowboy Truck/Trailer	1	15	4	15.4
Worker Commute	7	15	N/A	60

[a] Onsite travel assumed to be 1 mile per day

[a] Offsite travel assumed to be 15.4 miles per day, equal to 1/2 total distance of Proposed Project x 2 trips/day; offsite worker commute based on estimated 60 mile roundtrip distance; offsite concrete mixer truck (vendor) bsaed on estimated 50 mile roundtrip distance.

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Onsite									
Water Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Offsite									
1-Ton Crew Cab, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Water Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Lowboy Truck/Trailer	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Worker Commute	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

a From Table 35 or Table 36

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Onsite						
Water Truck	0.00	0.01	0.02	0.00	0.00	0.00
Onsite Total	**0.00**	**0.01**	**0.02**	**0.00**	**0.00**	**0.00**
Offsite						
1-Ton Crew Cab, 4x4	0.04	0.28	0.30	0.00	0.01	0.01
Water Truck	0.02	0.09	0.24	0.00	0.01	0.01
Lowboy Truck/Trailer	0.02	0.09	0.24	0.00	0.01	0.01
Worker Commute	0.27	2.42	0.23	0.00	0.04	0.03
Offsite Total	**0.35**	**2.89**	**1.01**	**0.01**	**0.08**	**0.05**
Total	**0.35**	**2.90**	**1.02**	**0.01**	**0.08**	**0.06**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Table 25
Subtransmission Line Construction Emissions
Restoration

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			
Water Truck	0.0	0.0	0.0
Onsite Total	**0.0**	**0.0**	**0.0**
Offsite			
1-Ton Crew Cab, 4x4	0.6	0.0	0.6
Water Truck	0.4	0.0	0.4
Lowboy Truck/Trailer	0.4	0.0	0.4
Worker Commute	3.2	0.0	3.2
Offsite Total	**4.6**	**0.0**	**4.6**
Total	**4.7**	**0.0**	**4.7**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle[a]	PM10 Emission Factor (lb/mi)[b]	PM2.5 Emission Factor (lb/mi)[b]	PM10 Emissions (lb/day)[c]	PM2.5 Emissions (lb/day)[c]
Onsite							
Water Truck	1	Unpaved - private	1	0.367	0.037	0.37	0.04
Onsite Total						**0.37**	**0.04**
Offsite							
1-Ton Crew Cab, 4x4	2	Paved	8.5	0.001	0.000	0.01	0.00
Water Truck	1	Paved	8.5	0.001	0.000	0.01	0.00
Lowboy Truck/Trailer	1	Paved	8.5	0.001	0.000	0.01	0.00
1-Ton Crew Cab, 4x4	2	Unpaved - private	4.2	0.367	0.037	3.08	0.17
Water Truck	1	Unpaved - private	4.2	0.367	0.037	1.54	0.08
Lowboy Truck/Trailer	1	Unpaved - private	4.2	0.367	0.037	1.54	0.08
1-Ton Crew Cab, 4x4	2	Unpaved - public	2.7	0.473	0.047	2.56	0.14
Water Truck	1	Unpaved - public	2.7	0.473	0.047	1.28	0.07
Lowboy Truck/Trailer	1	Unpaved - public	2.7	0.473	0.047	1.28	0.07
Worker Commute	7	Paved	60	0.001	0.000	0.34	0.00
Offsite Total						**11.64**	**0.62**
Total						**12.00**	**0.65**

a Of the 15.4 mile alignment, 8.5 miles occur on paved roadways and 6.9 miles occur on unpaved roadways (2.7 miles are unpaved public roadways and 4.2 miles are unpaved private roadways). Daily VMT per vehicle assumes 1/2 total distance of Proposed Project x 2 trips per day.

b From Table 36

[c] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Earthwork Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM10 Emission Factor[a]	PM2.5 Emission Factor[a]	PM10 (lb/day)[b]	PM2.5 (lb/day)[b]
Soil Handling	CY/day		1.75E-03	3.65E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day	6	0.613	0.128	3.68	0.77
Storage Pile Wind Erosion	acres		4.4	0.92	0.00	0.00
Total					**3.68**	**0.77**

a From Table 38

[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 26
Subtransmission Line Construction Emissions
Vault Installation

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	1.87	9.37	3.06	0.03	0.05	0.04	11.8
Onsite Motor Vehicle Exhaust	0.01	0.06	0.09	0.00	0.00	0.00	0.1
Onsite Motor Vehicle Fugitive PM	--	--	--	--	2.71	0.27	
Earthwork Fugitive PM	--	--	--	--	0.08	0.02	
Onsite Total	**1.88**	**9.43**	**3.15**	**0.03**	**2.84**	**0.33**	**11.9**
Offsite Motor Vehicle Exhaust	0.49	3.38	3.09	0.01	0.18	0.14	4.9
Offsite Motor Vehicle Fugitive PM	--	--	--	--	0.45	0.00	
Offsite Total	**0.49**	**3.38**	**3.09**	**0.01**	**0.62**	**0.14**	**4.9**
Total	**2.37**	**12.80**	**6.24**	**0.04**	**3.47**	**0.47**	**16.8**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Backhoe/Front Loader	125	1	9	8
Excavator	250	1	9	6
Crane (L)	500	1	9	6
Concrete Mixer Truck	350	3	9	2

Construction Equipment Exhaust Emission Factors

Equipment	Horse-power	VOC (lb/hr)[a]	CO (lb/hr)[a]	NOX (lb/hr)[a]	SOX (lb/hr)[a]	PM10 (lb/hr)[a]	PM2.5 (lb/hr)[b]	CO2 (lb/hr)[a]	CH4 (lb/hr)[a]
Backhoe/Front Loader	125	0.067	0.584	0.263	0.001	0.001	0.001	101.387	0.006
Excavator	250	0.093	0.332	0.050	0.002	0.002	0.002	158.683	0.008
Crane (L)	500	0.120	0.409	0.055	0.002	0.002	0.002	180.101	0.011
Concrete Mixer Truck	350	0.009	0.042	0.054	0.000	0.002	0.002	7.248	0.001

[a] From Table 34

[b] Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10
PM2.5 Fraction= 0.920
From Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006, http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

Construction Equipment Daily Criteria Pollutant Exhaust Emissions

Equipment	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Backhoe/Front Loader	0.54	4.68	2.10	0.01	0.01	0.01
Excavator	0.56	1.99	0.30	0.01	0.01	0.01
Crane (L)	0.72	2.45	0.33	0.01	0.01	0.01
Concrete Mixer Truck	0.05	0.25	0.32	0.00	0.01	0.01
Total	**1.87**	**9.37**	**3.06**	**0.03**	**0.05**	**0.04**

[a] Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

Construction Equipment Total Greenhouse Gas Emissions

Equipment	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Backhoe/Front Loader	3.3	0.0	3.3
Excavator	3.9	0.0	3.9
Crane (L)	4.4	0.0	4.4
Concrete Mixer Truck	0.2	0.0	0.2
Total	**11.8**	**0.0**	**11.8**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 34

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Usage

Vehicle	Number	Days Used	Hours Used/ Day	Miles/ Day/ Veh.[a]
Onsite				
1-Ton Truck, 4x4	2	9	N/A	0.6
Dump Truck	2	9	N/A	0.6
Water Truck	1	9	N/A	0.6
Concrete Mixer Truck	3	9	N/A	0.6
Lowboy Truck/Trailer	1	9	N/A	0.6
Material Handling Truck	1	9	N/A	0.6
Flat Bed Truck/Trailer	3	9	N/A	0.6
Offsite				
1-Ton Truck, 4x4	2	9	N/A	5
Dump Truck	2	9	N/A	5
Water Truck	1	9	N/A	5
Concrete Mixer Truck	3	9	N/A	50
Lowboy Truck/Trailer	1	9	N/A	5
Material Handling Truck	1	9	N/A	5
Flat Bed Truck/Trailer	3	9	N/A	5
Worker Commute	6	9	N/A	60

[a] Assumes onsite vehicle miles travelled would occur on unpaved areas based on length of underground subtransmission line (1,500 ft) x two trips per day during vault installation (3000 ft / 5,280 ft/mile = 0.6 miles/day).

[a] Offsite truck travel based on location of Staging Area 1 (0.25 miles from Valley Substation) and up to 10 haul trips per day; offsite worker commute based on estimated 60 mile roundtrip distance.

VMT estimation basis:	Value	Units	Basis
	0.5	miles/roundtrip/haul truck	Based on roundtrip distance from Valley Substation to Staging Area 1
	10	roundtrips/day/haul truck	Assumption
	5	miles/day/haul truck	Calculation
	50	miles/roundtrip/vendor trip	Vendor roundtrip distance, assumption
	60	miles/roundtrip/worker commute	Assumption

Table 26
Subtransmission Line Construction Emissions
Vault Installation

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Onsite									
1-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Dump Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Water Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Concrete Mixer Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Lowboy Truck/Trailer	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Material Handling Truck	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Flat Bed Truck/Trailer	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Offsite									
1-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Dump Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Water Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Concrete Mixer Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Lowboy Truck/Trailer	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Material Handling Truck	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Flat Bed Truck/Trailer	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Worker Commute	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

a From Table 35 or Table 36

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Onsite						
1-Ton Truck, 4x4	0.00	0.01	0.01	0.00	0.00	0.00
Dump Truck	0.00	0.01	0.02	0.00	0.00	0.00
Water Truck	0.00	0.00	0.01	0.00	0.00	0.00
Concrete Mixer Truck	0.00	0.01	0.03	0.00	0.00	0.00
Lowboy Truck/Trailer	0.00	0.00	0.01	0.00	0.00	0.00
Material Handling Truck	0.00	0.01	0.01	0.00	0.00	0.00
Flat Bed Truck/Trailer	0.00	0.02	0.02	0.00	0.00	0.00
Onsite Total	**0.01**	**0.06**	**0.09**	**0.00**	**0.00**	**0.00**
Offsite						
1-Ton Truck, 4x4	0.01	0.09	0.10	0.00	0.00	0.00
Dump Truck	0.01	0.06	0.15	0.00	0.01	0.01
Water Truck	0.01	0.03	0.08	0.00	0.00	0.00
Concrete Mixer Truck	0.20	0.91	2.29	0.01	0.12	0.09
Lowboy Truck/Trailer	0.01	0.03	0.08	0.00	0.00	0.00
Material Handling Truck	0.01	0.05	0.05	0.00	0.00	0.00
Flat Bed Truck/Trailer	0.02	0.14	0.15	0.00	0.01	0.00
Worker Commute	0.23	2.07	0.20	0.00	0.03	0.02
Offsite Total	**0.49**	**3.38**	**3.09**	**0.01**	**0.18**	**0.14**
Total	**0.50**	**3.43**	**3.18**	**0.01**	**0.18**	**0.14**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			
1-Ton Truck, 4x4	0.0	0.0	0.0
Dump Truck	0.0	0.0	0.0
Water Truck	0.0	0.0	0.0
Concrete Mixer Truck	0.0	0.0	0.0
Lowboy Truck/Trailer	0.0	0.0	0.0
Material Handling Truck	0.0	0.0	0.0
Flat Bed Truck/Trailer	0.0	0.0	0.0
Onsite Total	**0.1**	**0.0**	**0.1**
Offsite			
1-Ton Truck, 4x4	0.1	0.0	0.1
Dump Truck	0.2	0.0	0.2
Water Truck	0.1	0.0	0.1
Concrete Mixer Truck	2.6	0.0	2.6
Lowboy Truck/Trailer	0.1	0.0	0.1
Material Handling Truck	0.1	0.0	0.1
Flat Bed Truck/Trailer	0.2	0.0	0.2
Worker Commute	1.6	0.0	1.6
Offsite Total	**4.9**	**0.0**	**4.9**
Total	**5.0**	**0.0**	**5.0**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle[a]	PM10 Emission Factor (lb/mi)[b]	PM2.5 Emission Factor (lb/mi)[b]	PM10 Emissions (lb/day)[c]	PM2.5 Emissions (lb/day)[c]
Onsite							
1-Ton Truck, 4x4	2	Unpaved - private	0.6	0.367	0.037	0.42	0.04
Dump Truck	2	Unpaved - private	0.6	0.367	0.037	0.42	0.04
Water Truck	1	Unpaved - private	0.6	0.367	0.037	0.21	0.02
Concrete Mixer Truck	3	Unpaved - private	0.6	0.367	0.037	0.63	0.06
Lowboy Truck/Trailer	1	Unpaved - private	0.6	0.367	0.037	0.21	0.02
Material Handling Truck	1	Unpaved - private	0.6	0.367	0.037	0.21	0.02
Flat Bed Truck/Trailer	3	Unpaved - private	0.6	0.367	0.037	0.63	0.06
Onsite Total						**2.71**	**0.27**
Offsite							
1-Ton Truck, 4x4	2	Paved	5	0.001	0.000	0.01	0.00
Dump Truck	2	Paved	5	0.001	0.000	0.01	0.00
Water Truck	1	Paved	5	0.001	0.000	0.00	0.00
Concrete Mixer Truck	3	Paved	50	0.001	0.000	0.12	0.00
Lowboy Truck/Trailer	1	Paved	5	0.001	0.000	0.00	0.00
Material Handling Truck	1	Paved	5	0.001	0.000	0.00	0.00
Flat Bed Truck/Trailer	3	Paved	5	0.001	0.000	0.01	0.00
Worker Commute	6	Paved	60	0.001	0.000	0.29	0.00
Offsite Total						**0.45**	**0.00**
Total						**3.16**	**0.27**

[a] Assumes onsite vehicle miles travelled would occur on unpaved areas based on length of underground subtransmission line (1,500 ft) x two trips per day during vault installation (3000 ft / 5,280 ft/mile = 0.6 miles/day).
[b] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]
c From Table 36

Table 26
Subtransmission Line Construction Emissions
Vault Installation

Earthwork Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM10 Emission Factor[a]	PM2.5 Emission Factor[a]	PM10 (lb/day)[b]	PM2.5 (lb/day)[b]
Soil Handling[c]	CY/day	48	1.75E-03	3.65E-04	0.08	0.02
Bulldozing, Scraping and Grading	hr/day		0.613	0.128	0.00	0.00
Storage Pile Wind Erosion	acres		4.4	0.92	0.00	0.00
Total					**0.08**	**0.02**

a From Table 38

[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

[c] Based on 48 CY per vault

Table 27
Subtransmission Line Construction Emissions
Duct Bank Installation

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	0.69	5.01	3.47	0.01	0.12	0.11	2.9
Onsite Motor Vehicle Exhaust	0.01	0.04	0.09	0.00	0.00	0.00	0.1
Onsite Motor Vehicle Fugitive PM	--	--	--	--	2.08	0.21	
Earthwork Fugitive PM	--	--	--	--	0.17	0.04	
Onsite Total	**0.69**	**5.05**	**3.56**	**0.01**	**2.38**	**0.36**	**3.0**
Offsite Motor Vehicle Exhaust	0.47	3.22	2.97	0.01	0.17	0.13	3.7
Offsite Motor Vehicle Fugitive PM	--	--	--	--	0.44	0.00	
Offsite Total	**0.47**	**3.22**	**2.97**	**0.01**	**0.61**	**0.13**	**3.7**
Total	**1.17**	**8.27**	**6.53**	**0.02**	**2.99**	**0.49**	**6.7**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Compressor Trailer	60	1	7	4
Backhoe/Front Loader	125	1	7	6
Concrete Mixer Truck	350	3	7	2

Construction Equipment Exhaust Emission Factors

Equipment	Horse-power	VOC (lb/hr)[a]	CO (lb/hr)[a]	NOX (lb/hr)[a]	SOX (lb/hr)[a]	PM10 (lb/hr)[a]	PM2.5 (lb/hr)[b]	CO2 (lb/hr)[a]	CH4 (lb/hr)[a]	Category
Compressor Trailer	60	0.058	0.313	0.394	0.001	0.025	0.023	63.607	0.005	Air Compressors
Backhoe/Front Loader	125	0.067	0.584	0.263	0.001	0.001	0.001	101.387	0.006	Tractors/Loaders/Backhoes
Concrete Mixer Truck	350	0.009	0.042	0.054	0.000	0.002	0.002	7.248	0.001	Concrete Mixers

a From Table 34

b Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006, http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

Construction Equipment Daily Criteria Pollutant Exhaust Emissions

Equipment	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Compressor Trailer	0.23	1.25	1.57	0.00	0.10	0.09
Backhoe/Front Loader	0.40	3.51	1.58	0.01	0.01	0.01
Concrete Mixer Truck	0.05	0.25	0.32	0.00	0.01	0.01
Total	**0.69**	**5.01**	**3.47**	**0.01**	**0.12**	**0.11**

a Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

Construction Equipment Total Greenhouse Gas Emissions

Equipment	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Compressor Trailer	0.8	0.0	0.8
Backhoe/Front Loader	1.9	0.0	1.9
Concrete Mixer Truck	0.1	0.0	0.1
Total	**2.9**	**0.0**	**2.9**

a Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 34

b CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Usage

Vehicle	Number	Days Used	Hours Used/ Day	Miles/ Day/ Veh.[a]
Onsite				
1-Ton Truck, 4x4	2	7	N/A	0.6
Dump Truck	2	7	N/A	0.6
Pipe Truck/Trailer	1	7	N/A	0.6
Water Truck	1	7	N/A	0.6
Concrete Mixer Truck	3	7	N/A	0.6
Lowboy Truck/Trailer	1	7	N/A	0.6
Offsite				
1-Ton Truck, 4x4	2	7	N/A	5
Dump Truck	2	7	N/A	5
Pipe Truck/Trailer	1	7	N/A	5
Water Truck	1	7	N/A	5
Concrete Mixer Truck	3	7	N/A	50
Lowboy Truck/Trailer	1	7	N/A	5
Worker Commute	6	7	N/A	60

a Assumes onsite vehicle miles travelled would occur on unpaved areas based on length of underground subtransmission line (1,500 ft) x two trips per day during vault installation (3000 ft / 5,280 ft/mile = 0.6 miles/day).

a Offsite truck travel based on location of Staging Area 1 (0.25 miles from Valley Substation) and up to 10 haul trips per day; offsite concrete mixer truck (vendor) based on estimated 50 mile roundtrip distance; offsite worker commute based on estimated 60 mile roundtrip distance.

VMT estimation basis:	Value	Units	Basis
	0.5	miles/roundtrip/haul truck	Based on roundtrip distance from Valley Substation to Staging Area 1
	10	roundtrips/day/haul truck	Assumption
	5	miles/day/haul truck	Calculation
	60	miles/roundtrip/dump truck	Based on roundtrip distance to/from the San Timoteo Sanitary Landfill
	3	roundtrips/day/dump truck	Assumption
	180	miles/day/dump truck	Calculation
	50	miles/roundtrip/vendor trip	Vendor roundtrip distance, assumption
	60	miles/roundtrip/worker commute	Assumption

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Onsite									
1-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Dump Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Pipe Truck/Trailer	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Water Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Concrete Mixer Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Lowboy Truck/Trailer	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Offsite									
1-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Dump Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Pipe Truck/Trailer	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Water Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Concrete Mixer Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Lowboy Truck/Trailer	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Worker Commute	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

a From Table 35 or Table 36

Table 27
Subtransmission Line Construction Emissions
Duct Bank Installation

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Onsite						
1-Ton Truck, 4x4	0.00	0.01	0.01	0.00	0.00	0.00
Dump Truck	0.00	0.01	0.02	0.00	0.00	0.00
Pipe Truck/Trailer	0.00	0.00	0.01	0.00	0.00	0.00
Water Truck	0.00	0.00	0.01	0.00	0.00	0.00
Concrete Mixer Truck	0.00	0.01	0.03	0.00	0.00	0.00
Lowboy Truck/Trailer	0.00	0.00	0.01	0.00	0.00	0.00
Onsite Total	**0.01**	**0.04**	**0.09**	**0.00**	**0.00**	**0.00**
Offsite						
1-Ton Truck, 4x4	0.01	0.09	0.10	0.00	0.00	0.00
Dump Truck	0.01	0.06	0.15	0.00	0.01	0.01
Pipe Truck/Trailer	0.01	0.03	0.08	0.00	0.00	0.00
Water Truck	0.01	0.03	0.08	0.00	0.00	0.00
Concrete Mixer Truck	0.20	0.91	2.29	0.01	0.12	0.09
Lowboy Truck/Trailer	0.01	0.03	0.08	0.00	0.00	0.00
Worker Commute	0.23	2.07	0.20	0.00	0.03	0.02
Offsite Total	**0.47**	**3.22**	**2.97**	**0.01**	**0.17**	**0.13**
Total	**0.48**	**3.26**	**3.05**	**0.01**	**0.18**	**0.14**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			
1-Ton Truck, 4x4	0.0	0.0	0.0
Dump Truck	0.0	0.0	0.0
Pipe Truck/Trailer	0.0	0.0	0.0
Water Truck	0.0	0.0	0.0
Concrete Mixer Truck	0.0	0.0	0.0
Lowboy Truck/Trailer	0.0	0.0	0.0
Onsite Total	**0.1**	**0.0**	**0.1**
Offsite			
1-Ton Truck, 4x4	0.1	0.0	0.1
Dump Truck	0.1	0.0	0.1
Pipe Truck/Trailer	0.1	0.0	0.1
Water Truck	0.1	0.0	0.1
Concrete Mixer Truck	2.0	0.0	2.0
Lowboy Truck/Trailer	0.1	0.0	0.1
Worker Commute	1.3	0.0	1.3
Offsite Total	**3.7**	**0.0**	**3.7**
Total	**3.8**	**0.0**	**3.8**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle	PM10 Emission Factor (lb/mi)[a]	PM2.5 Emission Factor (lb/mi)[a]	PM10 Emissions (lb/day)[b]	PM2.5 Emissions (lb/day)[b]
Onsite							
1-Ton Truck, 4x4	2	Unpaved - private	0.6	0.367	0.037	0.42	0.04
Dump Truck	2	Unpaved - private	0.6	0.367	0.037	0.42	0.04
Pipe Truck/Trailer	1	Unpaved - private	0.6	0.367	0.037	0.21	0.02
Water Truck	1	Unpaved - private	0.6	0.367	0.037	0.21	0.02
Concrete Mixer Truck	3	Unpaved - private	0.6	0.367	0.037	0.63	0.06
Lowboy Truck/Trailer	1	Unpaved - private	0.6	0.367	0.037	0.21	0.02
Onsite Total						**2.08**	**0.21**
Offsite							
1-Ton Truck, 4x4	2	Paved	5	0.001	0.000	0.01	0.00
Dump Truck	2	Paved	5	0.001	0.000	0.01	0.00
Pipe Truck/Trailer	1	Paved	5	0.001	0.000	0.00	0.00
Water Truck	1	Paved	5	0.001	0.000	0.00	0.00
Concrete Mixer Truck	3	Paved	50	0.001	0.000	0.12	0.00
Lowboy Truck/Trailer	1	Paved	5	0.001	0.000	0.00	0.00
Worker Commute	6	Paved	60	0.001	0.000	0.29	0.00
Offsite Total						**0.44**	**0.00**
Total						**2.52**	**0.21**

[a] Assumes onsite vehicle miles travelled would occur on unpaved areas based on length of underground subtransmission line (1,500 ft) x two trips per day during duct bank installation (3000 ft / 5,280 ft/mile = 0.6 miles/day).
[b] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]
c From Table 36

Earthwork Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM10 Emission Factor[a]	PM2.5 Emission Factor[a]	PM10 (lb/day)[b]	PM2.5 (lb/day)[b]
Soil Handling[c]	CY/day	98	1.75E-03	3.65E-04	0.17	0.04
Bulldozing, Scraping and Grading	hr/day		0.613	0.128	0.00	0.00
Storage Pile Wind Erosion	acres		4.4	0.92	0.00	0.00
Total					**0.17**	**0.04**

a From Table 38
[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]
[c] Based on 490 CY over 5 days

Table 28
Subtransmission Line Construction Emissions
Install Underground Cable

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	3.78	20.92	25.98	0.05	1.28	1.18	4.3
Onsite Motor Vehicle Exhaust	0.01	0.04	0.07	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	1.88	0.19	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
Onsite Total	**3.78**	**20.96**	**26.05**	**0.05**	**3.16**	**1.37**	**4.4**
Offsite Motor Vehicle Exhaust	0.36	3.08	0.87	0.01	0.07	0.05	0.6
Offsite Motor Vehicle Fugitive PM	--	--	--	--	0.42	0.00	
Offsite Total	**0.36**	**3.08**	**0.87**	**0.01**	**0.49**	**0.05**	**0.6**
Total	**4.15**	**24.04**	**26.92**	**0.06**	**3.65**	**1.42**	**5.0**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Manlift/Bucket Truck	250	1	2	6
Boom/Crane Truck	350	1	2	6
Wire Truck/Trailer	10	2	2	6
Pulling Rig	350	1	2	6
Static Truck/Tensioner	350	1	2	6

Construction Equipment Exhaust Emission Factors

Equipment	Horse-power	VOC (lb/hr)[a]	CO (lb/hr)[a]	NOX (lb/hr)[a]	SOX (lb/hr)[a]	PM10 (lb/hr)[a]	PM2.5 (lb/hr)[b]	CO2 (lb/hr)[a]	CH4 (lb/hr)[a]	Category
Manlift/Bucket Truck	250	0.105	0.581	0.722	0.001	0.035	0.033	132.743	0.009	Manlifts
Boom/Crane Truck	350	0.105	0.581	0.722	0.001	0.035	0.033	132.743	0.009	Manlifts
Wire Truck/Trailer	10	0.105	0.581	0.722	0.001	0.035	0.033	132.743	0.009	Manlifts
Pulling Rig	350	0.105	0.581	0.722	0.001	0.035	0.033	132.743	0.009	Manlifts
Static Truck/Tensioner	350	0.105	0.581	0.722	0.001	0.035	0.033	132.743	0.009	Manlifts

a From Table 34

[b] Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006, http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

Construction Equipment Daily Criteria Pollutant Exhaust Emissions

Equipment	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Manlift/Bucket Truck	0.63	3.49	4.33	0.01	0.21	0.20
Boom/Crane Truck	0.63	3.49	4.33	0.01	0.21	0.20
Wire Truck/Trailer	1.26	6.97	8.66	0.02	0.43	0.39
Pulling Rig	0.63	3.49	4.33	0.01	0.21	0.20
Static Truck/Tensioner	0.63	3.49	4.33	0.01	0.21	0.20
Total	**3.78**	**20.92**	**25.98**	**0.05**	**1.28**	**1.18**

[a] Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

Construction Equipment Total Greenhouse Gas Emissions

Equipment	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Manlift/Bucket Truck	0.7	0.0	0.7
Boom/Crane Truck	0.7	0.0	0.7
Wire Truck/Trailer	1.4	0.0	1.4
Pulling Rig	0.7	0.0	0.7
Static Truck/Tensioner	0.7	0.0	0.7
Total	**4.3**	**0.0**	**4.3**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 34

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Usage

Vehicle	Number	Days Used	Hours Used/ Day	Miles/ Day/ Veh.[a]
Onsite				
1-Ton Truck, 4x4	2	2	N/A	0.6
Manlift/Bucket Truck	1	2	N/A	0.6
Boom/Crane Truck	1	2	N/A	0.6
Wire Truck/Trailer	2	2	N/A	0.6
Pulling Rig	1	2	N/A	0.6
Material Handling Truck	1	2	N/A	0.6
Static Truck/Tensioner	1	2	N/A	0.6
Offsite				
1-Ton Truck, 4x4	2	2	4	5
Manlift/Bucket Truck	1	2	6	5
Boom/Crane Truck	1	2	6	5
Wire Truck/Trailer	2	2	6	5
Pulling Rig	1	2	6	5
Material Handling Truck	1	2	8	5
Static Truck/Tensioner	1	2	6	5
Worker Commute	8	2	N/A	60

[a] Assumes onsite vehicle miles travelled would occur on unpaved areas based on length of underground subtransmission line (1,500 ft) x two trips per day during vault installation (3000 ft / 5,280 ft/mile = 0.6 miles/day).

[a] Offsite truck travel based on location of Staging Area 1 (0.25 miles from Valley Substation) and up to 10 haul trips per day; offsite worker commute based on estimated 60 mile roundtrip distance.

VMT estimation basis:	Value	Units	Basis
	0.5	miles/roundtrip/haul truck	Based on roundtrip distance from Valley Substation to Staging Area 1
	10	roundtrips/day/haul truck	Assumption
	5	miles/day/haul truck	Calculation
	60	miles/roundtrip/worker commute	Assumption

Table 28
Subtransmission Line Construction Emissions
Install Underground Cable

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Onsite									
1-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Manlift/Bucket Truck	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Boom/Crane Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Wire Truck/Trailer	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Pulling Rig	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Material Handling Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Static Truck/Tensioner	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Offsite									
1-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Manlift/Bucket Truck	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Boom/Crane Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Wire Truck/Trailer	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Pulling Rig	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Material Handling Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Static Truck/Tensioner	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Worker Commute	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

a From Table 35 or Table 36

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Onsite						
1-Ton Truck, 4x4	0.00	0.01	0.01	0.00	0.00	0.00
Manlift/Bucket Truck	0.00	0.01	0.01	0.00	0.00	0.00
Boom/Crane Truck	0.00	0.00	0.01	0.00	0.00	0.00
Wire Truck/Trailer	0.00	0.01	0.02	0.00	0.00	0.00
Pulling Rig	0.00	0.00	0.01	0.00	0.00	0.00
Material Handling Truck	0.00	0.00	0.01	0.00	0.00	0.00
Static Truck/Tensioner	0.00	0.00	0.01	0.00	0.00	0.00
Onsite Total	**0.01**	**0.04**	**0.07**	**0.00**	**0.00**	**0.00**
Offsite						
1-Ton Truck, 4x4	0.01	0.09	0.10	0.00	0.00	0.00
Manlift/Bucket Truck	0.01	0.05	0.05	0.00	0.00	0.00
Boom/Crane Truck	0.01	0.03	0.08	0.00	0.00	0.00
Wire Truck/Trailer	0.01	0.06	0.15	0.00	0.01	0.01
Pulling Rig	0.01	0.03	0.08	0.00	0.00	0.00
Material Handling Truck	0.01	0.03	0.08	0.00	0.00	0.00
Static Truck/Tensioner	0.01	0.03	0.08	0.00	0.00	0.00
Worker Commute	0.30	2.76	0.27	0.01	0.05	0.03
Offsite Total	**0.36**	**3.08**	**0.87**	**0.01**	**0.07**	**0.05**
Total	**0.37**	**3.12**	**0.94**	**0.01**	**0.08**	**0.06**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			
1-Ton Truck, 4x4	0.0	0.0	0.0
Manlift/Bucket Truck	0.0	0.0	0.0
Boom/Crane Truck	0.0	0.0	0.0
Wire Truck/Trailer	0.0	0.0	0.0
Pulling Rig	0.0	0.0	0.0
Material Handling Truck	0.0	0.0	0.0
Static Truck/Tensioner	0.0	0.0	0.0
Onsite Total	**0.0**	**0.0**	**0.0**
Offsite			
1-Ton Truck, 4x4	0.0	0.0	0.0
Manlift/Bucket Truck	0.0	0.0	0.0
Boom/Crane Truck	0.0	0.0	0.0
Wire Truck/Trailer	0.0	0.0	0.0
Pulling Rig	0.0	0.0	0.0
Material Handling Truck	0.0	0.0	0.0
Static Truck/Tensioner	0.0	0.0	0.0
Worker Commute	0.5	0.0	0.5
Offsite Total	**0.6**	**0.0**	**0.6**
Total	**0.7**	**0.0**	**0.7**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Table 28
Subtransmission Line Construction Emissions
Install Underground Cable

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle	PM10 Emission Factor (lb/mi)[a]	PM2.5 Emission Factor (lb/mi)[a]	PM10 Emissions (lb/day)[b]	PM2.5 Emissions (lb/day)[b]
Onsite							
1-Ton Truck, 4x4	2	Unpaved - private	0.6	0.367	0.037	0.42	0.04
Manlift/Bucket Truck	1	Unpaved - private	0.6	0.367	0.037	0.21	0.02
Boom/Crane Truck	1	Unpaved - private	0.6	0.367	0.037	0.21	0.02
Wire Truck/Trailer	2	Unpaved - private	0.6	0.367	0.037	0.42	0.04
Pulling Rig	1	Unpaved - private	0.6	0.367	0.037	0.21	0.02
Material Handling Truck	1	Unpaved - private	0.6	0.367	0.037	0.21	0.02
Static Truck/Tensioner	1	Unpaved - private	0.6	0.367	0.037	0.21	0.02
Onsite Total						**1.88**	**0.19**
Offsite							
1-Ton Truck, 4x4	2	Paved	5	0.001	0.000	0.01	0.00
Manlift/Bucket Truck	1	Paved	5	0.001	0.000	0.00	0.00
Boom/Crane Truck	1	Paved	5	0.001	0.000	0.00	0.00
Wire Truck/Trailer	2	Paved	5	0.001	0.000	0.01	0.00
Pulling Rig	1	Paved	5	0.001	0.000	0.00	0.00
Material Handling Truck	1	Paved	5	0.001	0.000	0.00	0.00
Static Truck/Tensioner	1	Paved	5	0.001	0.000	0.00	0.00
Worker Commute	8	Paved	60	0.001	0.000	0.38	0.00
Offsite Total						**0.42**	**0.00**
Total						**2.30**	**0.19**

[a] Assumes onsite vehicle miles travelled would occur on unpaved areas based on length of underground subtransmission line (1,500 ft) x two trips per day during UG cable installation (3000 ft / 5,280 ft/mile = 0.6 miles/day).

[b] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

c From Table 36

Earthwork Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM10 Emission Factor[a]	PM2.5 Emission Factor[a]	PM10 (lb/day)[b]	PM2.5 (lb/day)[b]
Soil Handling	CY/day		1.75E-03	3.65E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		0.613	0.128	0.00	0.00
Storage Pile Wind Erosion	acres		4.4	0.92	0.00	0.00
Total					**0.00**	**0.00**

a From Table 38

[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 29
Distribution Relocation Emissions
Relocate Existing Conductor

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	0.84	4.65	5.77	0.01	0.28	0.00	80.6
Onsite Motor Vehicle Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.00	0.00	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
Onsite Total	**0.84**	**4.65**	**5.77**	**0.01**	**0.28**	**0.00**	**80.6**
Offsite Motor Vehicle Exhaust	0.26	1.95	1.14	0.01	0.07	0.05	41.5
Offsite Motor Vehicle Fugitive PM	--	--	--	--	14.32	1.40	
Offsite Total	**0.26**	**1.95**	**1.14**	**0.01**	**14.39**	**1.46**	**41.5**
Total	**1.10**	**6.60**	**6.91**	**0.02**	**14.67**	**1.46**	**122.1**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Bucket Truck	300	1	167	8

Construction Equipment Exhaust Emission Factors

Equipment	Horse-power	VOC (lb/hr)[a]	CO (lb/hr)[a]	NOX (lb/hr)[a]	SOX (lb/hr)[a]	PM10 (lb/hr)[a]	PM2.5 (lb/hr)[b]	CO2 (lb/hr)[a]	CH4 (lb/hr)[a]	Category
Bucket Truck	300	0.105	0.581	0.722	0.001	0.035	0.000	132.743	0.009	Manlifts

a From Table 34

[b] Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006, http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

Construction Equipment Daily Criteria Pollutant Exhaust Emissions

Equipment	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Bucket Truck	0.84	4.65	5.77	0.01	0.28	0.00
Total	**0.84**	**4.65**	**5.77**	**0.01**	**0.28**	**0.00**

[a] Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

Construction Equipment Total Greenhouse Gas Emissions

Equipment	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Bucket Truck	80.4	0.0	80.6
Total	**80.4**	**0.0**	**80.6**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 34

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Usage

Vehicle	Number	Days Used	Hours Used/ Day	Miles/ Day/ Veh.[a]
Onsite				
None				
Offsite				
Foreman Truck	1	167	N/A	15.4
Reel Truck	1	167	N/A	15.4
Bucket Truck	1	167	N/A	15.4
Arrow Board Truck	1	167	N/A	15.4
Flat Bed Truck/Trailer	1	167	N/A	15.4
Worker Commute	4	167	N/A	60

[a] Offsite travel assumed to be 15.4 miles per day, equal to 1/2 total distance of Proposed Project x 2 trips/day; offsite worker commute based on estimated 60 mile roundtrip distance.

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Onsite									
None									
Offsite									
Foreman Truck	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Reel Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Bucket Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Arrow Board Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Flat Bed Truck/Trailer	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Worker Commute	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

a From Table 35 or Table 36

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Onsite						
None	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Offsite						
Foreman Truck	0.02	0.14	0.15	0.00	0.01	0.00
Reel Truck	0.02	0.09	0.24	0.00	0.01	0.01
Bucket Truck	0.02	0.09	0.24	0.00	0.01	0.01
Arrow Board Truck	0.02	0.09	0.24	0.00	0.01	0.01
Flat Bed Truck/Trailer	0.02	0.14	0.15	0.00	0.01	0.00
Worker Commute	0.15	1.38	0.13	0.00	0.02	0.01
Offsite Total	**0.26**	**1.95**	**1.14**	**0.01**	**0.07**	**0.05**
Total	**0.26**	**1.95**	**1.14**	**0.01**	**0.07**	**0.05**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Table 29
Distribution Relocation Emissions
Relocate Existing Conductor

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			
None	0.0	0.0	0.0
Onsite Total	**0.0**	**0.0**	**0.0**
Offsite			
Foreman Truck	3.3	0.0	3.3
Reel Truck	4.9	0.0	4.9
Bucket Truck	4.9	0.0	4.9
Arrow Board Truck	4.9	0.0	4.9
Flat Bed Truck/Trailer	3.3	0.0	3.3
Worker Commute	20.1	0.0	20.1
Offsite Total	**41.5**	**0.0**	**41.5**
Total	**41.5**	**0.0**	**41.5**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle[a]	PM10 Emission Factor (lb/mi)[b]	PM2.5 Emission Factor (lb/mi)[b]	PM10 Emissions (lb/day)[c]	PM2.5 Emissions (lb/day)[c]
Onsite							
None							
Onsite Total						**0.00**	**0.00**
Offsite							
Foreman Truck	1	Paved	8.5	0.001	0.000	0.01	0.00
Reel Truck	1	Paved	8.5	0.001	0.000	0.01	0.00
Bucket Truck	1	Paved	8.5	0.001	0.000	0.01	0.00
Arrow Board Truck	1	Paved	8.5	0.001	0.000	0.01	0.00
Flat Bed Truck/Trailer	1	Paved	8.5	0.001	0.000	0.01	0.00
Foreman Truck	1	Unpaved - private	4.2	0.367	0.037	1.54	0.15
Reel Truck	1	Unpaved - private	4.2	0.367	0.037	1.54	0.15
Bucket Truck	1	Unpaved - private	4.2	0.367	0.037	1.54	0.15
Arrow Board Truck	1	Unpaved - private	4.2	0.367	0.037	1.54	0.15
Flat Bed Truck/Trailer	1	Unpaved - private	4.2	0.367	0.037	1.54	0.15
Foreman Truck	1	Unpaved - public	2.7	0.473	0.047	1.28	0.13
Reel Truck	1	Unpaved - public	2.7	0.473	0.047	1.28	0.13
Bucket Truck	1	Unpaved - public	2.7	0.473	0.047	1.28	0.13
Arrow Board Truck	1	Unpaved - public	2.7	0.473	0.047	1.28	0.13
Flat Bed Truck/Trailer	1	Unpaved - public	2.7	0.473	0.047	1.28	0.13
Worker Commute	4	Paved	60	0.001	0.000	0.19	0.00
Offsite Total						**14.32**	**1.40**
Total						**14.32**	**1.40**

a Of the 15.4 mile alignment, 8.5 miles occur on paved roadways and 6.9 miles occur on unpaved roadways (2.7 miles are unpaved public roadways and 4.2 miles are unpaved private roadways). Daily VMT per vehicle assumes 1/2 total distance of Proposed Project x 2 trips per day.

b From Table 36

[c] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Earthwork Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM10 Emission Factor[a]	PM2.5 Emission Factor[a]	PM10 (lb/day)[b]	PM2.5 (lb/day)[b]
Soil Handling	CY/day		1.75E-03	3.65E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		0.613	0.128	0.00	0.00
Storage Pile Wind Erosion	acres		4.4	0.92	0.00	0.00
Total					**0.00**	**0.00**

a From Table 38

[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 30
Distribution Relocation Emissions
Wood Pole Removal

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	0.84	4.65	5.77	0.01	0.28	0.00	19.8
Onsite Motor Vehicle Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.00	0.00	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
Onsite Total	**0.84**	**4.65**	**5.77**	**0.01**	**0.28**	**0.00**	**19.8**
Offsite Motor Vehicle Exhaust	0.18	1.36	0.77	0.00	0.05	0.04	7.2
Offsite Motor Vehicle Fugitive PM	--	--	--	--	7.50	0.73	
Offsite Total	**0.18**	**1.36**	**0.77**	**0.00**	**7.55**	**0.77**	**7.2**
Total	**1.02**	**6.01**	**6.54**	**0.02**	**7.83**	**0.77**	**26.9**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Lineman/Boom Truck	300	1	41	8

Construction Equipment Exhaust Emission Factors

Equipment	Horse-power	VOC (lb/hr)[a]	CO (lb/hr)[a]	NOX (lb/hr)[a]	SOX (lb/hr)[a]	PM10 (lb/hr)[a]	PM2.5 (lb/hr)[b]	CO2 (lb/hr)[a]	CH4 (lb/hr)[a]	Category
Lineman/Boom Truck	300	0.105	0.581	0.722	0.001	0.035	0.000	132.743	0.009	Manlifts

a From Table 34

[b] Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006, http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

Construction Equipment Daily Criteria Pollutant Exhaust Emissions

Equipment	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Lineman/Boom Truck	0.84	4.65	5.77	0.01	0.28	0.00
Total	**0.84**	**4.65**	**5.77**	**0.01**	**0.28**	**0.00**

[a] Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

Construction Equipment Total Greenhouse Gas Emissions

Equipment	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Lineman/Boom Truck	19.7	0.0	19.8
Total	**19.7**	**0.0**	**19.8**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 34

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Usage

Vehicle	Number	Days Used	Hours Used/ Day	Miles/ Day/ Veh.[a]
Onsite				
None				
Offsite				
Foreman Truck	1	41	8	12
Lineman/Boom Truck	1	41	8	12
Flat Bed Truck/Trailer	1	41	8	12
Arrowhead Trailer	1	41	8	12
Worker Commute	3	41	N/A	60

[a] Offsite travel assumed to be 12 miles per day, equal to 1/2 total distance of Segment 1 of the Proposed Project x 2 trips/day; offsite worker commute based on estimated 60 mile roundtrip distance.

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Onsite									
None									
Offsite									
Foreman Truck	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Lineman/Boom Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Flat Bed Truck/Trailer	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Arrowhead Trailer	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Worker Commute	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

a From Table 35 or Table 36

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Onsite						
None	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Offsite						
Foreman Truck	0.02	0.11	0.12	0.00	0.00	0.00
Lineman/Boom Truck	0.02	0.07	0.18	0.00	0.01	0.01
Flat Bed Truck/Trailer	0.02	0.07	0.18	0.00	0.01	0.01
Arrowhead Trailer	0.02	0.07	0.18	0.00	0.01	0.01
Worker Commute	0.11	1.04	0.10	0.00	0.02	0.01
Offsite Total	**0.18**	**1.36**	**0.77**	**0.00**	**0.05**	**0.04**
Total	**0.18**	**1.36**	**0.77**	**0.00**	**0.05**	**0.04**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Table 30
Distribution Relocation Emissions
Wood Pole Removal

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			
None	0.0	0.0	0.0
Onsite Total	**0.0**	**0.0**	**0.0**
Offsite			
Foreman Truck	0.6	0.0	0.6
Lineman/Boom Truck	0.9	0.0	0.9
Flat Bed Truck/Trailer	0.9	0.0	0.9
Arrowhead Trailer	0.9	0.0	0.9
Worker Commute	3.7	0.0	3.7
Offsite Total	**7.2**	**0.0**	**7.2**
Total	**7.2**	**0.0**	**7.2**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle[a]	PM10 Emission Factor (lb/mi)[b]	PM2.5 Emission Factor (lb/mi)[b]	PM10 Emissions (lb/day)[c]	PM2.5 Emissions (lb/day)[c]
Onsite							
None							
Onsite Total						**0.00**	**0.00**
Offsite							
Foreman Truck	1	Paved	7.7	0.001	0.000	0.01	0.00
Lineman/Boom Truck	1	Paved	7.7	0.001	0.000	0.01	0.00
Flat Bed Truck/Trailer	1	Paved	7.7	0.001	0.000	0.01	0.00
Arrowhead Trailer	1	Paved	7.7	0.001	0.000	0.01	0.00
Foreman Truck	1	Unpaved - private	1.9	0.367	0.037	0.70	0.07
Lineman/Boom Truck	1	Unpaved - private	1.9	0.367	0.037	0.70	0.07
Flat Bed Truck/Trailer	1	Unpaved - private	1.9	0.367	0.037	0.70	0.07
Arrowhead Trailer	1	Unpaved - private	1.9	0.367	0.037	0.70	0.07
Foreman Truck	1	Unpaved - public	2.4	0.473	0.047	1.14	0.11
Lineman/Boom Truck	1	Unpaved - public	2.4	0.473	0.047	1.14	0.11
Flat Bed Truck/Trailer	1	Unpaved - public	2.4	0.473	0.047	1.14	0.11
Arrowhead Trailer	1	Unpaved - public	2.4	0.473	0.047	1.14	0.11
Worker Commute	3	Paved	60	0.001	0.000	0.14	0.00
Offsite Total						**7.50**	**0.73**
Total						**7.50**	**0.73**

roadways). Daily VMT per vehicle assumes 1/2 total distance of Proposed Project x 2 trips per day. No additional wood pole removal work is required along the 3.4 miles associated with Segment 2 of the Proposed Project.

b From Table 36

[c] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Earthwork Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM10 Emission Factor[a]	PM2.5 Emission Factor[a]	PM10 (lb/day)[b]	PM2.5 (lb/day)[b]
Soil Handling	CY/day		1.75E-03	3.65E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		0.613	0.128	0.00	0.00
Storage Pile Wind Erosion	acres		4.4	0.92	0.00	0.00
Total					**0.00**	**0.00**

a From Table 38

[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 31
Distribution Relocation Emissions
Install Distribution Underground Cable

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	1.83	10.68	10.62	0.03	0.33	0.31	28.4
Onsite Motor Vehicle Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.00	0.00	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
Onsite Total	**1.83**	**10.68**	**10.62**	**0.03**	**0.33**	**0.31**	**28.4**
Offsite Motor Vehicle Exhaust	0.38	3.04	1.32	0.01	0.09	0.07	7.0
Offsite Motor Vehicle Fugitive PM	--	--	--	--	13.21	1.28	
Offsite Total	**0.38**	**3.04**	**1.32**	**0.01**	**13.30**	**1.35**	**7.0**
Total	**2.21**	**13.72**	**11.94**	**0.04**	**13.63**	**1.65**	**35.4**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Reel Truck	300	1	20	8
Rodder Truck	35	1	20	8
Concrete Mixer Truck	350	1	20	8
Backhoe/Front Loader	125	1	20	8

Construction Equipment Exhaust Emission Factors

Equipment	Horse-power	VOC (lb/hr)[a]	CO (lb/hr)[a]	NOX (lb/hr)[a]	SOX (lb/hr)[a]	PM10 (lb/hr)[a]	PM2.5 (lb/hr)[b]	CO2 (lb/hr)[a]	CH4 (lb/hr)[a]	Category
Reel Truck	300	0.112	0.474	0.800	0.002	0.028	0.025	254.238	0.010	Other Construction Equipment
Rodder Truck	35	0.041	0.234	0.210	0.000	0.011	0.010	27.990	0.004	Other Construction Equipment
Concrete Mixer Truck	350	0.009	0.042	0.054	0.000	0.002	0.002	7.248	0.001	Concrete Mixers
Backhoe/Front Loader	125	0.067	0.584	0.263	0.001	0.001	0.001	101.387	0.006	Tractors/Loaders/Backhoes

a From Table 34

[b] Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006, http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

Construction Equipment Daily Criteria Pollutant Exhaust Emissions

Equipment	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Reel Truck	0.90	3.79	6.40	0.02	0.22	0.20
Rodder Truck	0.33	1.87	1.68	0.00	0.09	0.08
Concrete Mixer Truck	0.07	0.33	0.43	0.00	0.02	0.02
Backhoe/Front Loader	0.54	4.68	2.10	0.01	0.01	0.01
Total	**1.83**	**10.68**	**10.62**	**0.03**	**0.33**	**0.31**

[a] Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

Construction Equipment Total Greenhouse Gas Emissions

Equipment	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Reel Truck	18.5	0.0	18.5
Rodder Truck	2.0	0.0	2.0
Concrete Mixer Truck	0.5	0.0	0.5
Backhoe/Front Loader	7.4	0.0	7.4
Total	**28.4**	**0.0**	**28.4**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 34

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Usage

Vehicle	Number	Days Used	Hours Used/ Day	Miles/ Day/ Veh.[a]
Onsite				
None				
Offsite				
Crew Truck	1	20	8	12
Foreman Truck	1	20	8	12
Reel Truck	1	20	8	12
Rodder Truck	1	20	8	12
Concrete Mixer Truck	1	20	N/A	12
1-Ton Truck, 4x4	1	20	N/A	12
Lowboy Truck/Trailer	1	20	N/A	12
Worker Commute	7	20	N/A	60

[a] Offsite travel assumed to be 12 miles per day, equal to 1/2 total distance of Segment 1 of the Proposed Project x 2 trips/day; offsite worker commute based on estimated 60 mile roundtrip distance.

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Onsite									
None									
Offsite									
Crew Truck	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Foreman Truck	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Reel Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Rodder Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Concrete Mixer Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
1-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Lowboy Truck/Trailer	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Worker Commute	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

a From Table 35 or Table 36

Table 31
Distribution Relocation Emissions
Install Distribution Underground Cable

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Onsite						
None	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Offsite						
Crew Truck	0.02	0.11	0.12	0.00	0.00	0.00
Foreman Truck	0.02	0.11	0.12	0.00	0.00	0.00
Reel Truck	0.02	0.07	0.18	0.00	0.01	0.01
Rodder Truck	0.02	0.07	0.18	0.00	0.01	0.01
Concrete Mixer Truck	0.02	0.07	0.18	0.00	0.01	0.01
1-Ton Truck, 4x4	0.02	0.11	0.12	0.00	0.00	0.00
Lowboy Truck/Trailer	0.02	0.07	0.18	0.00	0.01	0.01
Worker Commute	0.27	2.42	0.23	0.00	0.04	0.03
Offsite Total	**0.38**	**3.04**	**1.32**	**0.01**	**0.09**	**0.07**
Total	**0.38**	**3.04**	**1.32**	**0.01**	**0.09**	**0.07**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			
None	0.0	0.0	0.0
Onsite Total	**0.0**	**0.0**	**0.0**
Offsite			
Crew Truck	0.3	0.0	0.3
Foreman Truck	0.3	0.0	0.3
Reel Truck	0.5	0.0	0.5
Rodder Truck	0.5	0.0	0.5
Concrete Mixer Truck	0.5	0.0	0.5
1-Ton Truck, 4x4	0.3	0.0	0.3
Lowboy Truck/Trailer	0.5	0.0	0.5
Worker Commute	4.2	0.0	4.2
Offsite Total	**7.0**	**0.0**	**7.0**
Total	**7.0**	**0.0**	**7.0**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle[a]	PM10 Emission Factor (lb/mi)[b]	PM2.5 Emission Factor (lb/mi)[b]	PM10 Emissions (lb/day)[c]	PM2.5 Emissions (lb/day)[c]
Onsite							
None							
Onsite Total						**0.00**	**0.00**
Offsite							
Crew Truck	1	Paved	7.7	0.001	0.000	0.01	0.00
Foreman Truck	1	Paved	7.7	0.001	0.000	0.01	0.00
Reel Truck	1	Paved	7.7	0.001	0.000	0.01	0.00
Rodder Truck	1	Paved	7.7	0.001	0.000	0.01	0.00
Concrete Mixer Truck	1	Paved	7.7	0.001	0.000	0.01	0.00
1-Ton Truck, 4x4	1	Paved	7.7	0.001	0.000	0.01	0.00
Lowboy Truck/Trailer	1	Paved	7.7	0.001	0.000	0.01	0.00
Crew Truck	1	Unpaved - private	1.9	0.367	0.037	0.70	0.07
Foreman Truck	1	Unpaved - private	1.9	0.367	0.037	0.70	0.07
Reel Truck	1	Unpaved - private	1.9	0.367	0.037	0.70	0.07
Rodder Truck	1	Unpaved - private	1.9	0.367	0.037	0.70	0.07
Concrete Mixer Truck	1	Unpaved - private	1.9	0.367	0.037	0.70	0.07
1-Ton Truck, 4x4	1	Unpaved - private	1.9	0.367	0.037	0.70	0.07
Lowboy Truck/Trailer	1	Unpaved - private	1.9	0.367	0.037	0.70	0.07
Crew Truck	1	Unpaved - public	2.4	0.473	0.047	1.14	0.11
Foreman Truck	1	Unpaved - public	2.4	0.473	0.047	1.14	0.11
Reel Truck	1	Unpaved - public	2.4	0.473	0.047	1.14	0.11
Rodder Truck	1	Unpaved - public	2.4	0.473	0.047	1.14	0.11
Concrete Mixer Truck	1	Unpaved - public	2.4	0.473	0.047	1.14	0.11
1-Ton Truck, 4x4	1	Unpaved - public	2.4	0.473	0.047	1.14	0.11
Lowboy Truck/Trailer	1	Unpaved - public	2.4	0.473	0.047	1.14	0.11
Worker Commute	7	Paved	60	0.001	0.000	0.34	0.00
Offsite Total						**13.21**	**1.28**
Total						**13.21**	**1.28**

a For Segment 1 of the Proposed Project, 7.7 miles occur on paved roadways and 4.3 miles occur on unpaved roadways (2.4 miles are unpaved public roadways and 1.9 miles are unpaved private roadways). Daily VMT per vehicle assumes 1/2 total distance of Proposed Project x 2 trips per day. No additional UG cable is required along the 3.4 miles associated with Segment 2 of the Proposed Project.

b From Table 36

[c] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Earthwork Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM10 Emission Factor[a]	PM2.5 Emission Factor[a]	PM10 (lb/day)[b]	PM2.5 (lb/day)[b]
Soil Handling	CY/day		1.75E-03	3.65E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		0.613	0.128	0.00	0.00
Storage Pile Wind Erosion	acres		4.4	0.92	0.00	0.00
Total					**0.00**	**0.00**

a From Table 38

[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 32
Telecommunications Construction
Control Building Communications Room

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	1.68	9.30	11.55	0.02	0.57	0.00	3.9
Onsite Motor Vehicle Exhaust	0.09	0.48	0.81	0.00	0.04	0.03	0.4
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.01	0.00	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
Onsite Total	**1.77**	**9.78**	**12.36**	**0.03**	**0.62**	**0.03**	**4.3**
Offsite Motor Vehicle Exhaust	0.33	2.81	0.73	0.01	0.06	0.05	1.1
Offsite Motor Vehicle Fugitive PM	--	--	--	--	0.38	0.00	
Offsite Total	**0.33**	**2.81**	**0.73**	**0.01**	**0.45**	**0.05**	**1.1**
Total	**2.10**	**12.60**	**13.09**	**0.03**	**1.07**	**0.08**	**5.4**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Bucket Truck	300	2	4	8

Construction Equipment Exhaust Emission Factors

Equipment	Horse-power	VOC (lb/hr)[a]	CO (lb/hr)[a]	NOX (lb/hr)[a]	SOX (lb/hr)[a]	PM10 (lb/hr)[a]	PM2.5 (lb/hr)[b]	CO2 (lb/hr)[a]	CH4 (lb/hr)[a]	Category
Bucket Truck	300	0.105	0.581	0.722	0.001	0.035	0.000	132.743	0.009	Manlifts

a From Table 34

[b] Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006, http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

Construction Equipment Daily Criteria Pollutant Exhaust Emissions

Equipment	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Bucket Truck	1.68	9.30	11.55	0.02	0.57	0.00
Total	**1.68**	**9.30**	**11.55**	**0.02**	**0.57**	**0.00**

[a] Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

Construction Equipment Total Greenhouse Gas Emissions

Equipment	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Bucket Truck	3.9	0.0	3.9
Total	**3.9**	**0.0**	**3.9**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 34

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Usage

Vehicle	Number	Days Used	Hours Used/ Day	Miles/ Day/ Veh.[a]
Onsite				
Bucket Truck	2	4	8	20
Crew Truck	1	4	8	20
Van	2	2	2	5
Offsite				
Bucket Truck	2	4	8	12
Crew Truck	1	4	8	12
Van	2	2	6	12
Worker Commute	7	4	N/A	60

[a] Onsite travel based hours of operation x 10 mph x 25% usage factor.

[a] Offsite travel assumed to be 12 miles per day, equal to 1/2 total distance of Segment 1 of the Proposed Project x 2 trips/day; offsite worker commute based on estimated 60 mile roundtrip distance.

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Onsite									
Bucket Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Crew Truck	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Van	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05
Offsite									
Bucket Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Crew Truck	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Van	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05
Worker Commute	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

a From Table 35 or Table 36

Table 32
Telecommunications Construction
Control Building Communications Room

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Onsite						
Bucket Truck	0.05	0.24	0.61	0.00	0.03	0.02
Crew Truck	0.03	0.18	0.20	0.00	0.01	0.01
Van	0.01	0.06	0.01	0.00	0.00	0.00
Onsite Total	**0.09**	**0.48**	**0.81**	**0.00**	**0.04**	**0.03**
Offsite						
Bucket Truck	0.03	0.15	0.37	0.00	0.02	0.01
Crew Truck	0.02	0.11	0.12	0.00	0.00	0.00
Van	0.02	0.14	0.01	0.00	0.00	0.00
Worker Commute	0.27	2.42	0.23	0.00	0.04	0.03
Offsite Total	**0.33**	**2.81**	**0.73**	**0.01**	**0.06**	**0.05**
Total	**0.42**	**3.30**	**1.54**	**0.01**	**0.10**	**0.08**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			
Bucket Truck	0.3	0.0	0.3
Crew Truck	0.1	0.0	0.1
Van	0.0	0.0	0.0
Onsite Total	**0.4**	**0.0**	**0.4**
Offsite			
Bucket Truck	0.2	0.0	0.2
Crew Truck	0.1	0.0	0.1
Van	0.0	0.0	0.0
Worker Commute	0.8	0.0	0.8
Offsite Total	**1.1**	**0.0**	**1.1**
Total	**1.5**	**0.0**	**1.5**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle	PM10 Emission Factor (lb/mi)[a]	PM2.5 Emission Factor (lb/mi)[a]	PM10 Emissions (lb/day)[b]	PM2.5 Emissions (lb/day)[b]
Onsite							
Bucket Truck	2	Paved	20	0.001	0.000	0.03	0.00
Crew Truck	1	Paved	20	0.001	0.000	0.02	0.00
Van	2	Paved	5	0.001	0.000	0.01	0.00
Onsite Total						**0.01**	**0.00**
Offsite							
Bucket Truck	2	Paved	12	0.001	0.000	0.02	0.00
Crew Truck	1	Paved	12	0.001	0.000	0.01	0.00
Van	2	Paved	12	0.001	0.000	0.02	0.00
Worker Commute	7	Paved	60	0.001	0.000	0.34	0.00
Offsite Total						**0.38**	**0.00**
Total						**0.39**	**0.00**

a From Table 37

[b] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Earthwork Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM10 Emission Factor[a]	PM2.5 Emission Factor[a]	PM10 (lb/day)[b]	PM2.5 (lb/day)[b]
Soil Handling	CY/day		1.75E-03	3.65E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		0.613	0.128	0.00	0.00
Storage Pile Wind Erosion	acres		4.4	0.92	0.00	0.00
Total					**0.00**	**0.00**

a From Table 38

[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 33
Operational Emissions

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT/yr)
Motor Vehicle Exhaust	0.04	0.35	0.03	0.00	0.01	0.00	0
Motor Vehicle Fugitive PM	--	--	--	--	7.14	0.71	--
SF6 Leakage	--	--	--	--	--	--	9
Total	**0.04**	**0.35**	**0.03**	**0.00**	**7.14**	**0.71**	**10**
SCAQMD CEQA Thresholds	55	550	55	150	150	55	
Would the Proposed Project Exceed the Thresholds (Y/N)?	N	N	N	N	N	N	

Motor Vehicle Usage

Vehicle	Number	Days Used/ Year	Miles/ Day/ Veh.
Subtransmission Line Inspection	1	2	60

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Subtransmission Line Inspection	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

a From Table 35 or Table 36

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Subtransmission Line Inspection	0.04	0.35	0.03	0.00	0.01	0.00
Total	**0.04**	**0.35**	**0.03**	**0.00**	**0.01**	**0.00**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Motor Vehicle Annual Greenhouse Gas Emissions

Vehicle	CO2 (MT/yr)[a]	CH4 (MT/yr)[a]	CO2e (MT/yr)[b]
Subtransmission Line Inspection	0.1	0.0	0.1
Total	**0.1**	**0.0**	**0.1**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle	PM10 Emission Factor (lb/mi)[a]	PM2.5 Emission Factor (lb/mi)[a]	PM10 Emissions (lb/day)[b]	PM2.5 Emissions (lb/day)[b]
Subtransmission Line Inspection	1	Paved	45	0.001	0.000	0.04	0.00
Subtransmission Line Inspection	1	Unpaved - publ	15	0.473	0.047	7.10	0.71
Total						**7.14**	**0.71**

a From Table 37

[b] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

SF6 Leakage Greenhouse Gas Emissions

Item	Value	Units
Total SF6	180	pounds
SF6 Leakage Rate	0.5	%/year
SF6 Emissions	0.9	pounds
SF6 Global Warming Potential[a]	23,200	
CO2e Emissions[b]	**9**	**MT/yr**

[a] Based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008.
http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

[b] CO_2e emissions [metric tons] = SF_6 emissions [lb] x Global warming potential [lb CO_2e/lb SF_6] x 453.6 [g/lb] / 1,000,000 [g/MT]

Table 34
SCAB Emission Factors (Diesel) - Model Year 2014

CY 2018

Air Basin	SC

		(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)
Equipment	**MaxHP**	**ROG**	**CO**	**NOX**	**SOX**	**PM**	**CO2**	**CH4**
Aerial Lifts	15	0.0101	0.0528	0.0631	0.0001	0.0025	8.7	0.0009
	25	0.0143	0.0468	0.0865	0.0001	0.0039	11.0	0.0013
	50	0.0336	0.1506	0.0875	0.0003	0.0003	19.6	0.0030
	120	0.0327	0.2319	0.1251	0.0004	0.0005	38.1	0.0029
	500	0.0840	0.3899	0.8852	0.0021	0.0270	213	0.0076
	750	0.1545	0.7049	1.6423	0.0039	0.0494	385	0.0139
Aerial Lifts Composite		0.0322	0.1740	0.2152	0.0004	0.0119	34.7	0.0029
Air Compressors	15	0.0098	0.0456	0.0608	0.0001	0.0033	7.2	0.0009
	25	0.0207	0.0645	0.1187	0.0002	0.0060	14.4	0.0019
	50	0.0518	0.2142	0.1848	0.0003	0.0131	22.3	0.0047
	120	0.0504	0.3097	0.3370	0.0006	0.0255	47.0	0.0045
	175	0.0685	0.4994	0.5069	0.0010	0.0268	88.5	0.0062
	250	0.0747	0.2653	0.6529	0.0015	0.0206	131	0.0067
	500	0.1262	0.4504	1.0161	0.0023	0.0345	232	0.0114
	750	0.1960	0.6961	1.6134	0.0036	0.0540	358	0.0177
	1000	0.2958	1.0416	3.7257	0.0049	0.0965	486	0.0267
Air Compressors Composite		0.0582	0.3130	0.3935	0.0007	0.0246	63.6	0.0052
Bore/Drill Rigs	15	0.0120	0.0632	0.0754	0.0002	0.0029	10.3	0.0011
	25	0.0193	0.0658	0.1219	0.0002	0.0046	16.0	0.0017
	50	0.0204	0.2211	0.1290	0.0004	0.0005	31.0	0.0018
	120	0.0308	0.4665	0.2298	0.0009	0.0010	77.1	0.0028
	175	0.0475	0.7542	0.3542	0.0016	0.0015	141	0.0043
	250	0.0538	0.3426	0.0617	0.0021	0.0022	188	0.0049
	500	0.0887	0.5512	0.0957	0.0031	0.0034	311	0.0080
	750	0.1755	1.0891	0.1865	0.0062	0.0066	615	0.0158
	1000	0.2789	1.6441	2.3704	0.0093	0.0585	928	0.0252
Bore/Drill Rigs Composite		0.0539	0.5011	0.4175	0.0017	0.0099	165	0.0049
Cement and Mortar Mixers	15	0.0074	0.0386	0.0461	0.0001	0.0018	6.3	0.0007
	25	0.0232	0.0754	0.1391	0.0002	0.0064	17.6	0.0021
Cement and Mortar Mixers Composite		0.0087	0.0416	0.0538	0.0001	0.0022	7.2	0.0008
Concrete/Industrial Saws	25	0.0199	0.0678	0.1256	0.0002	0.0047	16.5	0.0018
	50	0.0549	0.2534	0.2388	0.0004	0.0148	30.2	0.0050
	120	0.0650	0.4661	0.4898	0.0009	0.0335	74.1	0.0059
	175	0.1012	0.8661	0.8304	0.0018	0.0410	160	0.0091
Concrete/Industrial Saws Composite		0.0605	0.3850	0.3959	0.0007	0.0261	58.5	0.0055
Cranes	50	0.0646	0.2527	0.0698	0.0003	0.0003	23.2	0.0058
	120	0.0639	0.3486	0.1547	0.0006	0.0007	50.1	0.0058
	175	0.0752	0.4766	0.2118	0.0009	0.0009	80.3	0.0068
	250	0.0787	0.2521	0.0353	0.0013	0.0012	112	0.0071
	500	0.1202	0.4085	0.0550	0.0018	0.0019	180	0.0108
	750	0.2034	0.6869	0.0911	0.0030	0.0032	303	0.0184
	9999	0.7422	2.3933	7.8338	0.0098	0.2146	971	0.0670
Cranes Composite		0.1012	0.4060	0.7908	0.0014	0.0318	129	0.0091
Crawler Tractors	50	0.0813	0.2884	0.1353	0.0003	0.0005	24.9	0.0073
	120	0.0945	0.4679	0.2126	0.0008	0.0010	65.8	0.0085
	175	0.1270	0.7327	0.3068	0.0014	0.0014	121	0.0115
	250	0.1333	0.4179	0.0518	0.0019	0.0018	166	0.0120
	500	0.1959	0.7202	0.0893	0.0025	0.0032	259	0.0177
	750	0.3529	1.2889	0.1393	0.0047	0.0050	465	0.0318
	1000	0.5380	2.0171	5.7362	0.0066	0.1663	658	0.0485
Crawler Tractors Composite		0.1185	0.5387	0.7960	0.0013	0.0457	114	0.0107
Crushing/Proc. Equipment	50	0.0949	0.4230	0.3607	0.0006	0.0241	44.0	0.0086
	120	0.0849	0.5506	0.5679	0.0010	0.0416	83.1	0.0077
	175	0.1258	0.9520	0.8975	0.0019	0.0475	167	0.0113
	250	0.1386	0.4932	1.1284	0.0028	0.0359	245	0.0125

Table 34
SCAB Emission Factors (Diesel) - Model Year 2014

CY 2018

Air Basin	SC

Equipment	MaxHP	ROG (lb/hr)	CO (lb/hr)	NOX (lb/hr)	SOX (lb/hr)	PM (lb/hr)	CO2 (lb/hr)	CH4 (lb/hr)
	500	0.2037	0.7231	1.5205	0.0037	0.0524	374	0.0184
	750	0.3193	1.1368	2.4441	0.0059	0.0824	589	0.0288
	9999	0.8312	2.7569	9.5902	0.0131	0.2467	1,308	0.0750
Crushing/Proc. Equipment Composite		0.1109	0.6328	0.7330	0.0015	0.0412	132	0.0100
Dumpers/Tenders	25	0.0092	0.0314	0.0584	0.0001	0.0023	7.6	0.0008
Dumpers/Tenders Composite		0.0092	0.0314	0.0584	0.0001	0.0023	7.6	0.0008
Excavators	25	0.0198	0.0677	0.1253	0.0002	0.0047	16.4	0.0018
	50	0.0468	0.2521	0.0883	0.0003	0.0004	25.0	0.0042
	120	0.0693	0.5017	0.1773	0.0009	0.0008	73.6	0.0063
	175	0.0824	0.6641	0.2730	0.0013	0.0012	112	0.0074
	250	0.0933	0.3323	0.0501	0.0018	0.0018	159	0.0084
	500	0.1339	0.4689	0.0748	0.0023	0.0027	234	0.0121
	750	0.2224	0.7769	0.1381	0.0039	0.0050	387	0.0201
Excavators Composite		0.0848	0.5160	0.5181	0.0013	0.0249	120	0.0077
Forklifts	50	0.0229	0.1440	0.0523	0.0002	0.0002	14.7	0.0021
	120	0.0265	0.2118	0.0914	0.0004	0.0004	31.2	0.0024
	175	0.0394	0.3322	0.1410	0.0006	0.0006	56.1	0.0036
	250	0.0440	0.1559	0.0255	0.0009	0.0009	77.1	0.0040
	500	0.0623	0.2131	0.0458	0.0011	0.0016	111	0.0056
Forklifts Composite		0.0372	0.2173	0.2186	0.0006	0.0101	54.4	0.0034
Generator Sets	15	0.0123	0.0644	0.0852	0.0002	0.0043	10.2	0.0011
	25	0.0231	0.0788	0.1449	0.0002	0.0070	17.6	0.0021
	50	0.0491	0.2265	0.2357	0.0004	0.0138	30.6	0.0044
	120	0.0642	0.4694	0.5181	0.0009	0.0333	77.9	0.0058
	175	0.0808	0.7324	0.7528	0.0016	0.0337	142	0.0073
	250	0.0857	0.3931	0.9756	0.0024	0.0274	213	0.0077
	500	0.1264	0.6113	1.3836	0.0033	0.0415	337	0.0114
	750	0.2080	0.9868	2.2918	0.0055	0.0679	544	0.0188
	9999	0.5230	2.0948	7.5356	0.0105	0.1778	1,049	0.0472
Generator Sets Composite		0.0477	0.2786	0.3759	0.0007	0.0192	61.0	0.0043
Graders	50	0.0676	0.2868	0.1084	0.0004	0.0005	27.5	0.0061
	120	0.0860	0.5138	0.1594	0.0009	0.0008	75.0	0.0078
	175	0.1059	0.7294	0.2900	0.0014	0.0013	124	0.0096
	250	0.1115	0.3778	0.0491	0.0019	0.0018	172	0.0101
	500	0.1420	0.5194	0.0687	0.0023	0.0025	229	0.0128
	750	0.3024	1.0988	2.1820	0.0049	0.0774	486	0.0273
Graders Composite		0.1049	0.5812	0.7217	0.0015	0.0355	133	0.0095
Off-Highway Tractors	120	0.1622	0.6879	0.2084	0.0011	0.0010	93.7	0.0146
	175	0.1614	0.8085	0.3365	0.0015	0.0015	130	0.0146
	250	0.1275	0.3861	0.2085	0.0015	0.0075	130	0.0115
	750	0.5173	2.0914	0.0901	0.0057	0.0032	568	0.0467
	1000	0.7842	3.2770	8.0820	0.0082	0.2526	814	0.0708
Off-Highway Tractors Composite		0.1631	0.6762	1.2293	0.0017	0.0579	151	0.0147
Off-Highway Trucks	175	0.0983	0.7542	0.3086	0.0014	0.0016	125	0.0089
	250	0.1042	0.3572	0.0484	0.0019	0.0019	167	0.0094
	500	0.1656	0.5578	0.0928	0.0027	0.0036	272	0.0149
	750	0.2693	0.9044	0.1468	0.0044	0.0057	442	0.0243
	1000	0.4058	1.3339	1.7434	0.0063	0.0484	625	0.0366
Off-Highway Trucks Composite		0.1613	0.5634	1.0525	0.0027	0.0360	260	0.0146
Other Construction Equipment	15	0.0118	0.0617	0.0737	0.0002	0.0029	10.1	0.0011
	25	0.0159	0.0544	0.1008	0.0002	0.0038	13.2	0.0014
	50	0.0412	0.2342	0.2102	0.0004	0.0108	28.0	0.0037
	120	0.0604	0.5116	0.4573	0.0009	0.0279	80.9	0.0054
	175	0.0608	0.5859	0.4478	0.0012	0.0218	107	0.0055
	500	0.1122	0.4743	0.8004	0.0025	0.0275	254	0.0101

Table 34
SCAB Emission Factors (Diesel) - Model Year 2014

CY 2018

Air Basin	SC

Equipment	MaxHP	ROG (lb/hr)	CO (lb/hr)	NOX (lb/hr)	SOX (lb/hr)	PM (lb/hr)	CO2 (lb/hr)	CH4 (lb/hr)
Other Construction Equipment Composite		0.0633	0.3542	0.4478	0.0013	0.0181	123	0.0057
Other General Industrial Equipmen	15	0.0066	0.0391	0.0466	0.0001	0.0018	6.4	0.0006
	25	0.0185	0.0632	0.1170	0.0002	0.0044	15.3	0.0017
	50	0.0548	0.2314	0.0823	0.0003	0.0003	21.7	0.0049
	120	0.0732	0.4277	0.1464	0.0007	0.0007	62.0	0.0066
	175	0.0835	0.5664	0.2475	0.0011	0.0011	95.9	0.0075
	250	0.0884	0.2862	0.0393	0.0015	0.0014	136	0.0080
	500	0.1664	0.5336	0.0742	0.0026	0.0027	265	0.0150
	750	0.2755	0.8795	0.1252	0.0044	0.0045	437	0.0249
	1000	0.3866	1.2370	1.8464	0.0056	0.0455	560	0.0349
Other General Industrial Equipmen Composite		0.1113	0.4591	0.8242	0.0016	0.0336	152	0.0100
Other Material Handling Equipment	50	0.0758	0.3192	0.2598	0.0004	0.0186	30.3	0.0068
	120	0.0709	0.4162	0.1938	0.0007	0.0009	60.7	0.0064
	175	0.1050	0.7171	0.2688	0.0014	0.0012	122	0.0095
	250	0.0934	0.3046	0.0493	0.0016	0.0018	145	0.0084
	500	0.1186	0.3838	0.0825	0.0019	0.0030	192	0.0107
	9999	0.5386	1.6331	5.7822	0.0073	0.1543	741	0.0486
Other Material Handling Equipment Composite		0.1050	0.4495	0.8053	0.0015	0.0324	141	0.0095
Pavers	25	0.0226	0.0769	0.1434	0.0002	0.0057	18.7	0.0020
	50	0.0968	0.3188	0.0824	0.0004	0.0003	28.0	0.0087
	120	0.1030	0.4862	0.1936	0.0008	0.0008	69.2	0.0093
	175	0.1365	0.7632	0.3309	0.0014	0.0014	128	0.0123
	250	0.1574	0.5000	0.0502	0.0022	0.0018	194	0.0142
	500	0.1765	0.6885	0.0724	0.0023	0.0025	233	0.0159
Pavers Composite		0.1121	0.5017	0.6241	0.0009	0.0419	77.9	0.0101
Paving Equipment	25	0.0152	0.0520	0.0963	0.0002	0.0036	12.6	0.0014
	50	0.0821	0.2696	0.0848	0.0003	0.0003	23.9	0.0074
	120	0.0805	0.3809	0.1779	0.0006	0.0008	54.5	0.0073
	175	0.1062	0.5971	0.2665	0.0011	0.0011	101	0.0096
	250	0.0962	0.3068	0.0460	0.0014	0.0017	122	0.0087
Paving Equipment Composite		0.0857	0.4136	0.5558	0.0008	0.0374	68.9	0.0077
Plate Compactors	15	0.0050	0.0263	0.0314	0.0001	0.0012	4.3	0.0005
Plate Compactors Composite		0.0050	0.0263	0.0314	0.0001	0.0012	4.3	0.0005
Pressure Washers	15	0.0059	0.0308	0.0408	0.0001	0.0021	4.9	0.0005
	25	0.0094	0.0319	0.0587	0.0001	0.0028	7.1	0.0008
	50	0.0170	0.0895	0.1059	0.0002	0.0054	14.3	0.0015
	120	0.0167	0.1383	0.1528	0.0003	0.0087	24.1	0.0015
Pressure Washers Composite		0.0101	0.0562	0.0703	0.0001	0.0036	9.4	0.0009
Pumps	15	0.0101	0.0468	0.0625	0.0001	0.0034	7.4	0.0009
	25	0.0279	0.0871	0.1601	0.0002	0.0080	19.5	0.0025
	50	0.0599	0.2670	0.2677	0.0004	0.0164	34.3	0.0054
	120	0.0676	0.4767	0.5260	0.0009	0.0350	77.9	0.0061
	175	0.0845	0.7338	0.7548	0.0016	0.0350	140	0.0076
	250	0.0866	0.3786	0.9399	0.0023	0.0271	201	0.0078
	500	0.1387	0.6343	1.4367	0.0034	0.0442	345	0.0125
	750	0.2330	1.0487	2.4376	0.0057	0.0741	571	0.0210
	9999	0.7050	2.7434	9.8509	0.0136	0.2358	1,355	0.0636
Pumps Composite		0.0458	0.2722	0.3306	0.0006	0.0189	49.6	0.0041
Rollers	15	0.0074	0.0386	0.0461	0.0001	0.0018	6.3	0.0007
	25	0.0161	0.0549	0.1017	0.0002	0.0038	13.3	0.0015
	50	0.0662	0.2547	0.0848	0.0003	0.0003	26.0	0.0060
	120	0.0680	0.3919	0.1779	0.0007	0.0007	59.0	0.0061
	175	0.0897	0.6130	0.2665	0.0012	0.0011	108	0.0081
	250	0.0934	0.3306	0.0460	0.0017	0.0016	153	0.0084
	500	0.1262	0.4902	0.0654	0.0022	0.0023	219	0.0114

Table 34
SCAB Emission Factors (Diesel) - Model Year 2014

CY 2018

Air Basin	SC

Equipment	MaxHP	ROG (lb/hr)	CO (lb/hr)	NOX (lb/hr)	SOX (lb/hr)	PM (lb/hr)	CO2 (lb/hr)	CH4 (lb/hr)
Rollers Composite		0.0683	0.3885	0.4485	0.0008	0.0291	67.0	0.0062
Rough Terrain Forklifts	50	0.0655	0.3294	0.1184	0.0004	0.0004	33.9	0.0059
	120	0.0596	0.4179	0.2063	0.0007	0.0008	62.4	0.0054
	175	0.0911	0.7231	0.2468	0.0014	0.0010	125	0.0082
	250	0.0988	0.3504	0.0485	0.0019	0.0017	171	0.0089
	500	0.1441	0.5029	0.0636	0.0025	0.0022	257	0.0130
Rough Terrain Forklifts Composite		0.0638	0.4499	0.4219	0.0008	0.0277	70.3	0.0058
Rubber Tired Dozers	175	0.1676	0.8191	0.3340	0.0015	0.0016	129	0.0151
	250	0.1890	0.5640	0.0538	0.0021	0.0020	183	0.0171
	500	0.2531	1.0338	0.0999	0.0026	0.0037	265	0.0228
	750	0.3821	1.5520	2.9917	0.0040	0.1195	399	0.0345
	1000	0.5986	2.5082	6.0072	0.0060	0.1906	592	0.0540
Rubber Tired Dozers Composite		0.2343	0.8819	1.8194	0.0025	0.0737	239	0.0211
Rubber Tired Loaders	25	0.0204	0.0697	0.1291	0.0002	0.0048	16.9	0.0018
	50	0.0742	0.3198	0.1073	0.0004	0.0005	31.1	0.0067
	120	0.0660	0.4016	0.1733	0.0007	0.0009	58.9	0.0060
	175	0.0888	0.6227	0.2776	0.0012	0.0013	106	0.0080
	250	0.0946	0.3237	0.0451	0.0017	0.0017	149	0.0085
	500	0.1440	0.5256	0.0700	0.0023	0.0026	237	0.0130
	750	0.2966	1.0762	0.1456	0.0049	0.0055	486	0.0268
	1000	0.3912	1.4170	4.4558	0.0060	0.1188	594	0.0353
Rubber Tired Loaders Composite		0.0861	0.4470	0.5831	0.0012	0.0300	109	0.0078
Scrapers	120	0.1382	0.6686	0.8165	0.0011	0.0661	93.9	0.0125
	175	0.1579	0.8954	0.4042	0.0017	0.0018	148	0.0142
	250	0.1704	0.5324	0.0648	0.0024	0.0023	209	0.0154
	500	0.2458	0.9165	0.1067	0.0032	0.0038	321	0.0222
	750	0.4267	1.5807	0.1602	0.0056	0.0057	555	0.0385
Scrapers Composite		0.2135	0.8418	1.6042	0.0027	0.0653	262	0.0193
Signal Boards	15	0.0072	0.0377	0.0450	0.0001	0.0018	6.2	0.0006
	50	0.0649	0.2966	0.2820	0.0005	0.0172	36.2	0.0059
	120	0.0695	0.4999	0.5256	0.0009	0.0356	80.2	0.0063
	175	0.0955	0.8276	0.7968	0.0017	0.0385	155	0.0086
	250	0.1151	0.4857	1.1305	0.0029	0.0337	255	0.0104
Signal Boards Composite		0.0143	0.0916	0.1029	0.0002	0.0050	16.7	0.0013
Skid Steer Loaders	25	0.0176	0.0582	0.1081	0.0002	0.0048	13.8	0.0016
	50	0.0263	0.2035	0.1027	0.0003	0.0004	25.5	0.0024
	120	0.0248	0.2680	0.1415	0.0005	0.0006	42.8	0.0022
Skid Steer Loaders Composite		0.0253	0.2146	0.1799	0.0004	0.0074	30.3	0.0023
Surfacing Equipment	50	0.0317	0.1242	0.0659	0.0002	0.0002	14.1	0.0029
	120	0.0668	0.4072	0.1564	0.0007	0.0006	63.8	0.0060
	175	0.0637	0.4677	0.5082	0.0010	0.0257	85.8	0.0058
	250	0.0733	0.2858	0.7013	0.0015	0.0230	135	0.0066
	500	0.1120	0.5047	1.0316	0.0022	0.0350	221	0.0101
	750	0.1782	0.7911	1.6685	0.0035	0.0558	347	0.0161
Surfacing Equipment Composite		0.0923	0.4187	0.8043	0.0017	0.0291	166	0.0083
Sweepers/Scrubbers	15	0.0124	0.0729	0.0870	0.0002	0.0034	11.9	0.0011
	25	0.0237	0.0808	0.1495	0.0002	0.0056	19.6	0.0021
	50	0.0522	0.2974	0.1125	0.0004	0.0005	31.6	0.0047
	120	0.0647	0.4983	0.1864	0.0009	0.0009	75.0	0.0058
	175	0.0966	0.8030	0.3827	0.0016	0.0017	139	0.0087
	250	0.0894	0.3218	0.6073	0.0018	0.0204	162	0.0081
Sweepers/Scrubbers Composite		0.0681	0.4946	0.4308	0.0009	0.0251	78.5	0.0061
Tractors/Loaders/Backhoes	25	0.0191	0.0653	0.1211	0.0002	0.0046	15.9	0.0017
	50	0.0497	0.2839	0.0967	0.0004	0.0004	30.3	0.0045
	120	0.0435	0.3426	0.1697	0.0006	0.0008	51.7	0.0039

Table 34
SCAB Emission Factors (Diesel) - Model Year 2014

CY 2018

Air Basin	SC

Equipment	MaxHP	ROG (lb/hr)	CO (lb/hr)	NOX (lb/hr)	SOX (lb/hr)	PM (lb/hr)	CO2 (lb/hr)	CH4 (lb/hr)
	175	0.0669	0.5845	0.2630	0.0011	0.0012	101	0.0060
	250	0.0914	0.3483	0.0451	0.0019	0.0016	172	0.0082
	500	0.1788	0.6771	0.0656	0.0039	0.0024	345	0.0161
	750	0.2691	1.0154	0.1263	0.0058	0.0046	517	0.0243
Tractors/Loaders/Backhoes Composite		0.0513	0.3647	0.3331	0.0008	0.0189	66.8	0.0046
Trenchers	15	0.0099	0.0517	0.0617	0.0001	0.0024	8.5	0.0009
	25	0.0397	0.1355	0.2509	0.0004	0.0094	32.9	0.0036
	50	0.1142	0.3647	0.1363	0.0004	0.0005	32.9	0.0103
	120	0.0959	0.4498	0.2471	0.0008	0.0010	64.9	0.0087
	175	0.1505	0.8436	0.4012	0.0016	0.0017	144	0.0136
	250	0.1783	0.5823	0.0729	0.0025	0.0025	223	0.0161
	500	0.2312	0.9564	0.0846	0.0031	0.0029	311	0.0209
	750	0.4382	1.7994	3.7533	0.0059	0.1413	587	0.0395
Trenchers Composite		0.1061	0.4368	0.5117	0.0007	0.0393	58.7	0.0096
Welders	15	0.0084	0.0392	0.0522	0.0001	0.0028	6.2	0.0008
	25	0.0161	0.0504	0.0927	0.0001	0.0047	11.3	0.0015
	50	0.0563	0.2339	0.2108	0.0003	0.0144	26.0	0.0051
	120	0.0398	0.2540	0.2787	0.0005	0.0205	39.5	0.0036
	175	0.0703	0.5400	0.5536	0.0011	0.0283	98.2	0.0063
	250	0.0617	0.2348	0.5828	0.0013	0.0179	119	0.0056
	500	0.0825	0.3196	0.7244	0.0016	0.0239	168	0.0074
Welders Composite		0.0388	0.1876	0.1941	0.0003	0.0133	25.6	0.0035

Source: File offroadEF07_25.xls, downloaded from http://www.aqmd.gov/ceqa/handbook/offroad/offroad.html

Table 34 OFFROAD Output

CalendarY	AirBasin	Equipment	Equipment	Equipment Type	ModelYear	Horsepowe	NOx (lb/hr)	PM (lb/hr)
2018	SC	Constructic	11	Bore/Drill Rigs	2014	50	0.13	5.07E-04
2018	SC	Constructic	11	Bore/Drill Rigs	2014	120	0.23	1.02E-03
2018	SC	Constructic	11	Bore/Drill Rigs	2014	175	0.35	1.55E-03
2018	SC	Constructic	11	Bore/Drill Rigs	2014	250	0.06	2.19E-03
2018	SC	Constructic	11	Bore/Drill Rigs	2014	500	0.10	3.39E-03
2018	SC	Constructic	11	Bore/Drill Rigs	2014	750	0.19	6.61E-03
2018	SC	Constructic	11	Bore/Drill Rigs	2014	1000	2.37	5.85E-02
2018	SC	Constructic	12	Cranes	2014	50	0.07	2.67E-04
2018	SC	Constructic	12	Cranes	2014	120	0.15	6.70E-04
2018	SC	Constructic	12	Cranes	2014	175	0.21	9.15E-04
2018	SC	Constructic	12	Cranes	2014	250	0.04	1.24E-03
2018	SC	Constructic	12	Cranes	2014	500	0.06	1.94E-03
2018	SC	Constructic	12	Cranes	2014	750	0.09	3.21E-03
2018	SC	Constructic	13	Crawler Tractors	2014	50	0.14	5.42E-04
2018	SC	Constructic	13	Crawler Tractors	2014	120	0.21	9.62E-04
2018	SC	Constructic	13	Crawler Tractors	2014	175	0.31	1.35E-03
2018	SC	Constructic	13	Crawler Tractors	2014	250	0.05	1.85E-03
2018	SC	Constructic	13	Crawler Tractors	2014	500	0.09	3.19E-03
2018	SC	Constructic	13	Crawler Tractors	2014	750	0.14	4.97E-03
2018	SC	Constructic	14	Excavators	2014	50	0.09	3.66E-04
2018	SC	Constructic	14	Excavators	2014	120	0.18	8.28E-04
2018	SC	Constructic	14	Excavators	2014	175	0.27	1.22E-03
2018	SC	Constructic	14	Excavators	2014	250	0.05	1.80E-03
2018	SC	Constructic	14	Excavators	2014	500	0.07	2.69E-03
2018	SC	Constructic	14	Excavators	2014	750	0.14	4.97E-03
2018	SC	Constructic	14	Excavators	2014	1000	#DIV/0!	#DIV/0!
2018	SC	Constructic	15	Graders	2014	50	0.11	4.75E-04
2018	SC	Constructic	15	Graders	2014	120	0.16	7.87E-04
2018	SC	Constructic	15	Graders	2014	175	0.29	1.33E-03
2018	SC	Constructic	15	Graders	2014	250	0.05	1.80E-03
2018	SC	Constructic	15	Graders	2014	500	0.07	2.52E-03
2018	SC	Constructic	16	Off-Highway Tract	2014	50	0.11	4.74E-04
2018	SC	Constructic	16	Off-Highway Tract	2014	120	0.17	7.80E-04
2018	SC	Constructic	16	Off-Highway Tract	2014	175	0.34	1.50E-03
2018	SC	Constructic	16	Off-Highway Tract	2014	250	0.05	1.91E-03
2018	SC	Constructic	16	Off-Highway Tract	2014	500	0.09	3.21E-03
2018	SC	Constructic	17	Off-Highway Truck	2014	50	0.07	3.57E-04
2018	SC	Constructic	17	Off-Highway Truck	2014	120	0.25	1.47E-03
2018	SC	Constructic	17	Off-Highway Truck	2014	175	0.31	1.56E-03
2018	SC	Constructic	17	Off-Highway Truck	2014	250	0.05	1.89E-03
2018	SC	Constructic	17	Off-Highway Truck	2014	500	0.09	3.63E-03
2018	SC	Constructic	17	Off-Highway Truck	2014	750	0.15	5.74E-03
2018	SC	Constructic	17	Off-Highway Truck	2014	1000	1.74	4.84E-02
2018	SC	Constructic	17	Off-Highway Truck	2014	9999	3.88	1.08E-01
2018	SC	Constructic	18	Other Constructior	2014	50	0.10	3.93E-04
2018	SC	Constructic	18	Other Constructior	2014	120	0.21	9.26E-04
2018	SC	Constructic	18	Other Constructior	2014	175	0.31	1.35E-03
2018	SC	Constructic	18	Other Constructior	2014	250	0.05	1.91E-03

Table 34 OFFROAD Output

2018	SC	Constructic	18	Other Constructior	2014	500	0.09	3.07E-03
2018	SC	Constructic	18	Other Constructior	2014	750	0.15	5.31E-03
2018	SC	Constructic	18	Other Constructior	2014	1000	1.85	4.55E-02
2018	SC	Constructic	19	Pavers	2014	50	0.08	3.07E-04
2018	SC	Constructic	19	Pavers	2014	120	0.19	8.16E-04
2018	SC	Constructic	19	Pavers	2014	175	0.33	1.41E-03
2018	SC	Constructic	19	Pavers	2014	250	0.05	1.75E-03
2018	SC	Constructic	19	Pavers	2014	500	0.07	2.53E-03
2018	SC	Constructic	20	Paving Equipment	2014	50	0.09	3.45E-04
2018	SC	Constructic	20	Paving Equipment	2014	120	0.18	7.82E-04
2018	SC	Constructic	20	Paving Equipment	2014	175	0.24	1.05E-03
2018	SC	Constructic	20	Paving Equipment	2014	250	0.05	1.67E-03
2018	SC	Constructic	20	Paving Equipment	2014	500	#DIV/0!	#DIV/0!
2018	SC	Constructic	21	Rollers	2014	50	0.08	3.08E-04
2018	SC	Constructic	21	Rollers	2014	120	0.18	7.33E-04
2018	SC	Constructic	21	Rollers	2014	175	0.27	1.12E-03
2018	SC	Constructic	21	Rollers	2014	250	0.05	1.60E-03
2018	SC	Constructic	21	Rollers	2014	500	0.07	2.27E-03
2018	SC	Constructic	21	Rollers	2014	750	0.11	3.95E-03
2018	SC	Constructic	22	Rough Terrain For	2014	50	0.12	4.15E-04
2018	SC	Constructic	22	Rough Terrain For	2014	120	0.21	8.22E-04
2018	SC	Constructic	22	Rough Terrain For	2014	175	0.25	1.03E-03
2018	SC	Constructic	22	Rough Terrain For	2014	250	0.05	1.67E-03
2018	SC	Constructic	22	Rough Terrain For	2014	500	0.06	2.18E-03
2018	SC	Constructic	23	Rubber Tired Doze	2014	120	0.23	1.17E-03
2018	SC	Constructic	23	Rubber Tired Doze	2014	175	0.33	1.57E-03
2018	SC	Constructic	23	Rubber Tired Doze	2014	250	0.05	2.00E-03
2018	SC	Constructic	23	Rubber Tired Doze	2014	500	0.10	3.71E-03
2018	SC	Constructic	24	Rubber Tired Loac	2014	50	0.11	5.14E-04
2018	SC	Constructic	24	Rubber Tired Loac	2014	120	0.17	9.35E-04
2018	SC	Constructic	24	Rubber Tired Loac	2014	175	0.28	1.33E-03
2018	SC	Constructic	24	Rubber Tired Loac	2014	250	0.05	1.70E-03
2018	SC	Constructic	24	Rubber Tired Loac	2014	500	0.07	2.64E-03
2018	SC	Constructic	24	Rubber Tired Loac	2014	750	0.15	5.50E-03
2018	SC	Constructic	25	Scrapers	2014	175	0.40	1.78E-03
2018	SC	Constructic	25	Scrapers	2014	250	0.06	2.31E-03
2018	SC	Constructic	25	Scrapers	2014	500	0.11	3.80E-03
2018	SC	Constructic	25	Scrapers	2014	750	0.16	5.71E-03
2018	SC	Constructic	26	Skid Steer Loaders	2014	50	0.10	3.77E-04
2018	SC	Constructic	26	Skid Steer Loaders	2014	120	0.14	5.88E-04
2018	SC	Constructic	26	Skid Steer Loaders	2014	175	0.22	9.49E-04
2018	SC	Constructic	26	Skid Steer Loaders	2014	250	0.04	1.41E-03
2018	SC	Constructic	27	Surfacing Equipme	2014	50	0.07	2.33E-04
2018	SC	Constructic	27	Surfacing Equipme	2014	120	0.16	6.27E-04
2018	SC	Constructic	27	Surfacing Equipme	2014	175	#DIV/0!	#DIV/0!
2018	SC	Constructic	27	Surfacing Equipme	2014	250	#DIV/0!	#DIV/0!
2018	SC	Constructic	27	Surfacing Equipme	2014	500	0.06	1.99E-03
2018	SC	Constructic	27	Surfacing Equipme	2014	9999	1.82	4.32E-02
2018	SC	Constructic	28	Tractors/Loaders/E	2014	50	0.10	4.07E-04
2018	SC	Constructic	28	Tractors/Loaders/E	2014	120	0.17	8.05E-04

Table 34 OFFROAD Output

2018	SC	Constructic	28	Tractors/Loaders/E	2014	175	0.26	1.19E-03
2018	SC	Constructic	28	Tractors/Loaders/E	2014	250	0.05	1.63E-03
2018	SC	Constructic	28	Tractors/Loaders/E	2014	500	0.07	2.42E-03
2018	SC	Constructic	28	Tractors/Loaders/E	2014	750	0.13	4.57E-03
2018	SC	Constructic	28	Tractors/Loaders/E	2014	9999	3.82	9.66E-02
2018	SC	Constructic	29	Trenchers	2014	50	0.14	5.05E-04
2018	SC	Constructic	29	Trenchers	2014	120	0.25	1.04E-03
2018	SC	Constructic	29	Trenchers	2014	175	0.40	1.71E-03
2018	SC	Constructic	29	Trenchers	2014	250	0.07	2.54E-03
2018	SC	Constructic	29	Trenchers	2014	500	0.08	2.95E-03
2018	SC	Constructic	36	Sweepers/Scrubbe	2014	50	0.11	4.55E-04
2018	SC	Constructic	36	Sweepers/Scrubbe	2014	120	0.19	8.51E-04
2018	SC	Constructic	36	Sweepers/Scrubbe	2014	175	0.38	1.69E-03
2018	SC	Industrial	30	Aerial Lifts	2014	50	0.09	3.06E-04
2018	SC	Industrial	30	Aerial Lifts	2014	120	0.13	4.97E-04
2018	SC	Industrial	30	Aerial Lifts	2014	175	0.21	8.52E-04
2018	SC	Industrial	31	Forklifts	2014	50	0.05	2.14E-04
2018	SC	Industrial	31	Forklifts	2014	120	0.09	4.22E-04
2018	SC	Industrial	31	Forklifts	2014	175	0.14	6.27E-04
2018	SC	Industrial	31	Forklifts	2014	250	0.03	9.15E-04
2018	SC	Industrial	31	Forklifts	2014	500	0.05	1.64E-03
2018	SC	Industrial	32	Other General Ind	2014	50	0.08	3.45E-04
2018	SC	Industrial	32	Other General Ind	2014	120	0.15	6.92E-04
2018	SC	Industrial	32	Other General Ind	2014	175	0.25	1.11E-03
2018	SC	Industrial	32	Other General Ind	2014	250	0.04	1.42E-03
2018	SC	Industrial	32	Other General Ind	2014	500	0.07	2.68E-03
2018	SC	Industrial	32	Other General Ind	2014	750	0.13	4.53E-03
2018	SC	Industrial	33	Other Material Hai	2014	120	0.19	9.00E-04
2018	SC	Industrial	33	Other Material Hai	2014	175	0.27	1.20E-03
2018	SC	Industrial	33	Other Material Hai	2014	250	0.05	1.77E-03
2018	SC	Industrial	33	Other Material Hai	2014	500	0.08	2.97E-03
2018	SC	Oil Drilling	34	Drill Rig (Mobile)	2014	120	0.24	1.43E-03
2018	SC	Oil Drilling	34	Drill Rig (Mobile)	2014	175	#DIV/0!	#DIV/0!
2018	SC	Oil Drilling	34	Drill Rig (Mobile)	2014	500	0.13	5.01E-03
2018	SC	Oil Drilling	35	Workover Rig (Mo	2014	250	0.06	2.37E-03
2018	SC	Oil Drilling	35	Workover Rig (Mo	2014	500	0.11	4.52E-03

*Emission factors represent fleetwide emissions during calender year 2018, with proposed regulation, for

Table 35

Highest (Most Conservative) EMFAC2007 (version 2.3) Emission Factors for On-Road Passenger Vehicles & Delivery Trucks

Projects in the SCAQMD (Scenario Years 2007 - 2026)

Derived from Peak Emissions Inventory (**Winter**, **Annual**, **Summer**)

Vehicle Class:

Passenger Vehicles (<8500 pounds) & Delivery Trucks (>8500 pounds)

The following emission factors were compiled by running the California Air Resources Board's EMFAC2007 (version 2.3) Burden Model, taking the weighted average of vehicle types and simplifying into two categories:

Passenger Vehicles & Delivery Trucks.

These emission factors can be used to calculate on-road mobile source emissions for the vehicle categories listed in the tables below, by use of the following equation:

Emissions (pounds per day) = N x TL x EF

where N = number of trips, TL = trip length (miles/day), and EF = emission factor (pounds per mile)

This methodology replaces the old EMFAC emission factors in Tables A-9-5-J-1 through A-9-5-L in Appendix A9 of the current SCAQMD CEQA Handbook. All the emission factors account for the emissions from start, running and idling exhaust. In addition, the ROG emission factors include diurnal, hot soak, running and resting emissions, and the PM10 & PM2.5 emission factors include tire and brake wear.

Scenario Year: **2018**

All model years in the range 1972 to 2016

Passenger Vehicles (pounds/mile)	
CO	**0.00575800**
NOx	**0.00055658**
ROG	**0.00063254**
SOx	**0.00001071**
PM10	**0.00009392**
PM2.5	**0.00006131**
CO2	**1.10677664**
CH4	**0.00005623**

Delivery Trucks (pounds/mile)	
CO	**0.00923234**
NOx	**0.00979416**
ROG	**0.00139856**
SOx	**0.00002749**
PM10	**0.00040110**
PM2.5	**0.00031792**
CO2	**2.84646835**
CH4	**0.00006203**

Source: File onroadEF07_26.xls, downloaded from http://www.aqmd.gov/ceqa/handbook/onroad/onroad.html

Table 36
Highest (Most Conservative) EMFAC2007 (version 2.3)
Emission Factors for On-Road Heavy-Heavy-Duty Diesel Trucks
Projects in the SCAQMD (Scenario Years 2007 - 2026)
Derived from Peak Emissions Inventory (**Winter**, **Annual**, **Summer**)

Vehicle Class:
Heavy-Heavy-Duty Diesel Trucks (33,001 to 60,000 pounds)

The following emission factors were compiled by running the California Air Resources Board's EMFAC2007 (version 2.3) Burden Model and extracting the **Heavy-Heavy-Duty Diesel Truck (HHDT)** Emission Factors.

These emission factors can be used to calculate on-road mobile source emissions for the vehicle/emission categories listed in the tables below, by use of the following equation:

Emissions (pounds per day) = N x TL x EF

where N = number of trips, TL = trip length (miles/day), and EF = emission factor (pounds per mile)

The **HHDT-DSL** vehicle/emission category accounts for all emissions from heavy-heavy-duty diesel trucks, including start, running and idling exhaust. In addition, ROG emission factors account for diurnal, hot soak, running and resting emissions, and the PM10 & PM2.5 emission factors account for tire and brake wear.

The **HHDT-DSL, Exh** vehicle/emission category includes only the exhaust portion of PM10 & PM2.5 emissions from heavy-heavy-duty diesel trucks.

Scenario Year: **2018**

All model years in the range 1972 to 2016

HHDT-DSL (pounds/mile)	
CO	**0.00604721**
NOx	**0.01526414**
ROG	**0.00131697**
SOx	**0.00003934**
PM10	**0.00076808**
PM2.5	**0.00062383**
CO2	**4.20756838**
CH4	**0.00006182**

HHDT-DSL, Exh (pounds/mile)	
PM10	**0.00062758**
PM2.5	**0.00057700**

Source: File onroadEFHHDT07_26.xls, downloaded from http://www.aqmd.gov/ceqa/handbook/onroad/onroad.html

Table 37
Motor Vehicle Entrained Road Dust Emission Factors

Vehicle Type	Surface	Silt Content (s, %)[a]	Average Weight (W) (tons)[b]	Un-controlled PM10 Emission Factor (lb/VMT)[c]	Un-controlled PM2.5 Emission Factor (lb/VMT)[c]	Control Efficiency (%)[d]	Controlled PM10 Emission Factor (lb/VMT)[e]	Controlled PM2.5 Emission Factor (lb/VMT)[e]
1/2-Ton Truck, 4x4	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
1/2-Ton Truck, 4x4	Unpaved - private	6.4	3.2	8.15E-01	8.12E-02	55%	3.67E-01	3.65E-02
1/2-Ton Truck, 4x4	Unpaved - public	6.4	3.2	1.05E+00	1.05E-01	55%	4.73E-01	4.72E-02
1-Ton Truck, 4x4	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
1-Ton Truck, 4x4	Unpaved - private	6.4	3.2	8.15E-01	8.12E-02	55%	3.67E-01	3.65E-02
1-Ton Truck, 4x4	Unpaved - public	6.4	3.2	1.05E+00	1.05E-01	55%	4.73E-01	4.72E-02
1-Ton Crew Cab, 4x4	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
1-Ton Crew Cab, 4x4	Unpaved - private	6.4	3.2	8.15E-01	8.12E-02	55%	3.67E-01	3.65E-02
1-Ton Crew Cab, 4x4	Unpaved - public	6.4	3.2	1.05E+00	1.05E-01	55%	4.73E-01	4.72E-02
3/4-Ton Truck, 4x4	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
3/4-Ton Truck, 4x4	Unpaved - private	6.4	3.2	8.15E-01	8.12E-02	55%	3.67E-01	3.65E-02
3/4-Ton Truck, 4x4	Unpaved - public	6.4	3.2	1.05E+00	1.05E-01	55%	4.73E-01	4.72E-02
Arrow Board Truck	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Arrow Board Truck	Unpaved - private	6.4	3.2	8.15E-01	8.12E-02	55%	3.67E-01	3.65E-02
Arrow Board Truck	Unpaved - public	6.4	3.2	1.05E+00	1.05E-01	55%	4.73E-01	4.72E-02
Arrowhead Trailer	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Arrowhead Trailer	Unpaved - private	6.4	3.2	8.15E-01	8.12E-02	55%	3.67E-01	3.65E-02
Arrowhead Trailer	Unpaved - public	6.4	3.2	1.05E+00	1.05E-01	55%	4.73E-01	4.72E-02
Auger Truck	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Auger Truck	Unpaved - private	6.4	3.2	8.15E-01	8.12E-02	55%	3.67E-01	3.65E-02
Auger Truck	Unpaved - public	6.4	3.2	1.05E+00	1.05E-01	55%	4.73E-01	4.72E-02
Boom Truck	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Boom Truck	Unpaved - private	6.4	3.2	8.15E-01	8.12E-02	55%	3.67E-01	3.65E-02
Boom Truck	Unpaved - public	6.4	3.2	1.05E+00	1.05E-01	55%	4.73E-01	4.72E-02
Boom/Crane Truck	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Boom/Crane Truck	Unpaved - private	6.4	3.2	8.15E-01	8.12E-02	55%	3.67E-01	3.65E-02
Boom/Crane Truck	Unpaved - public	6.4	3.2	1.05E+00	1.05E-01	55%	4.73E-01	4.72E-02
Bull Wheel Puller	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Bull Wheel Puller	Unpaved - private	6.4	3.2	8.15E-01	8.12E-02	55%	3.67E-01	3.65E-02
Bull Wheel Puller	Unpaved - public	6.4	3.2	1.05E+00	1.05E-01	55%	4.73E-01	4.72E-02
Bucket Truck	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Bucket Truck	Unpaved - private	6.4	3.2	8.15E-01	8.12E-02	55%	3.67E-01	3.65E-02
Bucket Truck	Unpaved - public	6.4	3.2	1.05E+00	1.05E-01	55%	4.73E-01	4.72E-02
Carry-all Truck	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Carry-all Truck	Unpaved - private	6.4	3.2	8.15E-01	8.12E-02	55%	3.67E-01	3.65E-02
Carry-all Truck	Unpaved - public	6.4	3.2	1.05E+00	1.05E-01	55%	4.73E-01	4.72E-02
Concrete Mixer Truck	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Concrete Mixer Truck	Unpaved - private	6.4	3.2	8.15E-01	8.12E-02	55%	3.67E-01	3.65E-02
Concrete Mixer Truck	Unpaved - public	6.4	3.2	1.05E+00	1.05E-01	55%	4.73E-01	4.72E-02
Crew Truck	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Crew Truck	Unpaved - private	6.4	3.2	8.15E-01	8.12E-02	55%	3.67E-01	3.65E-02
Crew Truck	Unpaved - public	6.4	3.2	1.05E+00	1.05E-01	55%	4.73E-01	4.72E-02
Crewcab Truck	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Crewcab Truck	Unpaved - private	6.4	3.2	8.15E-01	8.12E-02	55%	3.67E-01	3.65E-02
Crewcab Truck	Unpaved - public	6.4	3.2	1.05E+00	1.05E-01	55%	4.73E-01	4.72E-02
Crushed Rock Delivery Truck	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Crushed Rock Delivery Truck	Unpaved - private	6.4	3.2	8.15E-01	8.12E-02	55%	3.67E-01	3.65E-02
Crushed Rock Delivery Truck	Unpaved - public	6.4	3.2	1.05E+00	1.05E-01	55%	4.73E-01	4.72E-02
Dump Truck	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Dump Truck	Unpaved - private	6.4	3.2	8.15E-01	8.12E-02	55%	3.67E-01	3.65E-02
Dump Truck	Unpaved - public	6.4	3.2	1.05E+00	1.05E-01	55%	4.73E-01	4.72E-02
Delivery Truck	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Delivery Truck	Unpaved - private	6.4	3.2	8.15E-01	8.12E-02	55%	3.67E-01	3.65E-02
Delivery Truck	Unpaved - public	6.4	3.2	1.05E+00	1.05E-01	55%	4.73E-01	4.72E-02
Dump Truck (Trash)	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Dump Truck (Trash)	Unpaved - private	6.4	3.2	8.15E-01	8.12E-02	55%	3.67E-01	3.65E-02
Dump Truck (Trash)	Unpaved - public	6.4	3.2	1.05E+00	1.05E-01	55%	4.73E-01	4.72E-02
Extendable Flat Bed Pole Truck	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Extendable Flat Bed Pole Truck	Unpaved - private	6.4	3.2	8.15E-01	8.12E-02	55%	3.67E-01	3.65E-02
Extendable Flat Bed Pole Truck	Unpaved - public	6.4	3.2	1.05E+00	1.05E-01	55%	4.73E-01	4.72E-02
Truck, Semi-Tractor	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Truck, Semi-Tractor	Unpaved - private	6.4	3.2	8.15E-01	8.12E-02	55%	3.67E-01	3.65E-02
Truck, Semi-Tractor	Unpaved - public	6.4	3.2	1.05E+00	1.05E-01	55%	4.73E-01	4.72E-02
Flat Bed Truck	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Flat Bed Truck	Unpaved - private	6.4	3.2	8.15E-01	8.12E-02	55%	3.67E-01	3.65E-02
Flat Bed Truck	Unpaved - public	6.4	3.2	1.05E+00	1.05E-01	55%	4.73E-01	4.72E-02
Flat Bed Truck/Trailer	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Flat Bed Truck/Trailer	Unpaved - private	6.4	3.2	8.15E-01	8.12E-02	55%	3.67E-01	3.65E-02
Flat Bed Truck/Trailer	Unpaved - public	6.4	3.2	1.05E+00	1.05E-01	55%	4.73E-01	4.72E-02
Flat Bed Pole Truck	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Flat Bed Pole Truck	Unpaved - private	6.4	3.2	8.15E-01	8.12E-02	55%	3.67E-01	3.65E-02
Flat Bed Pole Truck	Unpaved - public	6.4	3.2	1.05E+00	1.05E-01	55%	4.73E-01	4.72E-02
Foreman Truck	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Foreman Truck	Unpaved - private	6.4	3.2	8.15E-01	8.12E-02	55%	3.67E-01	3.65E-02
Foreman Truck	Unpaved - public	6.4	3.2	1.05E+00	1.05E-01	55%	4.73E-01	4.72E-02
Lift Truck	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Lift Truck	Unpaved - private	6.4	3.2	8.15E-01	8.12E-02	55%	3.67E-01	3.65E-02
Lift Truck	Unpaved - public	6.4	3.2	1.05E+00	1.05E-01	55%	4.73E-01	4.72E-02
Lineman/Boom Truck	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Lineman/Boom Truck	Unpaved - private	6.4	3.2	8.15E-01	8.12E-02	55%	3.67E-01	3.65E-02

Table 37
Motor Vehicle Entrained Road Dust Emission Factors

Vehicle Type	Surface	Silt Content (s, %)[a]	Average Weight (W) (tons)[b]	Un-controlled PM10 Emission Factor (lb/VMT)[c]	Un-controlled PM2.5 Emission Factor (lb/VMT)[c]	Control Efficiency (%)[d]	Controlled PM10 Emission Factor (lb/VMT)[e]	Controlled PM2.5 Emission Factor (lb/VMT)[e]
Lineman/Boom Truck	Unpaved - public	6.4	3.2	1.05E+00	1.05E-01	55%	4.73E-01	4.72E-02
Low Bed Truck	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Low Bed Truck	Unpaved - private	6.4	3.2	8.15E-01	8.12E-02	55%	3.67E-01	3.65E-02
Low Bed Truck	Unpaved - public	6.4	3.2	1.05E+00	1.05E-01	55%	4.73E-01	4.72E-02
Lowboy Truck/Trailer	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Lowboy Truck/Trailer	Unpaved - private	6.4	3.2	8.15E-01	8.12E-02	55%	3.67E-01	3.65E-02
Lowboy Truck/Trailer	Unpaved - public	6.4	3.2	1.05E+00	1.05E-01	55%	4.73E-01	4.72E-02
Manlift/Bucket Truck	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Manlift/Bucket Truck	Unpaved - private	6.4	3.2	8.15E-01	8.12E-02	55%	3.67E-01	3.65E-02
Manlift/Bucket Truck	Unpaved - public	6.4	3.2	1.05E+00	1.05E-01	55%	4.73E-01	4.72E-02
Maintenance Truck	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Maintenance Truck	Unpaved - private	6.4	3.2	8.15E-01	8.12E-02	55%	3.67E-01	3.65E-02
Maintenance Truck	Unpaved - public	6.4	3.2	1.05E+00	1.05E-01	55%	4.73E-01	4.72E-02
Material Handling Truck	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Material Handling Truck	Unpaved - private	6.4	3.2	8.15E-01	8.12E-02	55%	3.67E-01	3.65E-02
Material Handling Truck	Unpaved - public	6.4	3.2	1.05E+00	1.05E-01	55%	4.73E-01	4.72E-02
Pipe Truck/Trailer	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Pipe Truck/Trailer	Unpaved - private	6.4	3.2	8.15E-01	8.12E-02	55%	3.67E-01	3.65E-02
Pipe Truck/Trailer	Unpaved - public	6.4	3.2	1.05E+00	1.05E-01	55%	4.73E-01	4.72E-02
Pulling Rig	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Pulling Rig	Unpaved - private	6.4	3.2	8.15E-01	8.12E-02	55%	3.67E-01	3.65E-02
Pulling Rig	Unpaved - public	6.4	3.2	1.05E+00	1.05E-01	55%	4.73E-01	4.72E-02
Pumper/Tanker Truck	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Pumper/Tanker Truck	Unpaved - private	6.4	3.2	8.15E-01	8.12E-02	55%	3.67E-01	3.65E-02
Pumper/Tanker Truck	Unpaved - public	6.4	3.2	1.05E+00	1.05E-01	55%	4.73E-01	4.72E-02
Reel Truck	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Reel Truck	Unpaved - private	6.4	3.2	8.15E-01	8.12E-02	55%	3.67E-01	3.65E-02
Reel Truck	Unpaved - public	6.4	3.2	1.05E+00	1.05E-01	55%	4.73E-01	4.72E-02
Rodder Truck	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Rodder Truck	Unpaved - private	6.4	3.2	8.15E-01	8.12E-02	55%	3.67E-01	3.65E-02
Rodder Truck	Unpaved - public	6.4	3.2	1.05E+00	1.05E-01	55%	4.73E-01	4.72E-02
Sock Line Puller	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Sock Line Puller	Unpaved - private	6.4	3.2	8.15E-01	8.12E-02	55%	3.67E-01	3.65E-02
Sock Line Puller	Unpaved - public	6.4	3.2	1.05E+00	1.05E-01	55%	4.73E-01	4.72E-02
Splice Lab Truck	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Splice Lab Truck	Unpaved - private	6.4	3.2	8.15E-01	8.12E-02	55%	3.67E-01	3.65E-02
Splice Lab Truck	Unpaved - public	6.4	3.2	1.05E+00	1.05E-01	55%	4.73E-01	4.72E-02
Splicing Lab	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Splicing Lab	Unpaved - private	6.4	3.2	8.15E-01	8.12E-02	55%	3.67E-01	3.65E-02
Splicing Lab	Unpaved - public	6.4	3.2	1.05E+00	1.05E-01	55%	4.73E-01	4.72E-02
Splicing Rig	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Splicing Rig	Unpaved - private	6.4	3.2	8.15E-01	8.12E-02	55%	3.67E-01	3.65E-02
Splicing Rig	Unpaved - public	6.4	3.2	1.05E+00	1.05E-01	55%	4.73E-01	4.72E-02
Static Truck/Tensioner	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Static Truck/Tensioner	Unpaved - private	6.4	3.2	8.15E-01	8.12E-02	55%	3.67E-01	3.65E-02
Static Truck/Tensioner	Unpaved - public	6.4	3.2	1.05E+00	1.05E-01	55%	4.73E-01	4.72E-02
Tool Trailer	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Tool Trailer	Unpaved - private	6.4	3.2	8.15E-01	8.12E-02	55%	3.67E-01	3.65E-02
Tool Trailer	Unpaved - public	6.4	3.2	1.05E+00	1.05E-01	55%	4.73E-01	4.72E-02
Troubleman Truck	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Troubleman Truck	Unpaved - private	6.4	3.2	8.15E-01	8.12E-02	55%	3.67E-01	3.65E-02
Troubleman Truck	Unpaved - public	6.4	3.2	1.05E+00	1.05E-01	55%	4.73E-01	4.72E-02
Truck, Semi Tractor	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Truck, Semi Tractor	Unpaved - private	6.4	3.2	8.15E-01	8.12E-02	55%	3.67E-01	3.65E-02
Truck, Semi Tractor	Unpaved - public	6.4	3.2	1.05E+00	1.05E-01	55%	4.73E-01	4.72E-02
Van	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Van	Unpaved - private	6.4	3.2	8.15E-01	8.12E-02	55%	3.67E-01	3.65E-02
Van	Unpaved - public	6.4	3.2	1.05E+00	1.05E-01	55%	4.73E-01	4.72E-02
Water Truck	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Water Truck	Unpaved - private	6.4	3.2	8.15E-01	8.12E-02	55%	3.67E-01	3.65E-02
Water Truck	Unpaved - public	6.4	3.2	1.05E+00	1.05E-01	55%	4.73E-01	4.72E-02
Wire Truck/Trailer	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Wire Truck/Trailer	Unpaved - private	6.4	3.2	8.15E-01	8.12E-02	55%	3.67E-01	3.65E-02
Wire Truck/Trailer	Unpaved - public	6.4	3.2	1.05E+00	1.05E-01	55%	4.73E-01	4.72E-02
Worker Commute	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Worker Commute	Unpaved - private	6.4	3.2	8.15E-01	8.12E-02	55%	3.67E-01	3.65E-02
Worker Commute	Unpaved - public	6.4	3.2	1.05E+00	1.05E-01	55%	4.73E-01	4.72E-02
Subtransmission Line Inspection	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Subtransmission Line Inspection	Unpaved - private	6.4	3.2	8.15E-01	8.12E-02	55%	3.67E-01	3.65E-02
Subtransmission Line Inspection	Unpaved - public	6.4	3.2	1.05E+00	1.05E-01	55%	4.73E-01	4.72E-02
Substation Site Visit	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Substation Site Visit	Unpaved - private	6.4	3.2	8.15E-01	8.12E-02	55%	3.67E-01	3.65E-02
Substation Site Visit	Unpaved - public	6.4	3.2	1.05E+00	1.05E-01	55%	4.73E-01	4.72E-02

[a] Paved road silt content from ARB Emission Inventory Methodology 7.9, Entrained Paved Road Dust (1997) for collector roads, http://www.arb.ca.gov/ei/areasrc/fullpdf/full7-9.pdf
Unpaved road moisture content obtained from the WRAP Handbook, (2006) Table 6.2 Typcial Silt Content Values of Surface Material of Public Unpaved Roads

[b] Average paved on-road vehicle weight in Riverside County from ARB Emission Inventory Methodology 7.9, Entrained Paved Road Dust (1997)
Unpaved worker commuting weight on access road assumed to be same as paved road weight
Unpaved weight for other trucks is based on upper limit of 33,000 lbs for medium heavy-duty trucks.

Table 37
Motor Vehicle Entrained Road Dust Emission Factors

Vehicle Type	Surface	Silt Content (s, %)[a]	Average Weight (W) (tons)[b]	Un-controlled PM10 Emission Factor (lb/VMT)[c]	Un-controlled PM2.5 Emission Factor (lb/VMT)[c]	Control Efficiency (%)[d]	Controlled PM10 Emission Factor (lb/VMT)[e]	Controlled PM2.5 Emission Factor (lb/VMT)[e]

[c] Equations:

EF(paved) = k_{α} $(sL/2)^{0.65}$ $(W/3)^{1.5}$ - C Ref: AP-42, Section 13.2.1, "Paved Roads," November 2006

EF (unpaved) = k $(s/12)^{a}$ $(S/30)^{d}/(M/0.5)^{c}$ - C Ref: AP-42, Section 13.2.2, "Unpaved Roads," November 2006

[d] Control efficiency based on SCAQMD CalEEMod default for watering 2 times per day

Constants:

k_{α} =	0.016	(Particle size multiplier for PM10)
	0.0024	(Particle size multiplier for PM2.5)
C =	0.00047	(Exhaust, brake wear and tire wear adjustment, PM10)
	0.00036	(Exhaust, brake wear and tire wear adjustment, PM2.5)
k =	1.8	(Particle size multiplier for PM10)
	0.18	(Particle size multiplier for PM2.5)
S =	25	Vehicle Speed (mile per hour), public roads
	15	Vehicle Speed (mile per hour), private roads
a =	1	for PM10
	1	for PM2.5
^{c} =	0.2	for PM10
	0.2	for PM2.5
d =	0.5	for PM10
	0.5	for PM2.5

Table 38
Fugitive Dust Emission Factors
Soil Dropping During Excavation

Emission Factor [lb/cu. yd] = 0.0011 x (mean wind speed [mi/hr] / 5)$^{1.3}$ / (moisture [%] / 2)$^{1.4}$ x (number drops per ton) x (density [ton/cu. yd])
Reference: AP-42, Equation (1), Section 13.2.4, November 2006

Parameter	Value	Basis
Mean Wind Speed	12	SCAQMD CEQA Air Quality Handbook (1993), Table 9-9-G, default
Moisture	10	Assumed moisture level achieved by watering
Number Drops	4	Assumption
Soil Density	1.215	Table 2.46, Handbook of Solid Waste Management

Controlled PM10 Emission Factor 1.75E-03 lb/cu. yd
Controlled PM2.5 Emission Factor[a] 3.65E-04 lb/cu. yd

[a] PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction of PM10 in Construction Dust = 0.208 from Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006

Emissions [pounds per day] = Controlled emission factor [pounds per cubic yard] x Volume soil handled [cubic yards per day]

Storage Pile Wind Erosion

Emission Factor [lb/day-acre] = 0.85 x (silt content [%] / 1.5) x (365 / 235) x (percentage of time unobstructed wind exceeds 12 mph / 15)
Reference: SCAQMD CEQA Air Quality Handbook (1993), Table 9-9-E

Parameter	Value	Basis
Silt Content	7.5	SCAQMD CEQA Air Quality Analysis Handbook, Table A9-9-F-2 for overburden
Pct. time wind > 12 mph	100	Worst-case assumption

PM10 Emission Factor (Uncontrolled) 44.0 lb/day-acre
Reduction from watering 90% Control efficiency from watering storage pile by hand at a rate of 1.4 gallons/hour-yard^2, Table XI-B, Mitigation Measure Examples, Fugitive Dust from Materials Handling, http://www.aqmd.gov/ceqa/handbook/mitigation/fugitive/MM_fugitive.html
Controlled PM10 Emission Factor 4.4 lb/day-acre
Controlled PM2.5 Emission Factor[a] 0.9 lb/day-acre

[a] PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction of PM10 in Construction Dust = 0.208 from Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006

Emissions [pounds per day] = Controlled emission factor [pounds per acre-day] x Storage pile surface area [acres]

Bulldozing, Scraping and Grading

Emission Factor [lb/hr] = 0.75 x (silt content [%])$^{1.5}$ / (moisture)$^{1.4}$
Reference: AP-42, Table 11.9-1, July 1998

Parameter	Value	Basis
Silt Content	7.5	SCAQMD CEQA Air Quality Analysis Handbook, Table A9-9-F-2 for overburden
Moisture	10	Assumed moisture level achieved by watering

Controlled PM10 Emission Factor 0.613 lb/hr
Controlled PM2.5 Emission Factor[a] 0.128 lb/hr

[a] PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction of PM10 in Construction Dust = 0.208 from Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006

[b] Watering is assumed to be used to maintain moist conditions, so no further reduction from watering is included.

Emissions [pounds per day] = Controlled emission factor [pounds per hour] x Bulldozing, scraping or grading time [hours/day]

Valley South Subtransmission Line Project

Appendix E-2 - Construction Emission Calculations (Uncontrolled)

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Table 1
Construction Emissions Summary
Total Daily Criteria Pollutant Emissions by Project Component

Phase	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)
Substation Modifications						
Substation Modifications	3.75	23.06	22.29	0.07	5.63	1.21
Subtransmission Source Line Construction						
Survey	0.19	1.67	0.44	0.00	14.76	1.47
Marshalling Yard	3.67	21.51	14.30	0.06	56.23	6.11
Roads and Landing Work	2.63	13.55	9.73	0.04	70.87	14.09
Tree Trimming and Removal	2.22	11.67	10.82	0.02	14.99	1.76
Guard Structure Installation	2.17	11.29	9.25	0.03	44.40	4.80
Relocate Conductor and Groundwire	6.05	29.98	26.19	0.10	89.36	9.75
Existing Wood Poles and LWS Poles Removal	2.32	13.33	9.07	0.04	37.04	3.99
Tubular Steel Pole Foundations Installation	2.15	12.78	10.36	0.04	38.82	4.37
Tubular Steel Pole Haul	0.94	4.21	1.09	0.01	22.05	2.22
Tubular Steel Pole Assembly	1.74	8.67	4.26	0.03	44.24	4.57
Tubular Steel Pole Erection	1.60	7.95	3.24	0.02	36.92	3.79
Wood Guy Stub Pole/LWS Pole Haul	0.93	4.16	1.17	0.01	22.06	2.22
Wood/LWS Pole Assembly	1.74	8.67	4.26	0.03	44.24	4.57
Install Wood/Wood Guy Stub Pole/LWS Pole	2.68	15.83	11.26	0.04	44.62	4.84
Reconfigure Existing Structures	2.17	12.64	4.42	0.03	28.46	2.96
Install Conductor & GW	7.92	41.41	36.74	0.13	6.44	1.89
Guard Structure Removal	1.84	9.83	6.60	0.03	36.96	3.92
Restoration	1.56	9.07	4.42	0.03	65.72	10.49
Vault Installation	2.37	12.80	6.26	0.04	9.25	1.13
Duct Bank Installation	1.17	8.27	6.49	0.02	8.68	1.22
Install Underground Cable	4.15	24.04	26.92	0.06	7.16	1.77
Distribution Relocation						
Relocate Existing Conductor	1.10	6.60	6.91	0.02	36.88	3.67
Wood Pole Removal	1.02	6.01	6.54	0.02	18.60	1.84
Install Distribution Underground Cable	2.21	13.72	11.89	0.04	32.47	3.53
Telecommunications Construction						
Control Building Communications Room	2.10	12.60	13.09	0.03	1.07	0.08

Notes:
VOC = volatile organic compounds
CO = carbon monoxide
NOX = nitrogen oxides
SOX = sulfur oxides
PM10 = suspended particulate matter measuring less than 10 microns
PM2.5 = suspended particulate matter measuring less than 2.5 micron
lb/day = pounds per day

Table 2
Construction Emissions Summary
Peak Daily Criteria Pollutant Emissions for Overlapping Project Components

Construction Component	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)
Substation Modification						
Substation Modifications	3.75	23.06	22.29	0.07	5.63	1.21
Maximum	**3.75**	**23.06**	**22.29**	**0.07**	**5.63**	**1.21**
Subtransmission Line Construction						
Survey, Marshalling Yard, Tree Trimming and Removal	6.08	34.84	25.55	0.08	85.97	9.35
Roads & Landing Work, Tubular Steel Pole Installation, Vault Installation, Duct Bank Installation, Reconfigure Existing Structures, Wood Guy Stub Pole/LWS Haul	11.42	64.21	38.44	0.19	178.14	25.99
Roads & Landing Work, Tubular Steel Pole Installation, Wood Guy Stub Pole/LWS Haul, Wood Guy Stub Pole/LWS Pole Assembly, Install Wood Poles	10.13	54.98	36.78	0.16	220.62	30.09
Roads & Landing Work, Tubular Steel Pole Installation, Tubular Steel Pole Haul, Tubular Steel Pole Assembly, Tubular Steel Pole Erection	9.06	47.15	28.67	0.14	212.91	29.03
Install Underground Cable	4.15	24.04	26.92	0.06	7.16	1.77
Relocate Groundwire	6.05	29.98	26.19	0.10	89.36	9.75
Guard Structure Installation	2.17	11.29	9.25	0.03	44.40	4.80
Install Conductor and Groundwire	7.92	41.41	36.74	0.13	6.44	1.89
Restoration, Existing Wood Pole Removal, Guard Structure Removal	5.71	32.23	20.10	0.09	139.71	18.39
Maximum	**11.42**	**64.21**	**38.44**	**0.19**	**220.62**	**30.09**
Distribution Relocation						
All	4.32	26.33	25.35	0.07	87.95	9.05
Maximum	**4.32**	**26.33**	**25.35**	**0.07**	**87.95**	**9.05**
Telecommunications Construction						
All	2.10	12.60	13.09	0.03	1.07	0.08
Maximum	**2.10**	**12.60**	**13.09**	**0.03**	**1.07**	**0.08**
Peak Daily Emissions[a]	**21.59**	**126.20**	**99.16**	**0.37**	**315.27**	**40.42**
SCAQMD Mass Daily Thresholds (lb/day) =	**75**	**550**	**100**	**150**	**150**	**55**
Exceed Thresholds (Y/N)?	**N**	**N**	**N**	**N**	**Y**	**N**

[a] Peak daily construction emissions are the sum of highest daily emissions generated during concurrent construction activities associated with the substation modifications; subtransmission line; distribution relocation; and, installation of telecommunication equipment at existing SCE substations.

Table 3
Construction Emissions Summary
Onsite Daily Criteria Pollutant Emissions by Construction Phase

Construction Component	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)
Substation Construction						
Substation Modifications	2.35	14.86	10.24	0.04	3.89	0.70
Subtransmission Line Construction						
Marshalling Yard	0.77	3.99	3.44	0.01	13.84	1.51
Tree Trimming and Removal	1.98	9.73	10.10	0.02	0.57	0.53
Guard Structure Installation	1.82	8.56	7.81	0.03	0.42	0.39
Relocate Conductor and Groundwire	1.98	10.70	7.86	0.03	0.33	0.31
Existing Wood Poles and LWS Poles Removal	1.98	10.70	7.86	0.03	0.33	0.31
Tubular Steel Pole Foundations Installation	1.60	9.19	6.54	0.02	1.86	0.58
Tubular Steel Pole Haul	0.72	2.45	0.42	0.01	0.01	0.01
Tubular Steel Pole Assembly	1.31	5.15	2.92	0.02	0.17	0.15
Tubular Steel Pole Erection	1.19	4.52	2.13	0.02	0.12	0.11
Wood Guy Stub Pole/LWS Pole Haul	0.72	2.45	0.42	0.01	0.01	0.01
Wood/LWS Pole Assembly	1.31	5.15	2.92	0.02	0.17	0.15
Install Wood/Wood Guy Stub Pole/LWS Pole	2.33	13.15	9.74	0.03	0.64	0.42
Reconfigure Existing Structures	1.31	5.15	2.92	0.02	0.17	0.15
Install Conductor & GW	7.00	33.06	35.82	0.11	1.56	1.44
Guard Structure Removal	1.51	7.20	5.39	0.02	0.26	0.24
Vault Installation	1.88	9.43	3.17	0.03	8.62	0.99
Duct Bank Installation	0.69	5.05	3.52	0.01	8.07	1.08
Install Underground Cable	3.78	20.96	26.05	0.05	6.66	1.71
Distribution Relocation						
Relocate Existing Conductor	0.84	4.65	5.77	0.01	0.28	0.00
Wood Pole Removal	0.84	4.65	5.77	0.01	0.28	0.00
Install Distribution Underground Cable	1.83	10.68	10.57	0.03	0.33	0.31
Telecommunications Construction						
Control Building Communications Room	1.77	9.78	12.36	0.03	0.62	0.03

Table 4
Construction Emissions Summary
Maximum Daily Onsite Criteria Pollutant Emissions

Construction Component[a]	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)
Substation Modification						
Substation Modifications	2.35	14.86	10.24	0.04	3.89	0.70
Maximum	**2.35**	**14.86**	**10.24**	**0.04**	**3.89**	**0.70**
Subtransmission Line Construction[b]						
Marshalling Yard	0.77	3.99	3.44	0.01	13.84	1.51
Tree Trimming and Removal	1.98	9.73	10.10	0.02	0.57	0.53
Guard Structure Installation	0.36	1.71	1.56	0.01	0.08	0.08
Relocate Conductor and Groundwire	1.98	10.70	7.86	0.03	0.33	0.31
Existing Wood Poles and LWS Poles Removal	0.22	1.19	0.87	0.00	0.04	0.03
Tubular Steel Pole Foundations Installation	1.60	9.19	6.54	0.02	1.86	0.58
Tubular Steel Pole Haul	0.12	0.41	0.07	0.00	0.00	0.00
Tubular Steel Pole Assembly	1.31	5.15	2.92	0.02	0.17	0.15
Tubular Steel Pole Erection	1.19	4.52	2.13	0.02	0.12	0.11
Wood Guy Stub Pole/LWS Pole Haul	0.12	0.41	0.07	0.00	0.00	0.00
Wood/LWS Pole Assembly	0.33	1.29	0.73	0.00	0.04	0.04
Install Wood/Wood Guy Stub Pole/LWS Pole	0.15	0.82	0.61	0.00	0.04	0.03
Reconfigure Existing Structures	0.33	1.29	0.73	0.00	0.04	0.04
Install Conductor & GW	3.50	16.53	17.91	0.06	0.78	0.72
Guard Structure Removal	0.22	1.03	0.77	0.00	0.04	0.03
Maximum	**3.50**	**16.53**	**17.91**	**0.06**	**13.84**	**1.51**
Subtransmission Line Construction at Valley Substation						
Vault Installation	1.88	9.43	3.17	0.03	8.62	0.99
Duct Bank Installation	0.69	5.05	3.52	0.01	8.07	1.08
Install Underground Cable	3.78	20.96	26.05	0.05	6.66	1.71
Maximum	**3.78**	**20.96**	**26.05**	**0.05**	**8.62**	**1.71**
Distribution Relocation						
All	3.51	19.98	22.12	0.06	0.90	0.31
Maximum	**3.51**	**19.98**	**22.12**	**0.06**	**0.90**	**0.31**
Telecommunications Construction						
All	1.77	9.78	12.36	0.03	0.62	0.03
Maximum	**1.77**	**9.78**	**12.36**	**0.03**	**0.62**	**0.03**
Peak Daily Construction Emissions - Onsite[b]	**3.78**	**20.96**	**26.05**	**0.06**	**8.62**	**1.71**

[a] The construction phases within a group could all occur at the same time at the same location.

The following Subtransmission Source Line construction activity emissions were divided by the following number of working locations per day:

Guard Structure Installation: 5 structures per day
Wood/LWS Pole Removal: 9 poles per day
TSP Foundations Installation: 1 foundation per day
Wood and LWS Pole Haul: 6 locations per day
Wood and LWS Pole Assembly: 4 poles per day
Wood and LWS Pole Installation: 4 poles per day
TSP Haul: 6 locations per day
TSP Assembly: 1 pole per day
TSP Erection: 1 pole per day
Reconfigure Existing Structures: 4 structures per day
Conductor Installation: 1 pull, and 1 tension site per day
Guard Structure Removal: 7 structures per day
Vault Installation: 1 vault per day
Duct Bank Installation: 1 location per day

[b] Survey, Roadwork and restoration were excluded from the LST analysis because these activities would occur over a distance of approximately 1 mile along the Proposed 115 kV Subtransmission Line, instead of at a single location, each day.

Table 5
Construction Emissions
Localized Significance Threshold Analysis

Pollutant	Maximum Daily Onsite Emissions (lb/day)	Receptor Distance (m)	Allowable Emissions Interpolation[a]					Allowable Exceeded?
			Distance 1 (m)	Emissions 1 (lb/day)	Distance 2 (m)	Emissions 2 (lb/day)	Interpolated Emissions (lb/day)[b]	
Substation Modifications[c]								
CO	14.86	205	100	1,746	200	4,339	4,469	No
NOx	10.24	205	100	212	200	335	341	No
PM10	3.89	205	100	30	200	67	69	No
PM2.5	0.70	205	100	8	200	20	21	No
Subtransmission Line Construction[c]								
CO	16.53	25	25	750	50	1,105	750	No
NOx	17.91	25	25	162	50	203	162	No
PM10	13.84	25	25	4	50	12	4	Yes
PM2.5	1.51	25	25	3	50	4	3	No
Subtransmission Line Construction at Valley 500/115 kV Substation[c]								
CO	20.96	205	100	1,746	200	4,339	4,469	No
NOx	26.05	205	100	212	200	335	341	No
PM10	8.62	205	100	30	200	67	69	No
PM2.5	1.71	205	100	8	200	20	21	No
Distribution Relocation[d]								
CO	19.98	25	25	750	50	1,105	750	No
NOx	22.12	25	25	162	50	203	162	No
PM10	0.90	25	25	4	50	12	4	No
PM2.5	0.31	25	25	3	50	4	3	No
Telecommunications Construction[e]								
CO	9.78	25	25	750	50	1,105	750	No
NOx	12.36	25	25	162	50	203	162	No
PM10	0.62	25	25	4	50	12	4	No
PM2.5	0.03	25	25	3	50	4	3	No

[a] Allowable emissions are from Appendix C to Final Localized Significance Methodology, SCAQMD, revised October 2009, downloaded from http://www.aqmd.gov/ceqa/handbook/LST/LST.html

[b] Interpolated emissions = Emissions 1 + (Receptor distance - Distance 1) x (Emissions 2 - Emissions 1) / (Distance 2 - Distance 1)

[c] Closest sensitive receptor is located approximately 200 meters north of the northern fenceline of Valley Substation. Allowable emissions are for a 5-acre site

[d] Closest sensitive receptor is located within 25 meters east and west of the Proposed Subtransmission Line and areas where distribution relocation would occur. Allowable emissions are for a 1-acre site.

[e] Closest sensitive receptor is located with 150 and 200 meters from either Triton Substation or Valley Substation. Allowable emissions are for a 1 acre site.

Table 6
Construction Emissions Summary
Total Greenhouse Gas Emissions by Construction Phase

Phase	CO2e (MT)
Substation Construction	
Substation Modifications	64.48
Subtransmission Source Line Construction	
Survey	2.41
Marshalling Yard	509.06
Roads and Landing Work	60.56
Tree Trimming and Removal	11.31
Guard Structure Installation	12.84
Relocate Conductor and Groundwire	32.42
Existing Wood Poles and LWS Poles Removal	9.32
Tubular Steel Pole Foundations Installation	97.09
Tubular Steel Pole Haul	6.13
Tubular Steel Pole Assembly	36.22
Tubular Steel Pole Erection	33.61
Wood Guy Stub Pole/LWS Pole Haul	32.43
Wood/LWS Pole Assembly	78.48
Install Wood/Wood Guy Stub Pole/LWS Pole	126.65
Reconfigure Existing Structures	20.00
Install Conductor & GW	415.93
Guard Structure Removal	11.24
Restoration	16.08
Vault Installation	16.81
Duct Bank Installation	6.65
Install Underground Cable	4.99
Distribution Relocation	
Relocate Existing Conductor	122.08
Wood Pole Removal	26.94
Install Distribution Underground Cable	35.38
Telecommunications Construction	
Control Building Communications Room	5.39
Total	**1794.50**

Table 7
Substation Construction Emissions
Substation Modifications

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	2.33	14.76	10.04	0.04	0.36	0.33	35.8
Onsite Motor Vehicle Exhaust	0.02	0.10	0.19	0.00	0.01	0.01	0.5
Onsite Motor Vehicle Fugitive PM	--	--	--	--	3.43	0.34	
Earthwork Fugitive PM	--	--	--	--	0.09	0.02	
Onsite Total	**2.35**	**14.86**	**10.24**	**0.04**	**3.89**	**0.70**	**36.3**
Offsite Motor Vehicle Exhaust	1.40	8.21	12.05	0.04	0.64	0.51	28.2
Offsite Motor Vehicle Fugitive PM	--	--	--	--	1.10	0.00	
Offsite Total	**1.40**	**8.21**	**12.05**	**0.04**	**1.75**	**0.51**	**28.2**
Total	**3.75**	**23.06**	**22.29**	**0.07**	**5.63**	**1.21**	**64.5**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Skid Steer Loader	80	1	15	7
Backhoe	80	1	15	7
Foundation Auger	80	1	5	7
Boom Truck	300	1	30	7
Lift Truck	200	1	30	7
Concrete Mixer Truck	350	4	5	4

Construction Equipment Exhaust Emission Factors

Equipment	Horse-power	VOC (lb/hr)[a]	CO (lb/hr)[a]	NOX (lb/hr)[a]	SOX (lb/hr)[a]	PM10 (lb/hr)[a]	PM2.5 (lb/hr)[b]	CO2 (lb/hr)[a]	CH4 (lb/hr)[a]	Category
Skid Steer Loader	80	0.025	0.268	0.197	0.001	0.009	0.009	42.762	0.002	Skid Steer Loaders
Backhoe	80	0.043	0.343	0.168	0.001	0.001	0.001	51.728	0.004	Tractors/Loaders/Backhoes
Foundation Auger	80	0.031	0.467	0.225	0.001	0.001	0.001	77.122	0.003	Bore/Drill Rigs
Boom Truck	300	0.120	0.409	0.070	0.002	0.002	0.002	180.101	0.011	Cranes
Lift Truck	200	0.105	0.581	0.722	0.001	0.035	0.033	132.743	0.009	Manlifts
Concrete Mixer Truck	350	0.009	0.042	0.054	0.000	0.002	0.002	7.248	0.001	Concrete Mixers

a From Table 34

[b] Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006, http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

Construction Equipment Daily Criteria Pollutant Exhaust Emissions

Equipment	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Skid Steer Loader	0.17	1.88	1.38	0.00	0.07	0.06
Backhoe	0.30	2.40	1.18	0.00	0.01	0.01
Foundation Auger	0.22	3.27	1.57	0.01	0.01	0.01
Boom Truck	0.84	2.86	0.49	0.01	0.02	0.02
Lift Truck	0.73	4.07	5.05	0.01	0.25	0.23
Concrete Mixer Truck	0.06	0.29	0.38	0.00	0.02	0.01
Total	**2.33**	**14.76**	**10.04**	**0.04**	**0.36**	**0.33**

[a] Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

Construction Equipment Total Greenhouse Gas Emissions

Equipment	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Skid Steer Loader	2.0	0.0	2.0
Backhoe	2.5	0.0	2.5
Foundation Auger	1.2	0.0	1.2
Boom Truck	17.2	0.0	17.2
Lift Truck	12.6	0.0	12.7
Concrete Mixer Truck	0.3	0.0	0.3
Total	**35.8**	**0.0**	**35.8**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 34

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Table 7
Substation Construction Emissions
Substation Modifications

Motor Vehicle Usage

Vehicle	Number	Days Used	Hours Used/ Day	Miles/ Day/ Veh.[a]
Onsite				
Boom Truck	1	30	N/A	1
Crew Truck	3	40	N/A	1
Flat Bed Truck	1	40	N/A	1
Lift Truck	1	30	N/A	1
Dump Truck	3	15	N/A	1
Water Truck	1	15	N/A	1
Concrete Mixer Truck	4	5	N/A	1
Offsite				
Boom Truck	1	30	N/A	5
Crew Truck	3	40	N/A	5
Flat Bed Truck	1	40	N/A	5
Lift Truck	1	30	N/A	5
Dump Truck	3	15	N/A	180
Water Truck	1	15	N/A	5
Concrete Mixer Truck	4	5	N/A	50
Worker Commute	10	30	N/A	60

[a] Onsite travel assumed to be 1 mile per day.

[a] Offsite truck travel based on location of Staging Area 1 (0.25 miles from Valley Substation) and up to 10 trips per day per vehicle; offsite concrete mixer truck (vendor) based on estimated 50 mile roundtrip distance; offsite worker commute based on estimated 60 mile roundtrip distance.

VMT estimation basis:	Value	Units	Basis
	0.5	miles/roundtrip/haul truck	Based on roundtrip distance from Valley Substation to Staging Area 1
	10	roundtrips/day/haul truck	Assumption
	5	miles/day/haul truck	Calculation
	60	miles/roundtrip/dump truck	Based on roundtrip distance to/from the San Timoteo Sanitary Landfill
	3	roundtrips/day/dump truck	Assumption
	180	miles/day/dump truck	Calculation
	50	miles/roundtrip/vendor trip	Vendor roundtrip distance, assumption
	60	miles/roundtrip/worker commute	Assumption

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Onsite									
Boom Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Crew Truck	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Flat Bed Truck	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Lift Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Dump Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Water Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Concrete Mixer Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Offsite									
Boom Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Crew Truck	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Flat Bed Truck	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Lift Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Dump Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Water Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Concrete Mixer Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Worker Commute	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

a From Table 35 or Table 36

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Onsite						
Boom Truck	0.00	0.01	0.02	0.00	0.00	0.00
Crew Truck	0.00	0.03	0.03	0.00	0.00	0.00
Flat Bed Truck	0.00	0.01	0.01	0.00	0.00	0.00
Lift Truck	0.00	0.01	0.02	0.00	0.00	0.00
Dump Truck	0.00	0.02	0.05	0.00	0.00	0.00
Water Truck	0.00	0.01	0.02	0.00	0.00	0.00
Concrete Mixer Truck	0.01	0.02	0.06	0.00	0.00	0.00
Onsite Total	**0.02**	**0.10**	**0.19**	**0.00**	**0.01**	**0.01**
Offsite						
Boom Truck	0.01	0.03	0.08	0.00	0.00	0.00
Crew Truck	0.02	0.14	0.15	0.00	0.01	0.00
Flat Bed Truck	0.01	0.05	0.05	0.00	0.00	0.00
Lift Truck	0.01	0.03	0.08	0.00	0.00	0.00
Dump Truck	0.71	3.27	8.24	0.02	0.41	0.34
Water Truck	0.01	0.03	0.08	0.00	0.00	0.00
Concrete Mixer Truck	0.26	1.21	3.05	0.01	0.15	0.12
Worker Commute	0.38	3.45	0.33	0.01	0.06	0.04
Offsite Total	**1.40**	**8.21**	**12.05**	**0.04**	**0.64**	**0.51**
Total	**1.42**	**8.30**	**12.25**	**0.04**	**0.65**	**0.52**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Table 7
Substation Construction Emissions
Substation Modifications

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			
Boom Truck	0.1	0.0	0.1
Crew Truck	0.2	0.0	0.2
Flat Bed Truck	0.1	0.0	0.1
Lift Truck	0.1	0.0	0.1
Dump Truck	0.1	0.0	0.1
Water Truck	0.0	0.0	0.0
Concrete Mixer Truck	0.0	0.0	0.0
Onsite Total	**0.5**	**0.0**	**0.5**
Offsite			
Boom Truck	0.3	0.0	0.3
Crew Truck	0.8	0.0	0.8
Flat Bed Truck	0.3	0.0	0.3
Lift Truck	0.3	0.0	0.3
Dump Truck	15.5	0.0	15.5
Water Truck	0.1	0.0	0.1
Concrete Mixer Truck	1.9	0.0	1.9
Worker Commute	9.0	0.0	9.0
Offsite Total	**28.2**	**0.0**	**28.2**
Total	**28.6**	**0.0**	**28.6**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle[a]	PM10 Emission Factor (lb/mi)[b]	PM2.5 Emission Factor (lb/mi)[b]	PM10 Emissions (lb/day)[c]	PM2.5 Emissions (lb/day)[c]
Onsite							
Boom Truck	1	Paved	0.8	0.001	0.000	0.00	0.00
Crew Truck	3	Paved	0.8	0.001	0.000	0.00	0.00
Flat Bed Truck	1	Paved	0.8	0.001	0.000	0.00	0.00
Lift Truck	1	Paved	0.8	0.001	0.000	0.00	0.00
Dump Truck	3	Paved	0.8	0.001	0.000	0.00	0.00
Water Truck	1	Paved	0.8	0.001	0.000	0.00	0.00
Concrete Mixer Truck	4	Paved	0.8	0.001	0.000	0.00	0.00
Boom Truck	1	Unpaved - private	0.3	1.052	0.105	0.26	0.03
Crew Truck	3	Unpaved - private	0.3	1.052	0.105	0.79	0.08
Flat Bed Truck	1	Unpaved - private	0.3	1.052	0.105	0.26	0.03
Lift Truck	1	Unpaved - private	0.3	1.052	0.105	0.26	0.03
Dump Truck	3	Unpaved - private	0.3	1.052	0.105	0.79	0.08
Concrete Mixer Truck	4	Unpaved - private	0.3	1.052	0.105	1.05	0.10
Onsite Total						**3.43**	**0.34**
Offsite							
Boom Truck	1	Paved	5	0.001	0.000	0.00	0.00
Crew Truck	3	Paved	5	0.001	0.000	0.01	0.00
Flat Bed Truck	1	Paved	5	0.001	0.000	0.00	0.00
Lift Truck	1	Paved	5	0.001	0.000	0.00	0.00
Dump Truck	3	Paved	180	0.001	0.000	0.43	0.00
Water Truck	1	Paved	5	0.001	0.000	0.00	0.00
Concrete Mixer Truck	4	Paved	50	0.001	0.000	0.16	0.00
Worker Commute	10	Paved	60	0.001	0.000	0.48	0.00
Offsite Total						**1.10**	**0.00**
Total						**4.53**	**0.34**

[a] Assumes 75% onsite vehicle miles travelled (VMT) occur on paved areas within substation perimeter and 25% of VMT occur on unpaved areas within substation perimeter.

[b] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

c From Table 37

Earthwork Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM10 Emission Factor[a]	PM2.5 Emission Factor[a]	PM10 (lb/day)[b]	PM2.5 (lb/day)[b]
Soil Handling[c]	CY/day	5.5	1.67E-02	3.47E-03	0.09	0.02
Bulldozing, Scraping and Grading	hr/day		5.837	1.214	0.00	0.00
Storage Pile Wind Erosion	acres		4.4	0.92	0.00	0.00
Total					**0.09**	**0.02**

a From Table 38

b Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

c Activity level calculation:

Description	Value	Units	Source
Substation equipment foundation, cut	82.44	CY	Table 3.7 Substation Cut and Fill Grading Summary
Activity duration	15	days	Table 3.9-B Substation Construction Equipment and Workforce Estimates
Daily activity level	5.5	CY/day	calculation

Table 8
Subtransmission Line Construction Emissions
Survey

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.00	0.00	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
Onsite Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.0**
Offsite Motor Vehicle Exhaust	0.19	1.67	0.44	0.00	0.03	0.02	2.4
Offsite Motor Vehicle Fugitive PM	--	--	--	--	14.73	1.45	
Offsite Total	**0.19**	**1.67**	**0.44**	**0.00**	**14.76**	**1.47**	**2.4**
Total	**0.19**	**1.67**	**0.44**	**0.00**	**14.76**	**1.47**	**2.4**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
None				

Construction Equipment Exhaust Emission Factors

Equipment	Horse-power	VOC (lb/hr)[a]	CO (lb/hr)[a]	NOX (lb/hr)[a]	SOX (lb/hr)[a]	PM10 (lb/hr)[a]	PM2.5 (lb/hr)[b]	CO2 (lb/hr)[a]	CH4 (lb/hr)[a]
None		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

a From Table 34

[b] Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006, http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

Construction Equipment Daily Criteria Pollutant Exhaust Emissions

Equipment	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
None	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

[a] Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

Construction Equipment Total Greenhouse Gas Emissions

Equipment	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
None	0.0	0.0	0.0
Total	**0.0**	**0.0**	**0.0**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 34

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Usage

Vehicle	Number	Days Used	Hours Used/ Day	Miles/ Day/ Veh.[a]
Onsite				
1-Ton Truck, 4x4	2	15	N/A	2
Offsite				
1-Ton Truck, 4x4	2	15	N/A	15.4
Worker Commute	4	15	N/A	60

[a] Onsite travel during survey work assumed to be 2 miles roundtrip.

[a] Offsite travel assumed to be 15.4 miles per day, equal to 1/2 total distance of Proposed Project x 2 trips/day; offsite worker commute based on estimated 60 mile roundtrip distance.

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Onsite									
None									
Offsite									
1-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Worker Commute	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

a From Table 35 or Table 36

Table 8
Subtransmission Line Construction Emissions
Survey

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Onsite						
1-Ton Truck, 4x4	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Offsite						
1-Ton Truck, 4x4	0.04	0.28	0.30	0.00	0.01	0.01
Worker Commute	0.15	1.38	0.13	0.00	0.02	0.01
Offsite Total	**0.19**	**1.67**	**0.44**	**0.00**	**0.03**	**0.02**
Total	**0.19**	**1.67**	**0.44**	**0.00**	**0.03**	**0.02**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			
1-Ton Truck, 4x4	0.0	0.0	0.0
Onsite Total	**0.0**	**0.0**	**0.0**
Offsite			
1-Ton Truck, 4x4	0.6	0.0	0.6
Worker Commute	1.8	0.0	1.8
Offsite Total	**2.4**	**0.0**	**2.4**
Total	**2.4**	**0.0**	**2.4**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle[a]	PM10 Emission Factor (lb/mi)[b]	PM2.5 Emission Factor (lb/mi)[b]	PM10 Emissions (lb/day)[c]	PM2.5 Emissions (lb/day)[c]
Onsite							
1-Ton Truck, 4x4							
Onsite Total						**0.00**	**0.00**
Offsite							
1-Ton Truck, 4x4	2	Paved	8.5	0.001	0.000	0.01	0.00
1-Ton Truck, 4x4	2	Unpaved - private	4.2	1.052	0.105	8.84	0.88
1-Ton Truck, 4x4	2	Unpaved - public	2.7	1.052	0.105	5.68	0.57
Worker Commute	4	Paved	60	0.001	0.000	0.19	0.00
Offsite Total						**14.73**	**1.45**
Total						**14.73**	**1.45**

a Of the 15.4 mile alignment, 8.5 miles occur on paved roadways and 6.9 miles occur on unpaved roadways (2.7 miles are unpaved public roadways and 4.2 miles are unpaved private roadways). Daily VMT per vehicle assumes 1/2 total distance of Proposed Project x 2 trips per day.

b From Table 37

[c] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Earthwork Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM10 Emission Factor[a]	PM2.5 Emission Factor[a]	PM10 (lb/day)[b]	PM2.5 (lb/day)[b]
Soil Handling	CY/day		1.67E-02	3.47E-03	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		5.837	1.214	0.00	0.00
Storage Pile Wind Erosion	acres		4.4	0.92	0.00	0.00
Total					**0.00**	**0.00**

a From Table 38

[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 9
Subtransmission Line Construction Emissions
Marshalling Yard

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	0.75	3.91	3.25	0.01	0.15	0.14	127.3
Onsite Motor Vehicle Exhaust	0.02	0.08	0.19	0.00	0.01	0.01	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	13.68	1.36	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
Onsite Total	**0.77**	**3.99**	**3.44**	**0.01**	**13.84**	**1.51**	**127.3**
Offsite Motor Vehicle Exhaust	0.15	1.38	0.13	0.00	0.02	0.01	0.0
Offsite Motor Vehicle Fugitive PM	--	--	--	--	0.19	0.00	
Offsite Total	**0.15**	**1.38**	**0.13**	**0.00**	**0.21**	**0.01**	**0.0**
Total (for 4 Marshalling Yards)	**3.67**	**21.51**	**14.30**	**0.06**	**56.23**	**6.11**	**509.06**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Rough Terrain Forklift	125	1	260	6
Boom/Crane Truck	350	1	260	2

Construction Equipment Exhaust Emission Factors

Equipment	Horse-power	VOC (lb/hr)[a]	CO (lb/hr)[a]	NOX (lb/hr)[a]	SOX (lb/hr)[a]	PM10 (lb/hr)[a]	PM2.5 (lb/hr)[b]	CO2 (lb/hr)[a]	CH4 (lb/hr)[a]	Category
Rough Terrain Forklift	125	0.085	0.516	0.518	0.001	0.025	0.023	119.580	0.008	Forklift
Boom/Crane Truck	350	0.120	0.409	0.070	0.002	0.002	0.002	180.101	0.011	Cranes

a From Table 34

[b] Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006, http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

Construction Equipment Daily Criteria Pollutant Exhaust Emissions

Equipment	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Rough Terrain Forklift	0.51	3.10	3.11	0.01	0.15	0.14
Boom/Crane Truck	0.24	0.82	0.14	0.00	0.00	0.00
Total	**0.75**	**3.91**	**3.25**	**0.01**	**0.15**	**0.14**

[a] Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

Construction Equipment Total Greenhouse Gas Emissions

Equipment	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Rough Terrain Forklift	84.6	0.0	84.7
Boom/Crane Truck	42.5	0.0	42.5
Total	**127.1**	**0.0**	**127.3**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 34

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Usage

Vehicle	Number	Days Used	Hours Used/ Day	Miles/ Day/ Veh.[a]
Onsite				
1-Ton Truck, 4x4	1	260	N/A	1
Boom/Crane Truck	1	260	N/A	1
Water Truck	1	260	N/A	10
Truck, Semi-Tractor	1	260	N/A	1
Offsite				
Worker Commute	4	260	N/A	60

[a] Onsite travel assummed to be 1 mile per day; water truck travel based on 8 hrs/day x 5 MPH x 0.25 usage factor.

[a] Offsite worker commute based on estimated 60 mile roundtrip distance.

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Onsite									
1-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Boom/Crane Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Water Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Truck, Semi-Tractor	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Offsite									
Worker Commute	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

a From Table 35 or Table 36

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Onsite						
1-Ton Truck, 4x4	0.00	0.01	0.01	0.00	0.00	0.00
Boom/Crane Truck	0.00	0.01	0.02	0.00	0.00	0.00
Water Truck	0.01	0.06	0.15	0.00	0.01	0.01
Truck, Semi-Tractor	0.00	0.01	0.02	0.00	0.00	0.00
Onsite Total	**0.02**	**0.08**	**0.19**	**0.00**	**0.01**	**0.01**
Worker Commute	0.15	1.38	0.13	0.00	0.02	0.01
Offsite Total	**0.15**	**1.38**	**0.13**	**0.00**	**0.02**	**0.01**
Total	**0.17**	**1.46**	**0.33**	**0.00**	**0.03**	**0.02**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Table 9
Subtransmission Line Construction Emissions
Marshalling Yard

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			
1-Ton Truck, 4x4	0.3	0.0	0.0
Boom/Crane Truck	0.5	0.0	0.0
Water Truck	5.0	0.0	0.0
Truck, Semi-Tractor	0.5	0.0	0.0
Onsite Total	**6.3**	**0.0**	**0.0**
Worker Commute	31.3	0.0	0.0
Offsite Total	**31.3**	**0.0**	**0.0**
Total	**37.6**	**0.0**	**0.0**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle	PM10 Emission Factor (lb/mi)[a]	PM2.5 Emission Factor (lb/mi)[a]	PM10 Emissions (lb/day)[b]	PM2.5 Emissions (lb/day)[b]
Onsite							
1-Ton Truck, 4x4	1	Unpaved - private	1	1.052	0.105	1.05	0.10
Boom/Crane Truck	1	Unpaved - private	1	1.052	0.105	1.05	0.10
Water Truck	1	Unpaved - private	10	1.052	0.105	10.52	1.05
Truck, Semi-Tractor	1	Unpaved - private	1	1.052	0.105	1.05	0.10
Onsite Total						**13.68**	**1.36**
Offsite							
Worker Commute	4	Paved	60	0.001	0.000	0.19	0.00
Offsite Total						**0.19**	**0.00**
Total						**13.87**	**1.36**

a From Table 37

[b] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Earthwork Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM10 Emission Factor[a]	PM2.5 Emission Factor[a]	PM10 (lb/day)[b]	PM2.5 (lb/day)[b]
Soil Handling	CY/day		1.67E-02	3.47E-03	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		5.837	1.214	0.00	0.00
Storage Pile Wind Erosion	acres		4.4	0.92	0.00	0.00
Total					**0.00**	**0.00**

a From Table 38

[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 10
Subtransmission Line Construction Emissions
Roads and Landing Work

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	2.39	11.56	9.05	0.03	0.50	0.46	52.2
Onsite Motor Vehicle Exhaust	0.00	0.01	0.02	0.00	0.00	0.00	0.1
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.00	0.00	
Earthwork Fugitive PM	--	--	--	--	61.01	12.69	
Onsite Total	**2.39**	**11.57**	**9.08**	**0.03**	**61.51**	**13.15**	**52.3**
Offsite Motor Vehicle Exhaust	0.24	1.98	0.65	0.00	0.05	0.04	8.3
Offsite Motor Vehicle Fugitive PM	--	--	--	--	9.31	0.90	
Offsite Total	**0.24**	**1.98**	**0.65**	**0.00**	**9.36**	**0.94**	**8.3**
Total	**2.63**	**13.55**	**9.73**	**0.04**	**70.87**	**14.09**	**60.6**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Backhoe/Front Loader	125	1	39	4
Track Type Dozer	150	1	39	4
Motor Grader	250	1	39	6
Drum Type Compactor	100	1	39	6
Excavator	250	1	39	4

Construction Equipment Exhaust Emission Factors

Equipment	Horse-power	VOC (lb/hr)[a]	CO (lb/hr)[a]	NOX (lb/hr)[a]	SOX (lb/hr)[a]	PM10 (lb/hr)[a]	PM2.5 (lb/hr)[b]	CO2 (lb/hr)[a]	CH4 (lb/hr)[a]	Category
Backhoe/Front Loader	125	0.067	0.584	0.257	0.001	0.001	0.001	101.387	0.006	Tractors/Loaders/Backhoes
Track Type Dozer	150	0.168	0.819	1.144	0.001	0.065	0.059	129.477	0.015	Rubber Tired Dozers
Motor Grader	250	0.111	0.378	0.102	0.002	0.004	0.003	172.113	0.010	Graders
Drum Type Compactor	100	0.068	0.392	0.441	0.001	0.034	0.031	58.989	0.006	Rollers
Excavator	250	0.093	0.332	0.047	0.002	0.002	0.002	158.683	0.008	Excavators

a From Table 34

[b] Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006, http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

Construction Equipment Daily Criteria Pollutant Exhaust Emissions

Equipment	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Backhoe/Front Loader	0.27	2.34	1.03	0.00	0.00	0.00
Track Type Dozer	0.67	3.28	4.58	0.01	0.26	0.24
Motor Grader	0.67	2.27	0.61	0.01	0.02	0.02
Drum Type Compactor	0.41	2.35	2.65	0.00	0.20	0.19
Excavator	0.37	1.33	0.19	0.01	0.01	0.01
Total	**2.39**	**11.56**	**9.05**	**0.03**	**0.50**	**0.46**

[a] Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

Construction Equipment Total Greenhouse Gas Emissions

Equipment	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Backhoe/Front Loader	7.2	0.0	7.2
Track Type Dozer	9.2	0.0	9.2
Motor Grader	18.3	0.0	18.3
Drum Type Compactor	6.3	0.0	6.3
Excavator	11.2	0.0	11.2
Total	**52.1**	**0.0**	**52.2**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 34

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Usage

Vehicle	Number[a]	Days Used	Hours Used/ Day	Miles/ Day/ Veh.[a]
Onsite				
Water Truck	1	39	N/A	1.5
Offsite				
Water Truck	1	39	N/A	12
1-Ton Truck, 4x4	1	39	N/A	12
Lowboy Truck/Trailer	1	39	N/A	12
Worker Commute	5	39	N/A	60

[a] Onsite truck travel based on 3 trips/day x 0.5/roundtrip

[a] Offsite travel assumed to be 12 miles per day, equal to 1/2 total distance of Segment 1 of the Proposed Project x 2 trips/day; offsite worker commute based on estimated 60 mile roundtrip distance.

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Onsite									
Water Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Offsite									
Water Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
1-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Lowboy Truck/Trailer	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Worker Commute	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

a From Table 35 or Table 36

Table 10
Subtransmission Line Construction Emissions
Roads and Landing Work

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Onsite						
Water Truck	0.00	0.01	0.02	0.00	0.00	0.00
Onsite Total	**0.00**	**0.01**	**0.02**	**0.00**	**0.00**	**0.00**
Offsite						
Water Truck	0.02	0.07	0.18	0.00	0.01	0.01
1-Ton Truck, 4x4	0.02	0.11	0.12	0.00	0.00	0.00
Lowboy Truck/Trailer	0.02	0.07	0.18	0.00	0.01	0.01
Worker Commute	0.19	1.73	0.17	0.00	0.03	0.02
Offsite Total	**0.24**	**1.98**	**0.65**	**0.00**	**0.05**	**0.04**
Total	**0.24**	**1.99**	**0.67**	**0.00**	**0.05**	**0.04**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			
Water Truck	0.1	0.0	0.1
Onsite Total	**0.1**	**0.0**	**0.1**
Offsite			
Water Truck	0.9	0.0	0.9
1-Ton Truck, 4x4	0.6	0.0	0.6
Lowboy Truck/Trailer	0.9	0.0	0.9
Worker Commute	5.9	0.0	5.9
Offsite Total	**8.3**	**0.0**	**8.3**
Total	**8.4**	**0.0**	**8.4**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle[a]	PM10 Emission Factor (lb/mi)[b]	PM2.5 Emission Factor (lb/mi)[b]	PM10 Emissions (lb/day)[c]	PM2.5 Emissions (lb/day)[c]
Onsite							
Water Truck	1	Paved	1.5	0.001	0.000	0.00	0.00
Onsite Total						**0.00**	**0.00**
Offsite							
Water Truck	1	Paved	7.7	0.001	0.000	0.01	0.00
1-Ton Truck, 4x4	1	Paved	7.7	0.001	0.000	0.01	0.00
Lowboy Truck/Trailer	1	Paved	7.7	0.001	0.000	0.01	0.00
1-Ton Truck, 4x4	1	Unpaved - private	1.9	1.052	0.105	2.00	0.20
Lowboy Truck/Trailer	1	Unpaved - private	1.9	1.052	0.105	2.00	0.20
1-Ton Truck, 4x4	1	Unpaved - public	2.4	1.052	0.105	2.53	0.25
Lowboy Truck/Trailer	1	Unpaved - public	2.4	1.052	0.105	2.53	0.25
Worker Commute	5	Paved	60	0.001	0.000	0.24	0.00
Offsite Total						**9.31**	**0.90**
Total						**9.31**	**0.90**

a For Segment 1 of the Proposed Project, 7.7 miles occur on paved roadways and 4.3 miles occur on unpaved roadways (2.4 miles are unpaved public roadways and 1.9 miles are unpaved private roadways). Daily VMT per vehicle assumes 1/2 total distance of Proposed Project x 2 trips per day. No additional roads&landing work is required along the 3.4 miles associated with Segment 2 of the Proposed Project.

b From Table 37

[c] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Earthwork Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM10 Emission Factor[a]	PM2.5 Emission Factor[a]	PM10 (lb/day)[b]	PM2.5 (lb/day)[b]
Soil Handling[c]	CY/day		1.67E-02	3.47E-03	0.00	0.00
Bulldozing, Scraping and Grading	hr/day	10	5.837	1.214	58.37	12.14
Storage Pile Wind Erosion[d]	acres	0.6	4.4	0.92	2.64	0.55
Total					**61.01**	**12.69**

a From Table 38

[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

[c] Based on excavating and backfilling 8.0 acres to 1.5' depth over 14 days

[d] Based on 8.0 acres total over 14 days

Table 11
Subtransmission Line Construction Emissions
Tree Trimming and Removal

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	1.98	9.73	10.10	0.02	0.57	0.53	8.7
Onsite Motor Vehicle Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.00	0.00	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
Onsite Total	**1.98**	**9.73**	**10.10**	**0.02**	**0.57**	**0.53**	**8.7**
Offsite Motor Vehicle Exhaust	0.24	1.95	0.72	0.00	0.06	0.04	2.6
Offsite Motor Vehicle Fugitive PM	--	--	--	--	14.36	1.20	
Offsite Total	**0.24**	**1.95**	**0.72**	**0.00**	**14.41**	**1.24**	**2.6**
Total	**2.22**	**11.67**	**10.82**	**0.02**	**14.99**	**1.76**	**11.3**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Manlift/Bucket Truck	250	1	12	8
Chipper	48	1	12	8
Stump Grinder	30	1	12	4

Construction Equipment Exhaust Emission Factors

Equipment	Horse-power	VOC (lb/hr)[a]	CO (lb/hr)[a]	NOX (lb/hr)[a]	SOX (lb/hr)[a]	PM10 (lb/hr)[a]	PM2.5 (lb/hr)[b]	CO2 (lb/hr)[a]	CH4 (lb/hr)[a]	Category
Manlift/Bucket Truck	250	0.105	0.581	0.722	0.001	0.035	0.033	132.743	0.009	Manlifts
Chipper	48	0.095	0.423	0.361	0.001	0.024	0.022	44.016	0.009	Crushing/Proc. Equipment
Stump Grinder	30	0.095	0.423	0.361	0.001	0.024	0.022	44.016	0.009	Crushing/Proc. Equipment

a From Table 34

[b] Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006, http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

Construction Equipment Daily Criteria Pollutant Exhaust Emissions

Equipment	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Manlift/Bucket Truck	0.84	4.65	5.77	0.01	0.28	0.26
Chipper	0.76	3.38	2.89	0.00	0.19	0.18
Stump Grinder	0.38	1.69	1.44	0.00	0.10	0.09
Total	**1.98**	**9.73**	**10.10**	**0.02**	**0.57**	**0.53**

[a] Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

Construction Equipment Total Greenhouse Gas Emissions

Equipment	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Manlift/Bucket Truck	5.8	0.0	5.8
Chipper	1.9	0.0	1.9
Stump Grinder	1.0	0.0	1.0
Total	**8.7**	**0.0**	**8.7**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 34

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Usage

Vehicle	Number[a]	Days Used	Hours Used/ Day	Miles/ Day/ Veh.[a]
Onsite				
None				
Offsite				
1-Ton Truck, 4x4	1	12	N/A	12
Debris Haul Truck	1	12	N/A	12
Manlift Bucket Truck	1	12	N/A	12
Worker Commute	5	12	N/A	60

[a] Onsite truck travel based on 3 trips/day x 0.5/roundtrip

[a] Offsite travel assumed to be 12 miles per day, equal to 1/2 total distance of Segment 1 of the Proposed Project x 2 trips/day; offsite worker commute based on estimated 60 mile roundtrip distance.

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Onsite									
None	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Offsite									
1-Ton Truck, 4x4	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Debris Haul Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Manlift Bucket Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Worker Commute	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

a From Table 35 or Table 36

Table 11
Subtransmission Line Construction Emissions
Tree Trimming and Removal

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Onsite						
None	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Offsite						
1-Ton Truck, 4x4	0.02	0.07	0.18	0.00	0.01	0.01
Debris Haul Truck	0.02	0.07	0.18	0.00	0.01	0.01
Manlift Bucket Truck	0.02	0.07	0.18	0.00	0.01	0.01
Worker Commute	0.19	1.73	0.17	0.00	0.03	0.02
Offsite Total	**0.24**	**1.95**	**0.72**	**0.00**	**0.06**	**0.04**
Total	**0.24**	**1.95**	**0.72**	**0.00**	**0.06**	**0.04**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			
None	0.0	0.0	0.0
Onsite Total	**0.0**	**0.0**	**0.0**
Offsite			
1-Ton Truck, 4x4	0.3	0.0	0.3
Debris Haul Truck	0.3	0.0	0.3
Manlift Bucket Truck	0.3	0.0	0.3
Worker Commute	1.8	0.0	1.8
Offsite Total	**2.6**	**0.0**	**2.6**
Total	**2.6**	**0.0**	**2.6**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle[a]	PM10 Emission Factor (lb/mi)[b]	PM2.5 Emission Factor (lb/mi)[b]	PM10 Emissions (lb/day)[c]	PM2.5 Emissions (lb/day)[c]
Onsite							
None	0	Paved	0				
Onsite Total						**0.00**	**0.00**
Offsite							
1-Ton Truck, 4x4	1	Paved	7.7	0.001	0.000	0.01	0.00
Debris Haul Truck	1	Paved	7.7	0.001	0.000	0.01	0.00
Manlift Bucket Truck	1	Paved	7.7	0.001	0.000	0.01	0.00
1-Ton Truck, 4x4	1	Unpaved - private	1.9	1.052	0.105	2.00	0.20
Debris Haul Truck	1	Unpaved - private	1.9	1.052	0.105	2.00	0.20
Manlift Bucket Truck	1	Unpaved - private	2.4	1.052	0.105	2.53	0.20
1-Ton Truck, 4x4	1	Unpaved - public	2.4	1.052	0.105	2.53	0.20
Debris Haul Truck	1	Unpaved - public	2.4	1.052	0.105	2.53	0.20
Manlift Bucket Truck	1	Unpaved - public	2.4	1.052	0.105	2.53	0.20
Worker Commute	5	Paved	60	0.001	0.000	0.24	0.00
Offsite Total						**14.36**	**1.20**
Total						**14.36**	**1.20**

a For Segment 1 of the Proposed Project, 7.7 miles occur on paved roadways and 4.3 miles occur on unpaved roadways (2.4 miles are unpaved public roadways and 1.9 miles are unpaved private roadways). Daily VMT per vehicle assumes 1/2 total distance of Proposed Project x 2 trips per day. No additional roads&landing work is required along the 3.4 miles associated with Segment 2 of the Proposed Project.

b From Table 37

[c] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Earthwork Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM10 Emission Factor[a]	PM2.5 Emission Factor[a]	PM10 (lb/day)[b]	PM2.5 (lb/day)[b]
Soil Handling[c]	CY/day		1.67E-02	3.47E-03	0.00	0.00
Bulldozing, Scraping and Grading	hr/day	0	5.837	1.214	0.00	0.00
Storage Pile Wind Erosion[d]	acres	0	4.4	0.92	0.00	0.00
Total					**0.00**	**0.00**

a From Table 38

[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 12
Subtransmission Line Construction Emissions
Guard Structure Installation

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	1.82	8.56	7.81	0.03	0.42	0.39	9.8
Onsite Motor Vehicle Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.00	0.00	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
Onsite Total	**1.82**	**8.56**	**7.81**	**0.03**	**0.42**	**0.39**	**9.8**
Offsite Motor Vehicle Exhaust	0.35	2.73	1.44	0.01	0.09	0.07	3.0
Offsite Motor Vehicle Fugitive PM	--	--	--	--	43.89	4.34	
Offsite Total	**0.35**	**2.73**	**1.44**	**0.01**	**43.98**	**4.41**	**3.0**
Total	**2.17**	**11.29**	**9.25**	**0.03**	**44.40**	**4.80**	**12.8**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Compressor Trailer	60	1	9	4
Manlift/Bucket Truck	250	1	9	4
Boom/Crane Truck	350	1	9	6
Auger Truck	210	1	9	4

Construction Equipment Exhaust Emission Factors

Equipment	Horse-power	VOC (lb/hr)[a]	CO (lb/hr)[a]	NOX (lb/hr)[a]	SOX (lb/hr)[a]	PM10 (lb/hr)[a]	PM2.5 (lb/hr)[b]	CO2 (lb/hr)[a]	CH4 (lb/hr)[a]	Category
Compressor Trailer	60	0.058	0.313	0.394	0.001	0.025	0.023	63.607	0.005	Air Compressors
Manlift/Bucket Truck	250	0.105	0.581	0.722	0.001	0.035	0.033	132.743	0.009	Manlifts
Boom/Crane Truck	350	0.120	0.409	0.070	0.002	0.002	0.002	180.101	0.011	Cranes
Auger Truck	210	0.111	0.633	0.733	0.001	0.041	0.038	132.309	0.010	Drill Rigs

a From Table 34

[b] Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006, http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

Construction Equipment Daily Criteria Pollutant Exhaust Emissions

Equipment	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Compressor Trailer	0.23	1.25	1.57	0.00	0.10	0.09
Manlift/Bucket Truck	0.42	2.32	2.89	0.01	0.14	0.13
Boom/Crane Truck	0.72	2.45	0.42	0.01	0.01	0.01
Auger Truck	0.44	2.53	2.93	0.01	0.16	0.15
Total	**1.82**	**8.56**	**7.81**	**0.03**	**0.42**	**0.39**

[a] Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

Construction Equipment Total Greenhouse Gas Emissions

Equipment	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Compressor Trailer	1.0	0.0	1.0
Manlift/Bucket Truck	2.2	0.0	2.2
Boom/Crane Truck	4.4	0.0	4.4
Auger Truck	2.2	0.0	2.2
Total	**9.8**	**0.0**	**9.8**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 34

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Usage

Vehicle	Number	Days Used	Hours Used/ Day	Miles/ Day/ Veh.[a]
Onsite				
None				
Offsite				
3/4-Ton Truck, 4x4	1	9	8	15.4
1-Ton Truck, 4x4	1	9	8	15.4
Manlift/Bucket Truck	1	9	4	15.4
Boom/Crane Truck	1	9	6	15.4
Auger Truck	1	9	4	15.4
Extendable Flat Bed Pole Truck	1	9	8	15.4
Worker Commute	6	9	N/A	60

[a] Offsite travel assumed to be 15.4 miles per day, equal to 1/2 total distance of Proposed Project x 2 trips/day; offsite worker commute based on estimated 60 mile roundtrip distance.

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Onsite									
None		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Offsite									
3/4-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
1-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Manlift/Bucket Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Boom/Crane Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Auger Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Extendable Flat Bed Pole Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Worker Commute	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

a From Table 35 or Table 36

Table 12
Subtransmission Line Construction Emissions
Guard Structure Installation

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Onsite						
None	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Offsite						
3/4-Ton Truck, 4x4	0.02	0.14	0.15	0.00	0.01	0.00
1-Ton Truck, 4x4	0.02	0.14	0.15	0.00	0.01	0.00
Manlift/Bucket Truck	0.02	0.09	0.24	0.00	0.01	0.01
Boom/Crane Truck	0.02	0.09	0.24	0.00	0.01	0.01
Auger Truck	0.02	0.09	0.24	0.00	0.01	0.01
Extendable Flat Bed Pole Truck	0.02	0.09	0.24	0.00	0.01	0.01
Worker Commute	0.23	2.07	0.20	0.00	0.03	0.02
Offsite Total	**0.35**	**2.73**	**1.44**	**0.01**	**0.09**	**0.07**
Total	**0.35**	**2.73**	**1.44**	**0.01**	**0.09**	**0.07**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			
None	0.0	0.0	0.0
Onsite Total	**0.0**	**0.0**	**0.0**
Offsite			
3/4-Ton Truck, 4x4	0.2	0.0	0.2
1-Ton Truck, 4x4	0.2	0.0	0.2
Manlift/Bucket Truck	0.3	0.0	0.3
Boom/Crane Truck	0.3	0.0	0.3
Auger Truck	0.3	0.0	0.3
Extendable Flat Bed Pole Truck	0.3	0.0	0.3
Worker Commute	1.6	0.0	1.6
Offsite Total	**3.0**	**0.0**	**3.0**
Total	**3.0**	**0.0**	**3.0**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle[a]	PM10 Emission Factor (lb/mi)[b]	PM2.5 Emission Factor (lb/mi)[b]	PM10 Emissions (lb/day)[c]	PM2.5 Emissions (lb/day)[c]
Onsite							
None							
Onsite Total						**0.00**	**0.00**
Offsite							
3/4-Ton Truck, 4x4	1	Paved	8.5	0.001	0.000	0.01	0.00
1-Ton Truck, 4x4	1	Paved	8.5	0.001	0.000	0.01	0.00
Manlift/Bucket Truck	1	Paved	8.5	0.001	0.000	0.01	0.00
Boom/Crane Truck	1	Paved	8.5	0.001	0.000	0.01	0.00
Auger Truck	1	Paved	8.5	0.001	0.000	0.01	0.00
Extendable Flat Bed Pole Truck	1	Paved	8.5	0.001	0.000	0.01	0.00
3/4-Ton Truck, 4x4	1	Unpaved - private	4.2	1.052	0.105	4.42	0.44
1-Ton Truck, 4x4	1	Unpaved - private	4.2	1.052	0.105	4.42	0.44
Manlift/Bucket Truck	1	Unpaved - private	4.2	1.052	0.105	4.42	0.44
Boom/Crane Truck	1	Unpaved - private	4.2	1.052	0.105	4.42	0.44
Auger Truck	1	Unpaved - private	4.2	1.052	0.105	4.42	0.44
Extendable Flat Bed Pole Truck	1	Unpaved - private	4.2	1.052	0.105	4.42	0.44
3/4-Ton Truck, 4x4	1	Unpaved - public	2.7	1.052	0.105	2.84	0.28
1-Ton Truck, 4x4	1	Unpaved - public	2.7	1.052	0.105	2.84	0.28
Manlift/Bucket Truck	1	Unpaved - public	2.7	1.052	0.105	2.84	0.28
Boom/Crane Truck	1	Unpaved - public	2.7	1.052	0.105	2.84	0.28
Auger Truck	1	Unpaved - public	2.7	1.052	0.105	2.84	0.28
Extendable Flat Bed Pole Truck	1	Unpaved - public	2.7	1.052	0.105	2.84	0.28
Worker Commute	6	Paved	60	0.001	0.000	0.29	0.00
Offsite Total						**43.89**	**4.34**
Total						**43.89**	**4.34**

a Of the 15.4 mile alignment, 8.5 miles occur on paved roadways and 6.9 miles occur on unpaved roadways (2.7 miles are unpaved public roadways and 4.2 miles are unpaved private roadways). Daily VMT per vehicle assumes 1/2 total distance of Proposed Project x 2 trips per day.

b From Table 37

[c] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Earthwork Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM10 Emission Factor[a]	PM2.5 Emission Factor[a]	PM10 (lb/day)[b]	PM2.5 (lb/day)[b]
Soil Handling	CY/day		1.67E-02	3.47E-03	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		5.837	1.214	0.00	0.00
Storage Pile Wind Erosion	acres		4.4	0.92	0.00	0.00
Total					**0.00**	**0.00**

a From Table 38

[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 13
Subtransmission Line Construction Emissions
Relocate Conductor and Groundwire

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	5.04	21.85	22.87	0.08	0.96	0.88	25.9
Onsite Motor Vehicle Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.00	0.00	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
Onsite Total	**5.04**	**21.85**	**22.87**	**0.08**	**0.96**	**0.88**	**25.9**
Offsite Motor Vehicle Exhaust	1.00	8.13	3.32	0.02	0.24	0.18	6.6
Offsite Motor Vehicle Fugitive PM	--	--	--	--	88.16	8.69	
Offsite Total	**1.00**	**8.13**	**3.32**	**0.02**	**88.40**	**8.87**	**6.6**
Total	**6.05**	**29.98**	**26.19**	**0.10**	**89.36**	**9.75**	**32.4**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Manlift/Bucket Truck	250	2	7	8
Boom/Crane Truck	350	2	7	8
Bull Wheel Puller	16	1	7	6
Sock Line Puller	300	1	7	6
Static Truck/Tensioner	350	1	7	6

Construction Equipment Exhaust Emission Factors

Equipment	Horse-power	VOC (lb/hr)[a]	CO (lb/hr)[a]	NOX (lb/hr)[a]	SOX (lb/hr)[a]	PM10 (lb/hr)[a]	PM2.5 (lb/hr)[b]	CO2 (lb/hr)[a]	CH4 (lb/hr)[a]	Category
Manlift/Bucket Truck	250	0.105	0.581	0.722	0.001	0.035	0.033	132.743	0.009	Manlifts
Boom/Crane Truck	350	0.120	0.409	0.070	0.002	0.002	0.002	180.101	0.011	Cranes
Bull Wheel Puller	16	0.016	0.054	0.101	0.000	0.004	0.003	13.217	0.001	Other Construction Equipment
Sock Line Puller	300	0.112	0.474	0.800	0.002	0.028	0.025	254.238	0.010	Other Construction Equipment
Static Truck/Tensioner	350	0.112	0.474	0.800	0.002	0.028	0.025	254.238	0.010	Other Construction Equipment

a From Table 34

[b] Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006, http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

Construction Equipment Daily Criteria Pollutant Exhaust Emissions

Equipment	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Manlift/Bucket Truck	1.68	9.30	11.55	0.02	0.57	0.52
Boom/Crane Truck	1.92	6.54	1.11	0.03	0.04	0.04
Bull Wheel Puller	0.10	0.33	0.60	0.00	0.02	0.02
Sock Line Puller	0.67	2.85	4.80	0.01	0.17	0.15
Static Truck/Tensioner	0.67	2.85	4.80	0.01	0.17	0.15
Total	**5.04**	**21.85**	**22.87**	**0.08**	**0.96**	**0.88**

[a] Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

Construction Equipment Total Greenhouse Gas Emissions

Equipment	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Manlift/Bucket Truck	6.7	0.0	6.8
Boom/Crane Truck	9.1	0.0	9.2
Bull Wheel Puller	0.3	0.0	0.3
Sock Line Puller	4.8	0.0	4.8
Static Truck/Tensioner	4.8	0.0	4.8
Total	**25.8**	**0.0**	**25.9**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 34

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Usage

Vehicle	Number	Days Used	Hours Used/ Day	Miles/ Day/ Veh.[a]
Onsite				
None				0
Offsite				
1-Ton Truck, 4x4	2	7	4	15.4
Manlift/Bucket Truck	2	7	8	15.4
Boom/Crane Truck	2	7	8	15.4
Bull Wheel Puller	1	7	6	15.4
Sock Line Puller	1	7	6	15.4
Static Truck/Tensioner	1	7	6	15.4
Material Handling Truck	1	7	8	15.4
Lowboy Truck/Trailer	2	7	4	15.4
Worker Commute	20	7	N/A	60

[a] Offsite travel assumed to be 15.4 miles per day, equal to 1/2 total distance of Proposed Project x 2 trips/day; offsite worker commute based on estimated 60 mile roundtrip distance.

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Onsite									
None		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Offsite									
1-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Manlift/Bucket Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Boom/Crane Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Bull Wheel Puller	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Sock Line Puller	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Static Truck/Tensioner	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Material Handling Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Lowboy Truck/Trailer	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Worker Commute	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

a From Table 35 or Table 36

Table 13
Subtransmission Line Construction Emissions
Relocate Conductor and Groundwire

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Onsite						
None	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Offsite						
1-Ton Truck, 4x4	0.04	0.28	0.30	0.00	0.01	0.01
Manlift/Bucket Truck	0.04	0.19	0.47	0.00	0.02	0.02
Boom/Crane Truck	0.04	0.19	0.47	0.00	0.02	0.02
Bull Wheel Puller	0.02	0.09	0.24	0.00	0.01	0.01
Sock Line Puller	0.02	0.09	0.24	0.00	0.01	0.01
Static Truck/Tensioner	0.02	0.09	0.24	0.00	0.01	0.01
Material Handling Truck	0.02	0.09	0.24	0.00	0.01	0.01
Lowboy Truck/Trailer	0.04	0.19	0.47	0.00	0.02	0.02
Worker Commute	0.76	6.91	0.67	0.01	0.11	0.07
Offsite Total	**1.00**	**8.13**	**3.32**	**0.02**	**0.24**	**0.18**
Total	**1.00**	**8.13**	**3.32**	**0.02**	**0.24**	**0.18**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			
None	0.0	0.0	0.0
Onsite Total	**0.0**	**0.0**	**0.0**
Offsite			
1-Ton Truck, 4x4	0.3	0.0	0.3
Manlift/Bucket Truck	0.4	0.0	0.4
Boom/Crane Truck	0.4	0.0	0.4
Bull Wheel Puller	0.2	0.0	0.2
Sock Line Puller	0.2	0.0	0.2
Static Truck/Tensioner	0.2	0.0	0.2
Material Handling Truck	0.2	0.0	0.2
Lowboy Truck/Trailer	0.4	0.0	0.4
Worker Commute	4.2	0.0	4.2
Offsite Total	**6.6**	**0.0**	**6.6**
Total	**6.6**	**0.0**	**6.6**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle[a]	PM10 Emission Factor (lb/mi)[b]	PM2.5 Emission Factor (lb/mi)[b]	PM10 Emissions (lb/day)[c]	PM2.5 Emissions (lb/day)[c]
Onsite							
None	0						
Onsite Total						**0.00**	**0.00**
Offsite							
1-Ton Truck, 4x4	2	Paved	8.5	0.001	0.000	0.01	0.00
Manlift/Bucket Truck	2	Paved	8.5	0.001	0.000	0.01	0.00
Boom/Crane Truck	2	Paved	8.5	0.001	0.000	0.01	0.00
Bull Wheel Puller	1	Paved	8.5	0.001	0.000	0.01	0.00
Sock Line Puller	1	Paved	8.5	0.001	0.000	0.01	0.00
Static Truck/Tensioner	1	Paved	8.5	0.001	0.000	0.01	0.00
Material Handling Truck	1	Paved	8.5	0.001	0.000	0.01	0.00
Lowboy Truck/Trailer	2	Paved	8.5	0.001	0.000	0.01	0.00
1-Ton Truck, 4x4	2	Unpaved - private	4.2	1.052	0.105	8.84	0.88
Manlift/Bucket Truck	2	Unpaved - private	4.2	1.052	0.105	8.84	0.88
Boom/Crane Truck	2	Unpaved - private	4.2	1.052	0.105	8.84	0.88
Bull Wheel Puller	1	Unpaved - private	4.2	1.052	0.105	4.42	0.44
Sock Line Puller	1	Unpaved - private	4.2	1.052	0.105	4.42	0.44
Static Truck/Tensioner	1	Unpaved - private	4.2	1.052	0.105	4.42	0.44
Material Handling Truck	1	Unpaved - private	4.2	1.052	0.105	4.42	0.44
Lowboy Truck/Trailer	2	Unpaved - private	4.2	1.052	0.105	8.84	0.88
1-Ton Truck, 4x4	2	Unpaved - public	2.7	1.052	0.105	5.68	0.57
Manlift/Bucket Truck	2	Unpaved - public	2.7	1.052	0.105	5.68	0.57
Boom/Crane Truck	2	Unpaved - public	2.7	1.052	0.105	5.68	0.57
Bull Wheel Puller	1	Unpaved - public	2.7	1.052	0.105	2.84	0.28
Sock Line Puller	1	Unpaved - public	2.7	1.052	0.105	2.84	0.28
Static Truck/Tensioner	1	Unpaved - public	2.7	1.052	0.105	2.84	0.28
Material Handling Truck	1	Unpaved - public	2.7	1.052	0.105	2.84	0.28
Lowboy Truck/Trailer	2	Unpaved - public	2.7	1.052	0.105	5.68	0.57
Worker Commute	20	Paved	60	0.001	0.000	0.96	0.00
Offsite Total						**88.16**	**8.69**
Total						**88.16**	**8.69**

a Of the 15.4 mile alignment, 8.5 miles occur on paved roadways and 6.9 miles occur on unpaved roadways (2.7 miles are unpaved public roadways and 4.2 miles are unpaved private roadways). Daily VMT per vehicle assumes 1/2 total distance of Proposed Project x 2 trips per day.

b From Table 37

[c] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Earthwork Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM10 Emission Factor[a]	PM2.5 Emission Factor[a]	PM10 (lb/day)[b]	PM2.5 (lb/day)[b]
Soil Handling	CY/day		1.67E-02	3.47E-03	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		5.837	1.214	0.00	0.00
Storage Pile Wind Erosion	acres		4.4	0.92	0.00	0.00
Total					**0.00**	**0.00**

a From Table 38

[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 14
Subtransmission Line Construction Emissions
Existing Wood Poles and LWS Poles Removal

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	1.98	10.70	7.86	0.03	0.33	0.31	7.5
Onsite Motor Vehicle Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.00	0.00	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
Onsite Total	**1.98**	**10.70**	**7.86**	**0.03**	**0.33**	**0.31**	**7.5**
Offsite Motor Vehicle Exhaust	0.33	2.64	1.21	0.01	0.08	0.06	1.9
Offsite Motor Vehicle Fugitive PM	--	--	--	--	36.62	3.62	
Offsite Total	**0.33**	**2.64**	**1.21**	**0.01**	**36.70**	**3.68**	**1.9**
Total	**2.32**	**13.33**	**9.07**	**0.04**	**37.04**	**3.99**	**9.3**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Compressor Trailer	60	1	6	4
Backhoe/Front Loader	125	1	6	6
Manlift/Bucket Truck	250	1	6	6
Boom/Crane Truck	350	1	6	6

Construction Equipment Exhaust Emission Factors

Equipment	Horse-power	VOC (lb/hr)[a]	CO (lb/hr)[a]	NOX (lb/hr)[a]	SOX (lb/hr)[a]	PM10 (lb/hr)[a]	PM2.5 (lb/hr)[b]	CO2 (lb/hr)[a]	CH4 (lb/hr)[a]	Category
Compressor Trailer	60	0.058	0.313	0.394	0.001	0.025	0.023	63.607	0.005	Air Compressors
Backhoe/Front Loader	125	0.067	0.584	0.257	0.001	0.001	0.001	101.387	0.006	Tractors/Loaders/Backhoes
Manlift/Bucket Truck	250	0.105	0.581	0.722	0.001	0.035	0.033	132.743	0.009	Manlifts
Boom/Crane Truck	350	0.120	0.409	0.070	0.002	0.002	0.002	180.101	0.011	Cranes

a From Table 34

[b] Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006, http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

Construction Equipment Daily Criteria Pollutant Exhaust Emissions

Equipment	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Compressor Trailer	0.23	1.25	1.57	0.00	0.10	0.09
Backhoe/Front Loader	0.40	3.51	1.54	0.01	0.01	0.01
Manlift/Bucket Truck	0.63	3.49	4.33	0.01	0.21	0.20
Boom/Crane Truck	0.72	2.45	0.42	0.01	0.01	0.01
Total	**1.98**	**10.70**	**7.86**	**0.03**	**0.33**	**0.31**

[a] Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

Construction Equipment Total Greenhouse Gas Emissions

Equipment	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Compressor Trailer	0.7	0.0	0.7
Backhoe/Front Loader	1.7	0.0	1.7
Manlift/Bucket Truck	2.2	0.0	2.2
Boom/Crane Truck	2.9	0.0	2.9
Total	**7.5**	**0.0**	**7.5**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 34

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Usage

Vehicle	Number	Days Used	Hours Used/ Day	Miles/ Day/ Veh.[a]
Onsite				
None				
Offsite				
1-Ton Truck, 4x4	2	6	N/A	15.4
Manlift/Bucket Truck	1	6	N/A	15.4
Boom/Crane Truck	1	6	N/A	15.4
Flat Bed Pole Truck	1	6	N/A	15.4
Worker Commute	6	6	N/A	60

[a] Offsite travel assumed to be 15.4 miles per day, equal to 1/2 total distance of Proposed Project x 2 trips/day; offsite worker commute based on estimated 60 mile roundtrip distance.

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Onsite									
None									
Offsite									
1-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Manlift/Bucket Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Boom/Crane Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Flat Bed Pole Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Worker Commute	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

a From Table 35 or Table 36

Table 14
Subtransmission Line Construction Emissions
Existing Wood Poles and LWS Poles Removal

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Onsite						
None	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Offsite						
1-Ton Truck, 4x4	0.04	0.28	0.30	0.00	0.01	0.01
Manlift/Bucket Truck	0.02	0.09	0.24	0.00	0.01	0.01
Boom/Crane Truck	0.02	0.09	0.24	0.00	0.01	0.01
Flat Bed Pole Truck	0.02	0.09	0.24	0.00	0.01	0.01
Worker Commute	0.23	2.07	0.20	0.00	0.03	0.02
Offsite Total	**0.33**	**2.64**	**1.21**	**0.01**	**0.08**	**0.06**
Total	**0.33**	**2.64**	**1.21**	**0.01**	**0.08**	**0.06**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			
None	0.0	0.0	0.0
Onsite Total	**0.0**	**0.0**	**0.0**
Offsite			
1-Ton Truck, 4x4	0.2	0.0	0.2
Manlift/Bucket Truck	0.2	0.0	0.2
Boom/Crane Truck	0.2	0.0	0.2
Flat Bed Pole Truck	0.2	0.0	0.2
Worker Commute	1.1	0.0	1.1
Offsite Total	**1.9**	**0.0**	**1.9**
Total	**1.9**	**0.0**	**1.9**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle[a]	PM10 Emission Factor (lb/mi)[b]	PM2.5 Emission Factor (lb/mi)[b]	PM10 Emissions (lb/day)[c]	PM2.5 Emissions (lb/day)[c]
Onsite							
None							
Onsite Total						**0.00**	**0.00**
Offsite							
1-Ton Truck, 4x4	2	Paved	8.5	0.001	0.000	0.01	0.00
Manlift/Bucket Truck	1	Paved	8.5	0.001	0.000	0.01	0.00
Boom/Crane Truck	1	Paved	8.5	0.001	0.000	0.01	0.00
Flat Bed Pole Truck	1	Paved	8.5	0.001	0.000	0.01	0.00
1-Ton Truck, 4x4	2	Unpaved - private	4.2	1.052	0.105	8.84	0.88
Manlift/Bucket Truck	1	Unpaved - private	4.2	1.052	0.105	4.42	0.44
Boom/Crane Truck	1	Unpaved - private	4.2	1.052	0.105	4.42	0.44
Flat Bed Pole Truck	1	Unpaved - private	4.2	1.052	0.105	4.42	0.44
1-Ton Truck, 4x4	2	Unpaved - public	2.7	1.052	0.105	5.68	0.57
Manlift/Bucket Truck	1	Unpaved - public	2.7	1.052	0.105	2.84	0.28
Boom/Crane Truck	1	Unpaved - public	2.7	1.052	0.105	2.84	0.28
Flat Bed Pole Truck	1	Unpaved - public	2.7	1.052	0.105	2.84	0.28
Worker Commute	6	Paved	60	0.001	0.000	0.29	0.00
Offsite Total						**36.62**	**3.62**
Total						**36.62**	**3.62**

a Of the 15.4 mile alignment, 8.5 miles occur on paved roadways and 6.9 miles occur on unpaved roadways (2.7 miles are unpaved public roadways and 4.2 miles are unpaved private roadways). Daily VMT per vehicle assumes 1/2 total distance of Proposed Project x 2 trips per day.

b From Table 37

[c] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Earthwork Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM10 Emission Factor[a]	PM2.5 Emission Factor[a]	PM10 (lb/day)[b]	PM2.5 (lb/day)[b]
Soil Handling	CY/day		1.67E-02	3.47E-03	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		5.837	1.214	0.00	0.00
Storage Pile Wind Erosion	acres		4.4	0.92	0.00	0.00
Total					**0.00**	**0.00**

a From Table 38

[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 15
Subtransmission Line Construction Emissions
Tubular Steel Pole Foundations Installation

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	1.60	9.19	6.54	0.02	0.28	0.25	59.0
Onsite Motor Vehicle Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.00	0.00	
Earthwork Fugitive PM	--	--	--	--	1.58	0.33	
Onsite Total	**1.60**	**9.19**	**6.54**	**0.02**	**1.86**	**0.58**	**59.0**
Offsite Motor Vehicle Exhaust	0.55	3.59	3.82	0.01	0.21	0.17	38.1
Offsite Motor Vehicle Fugitive PM	--	--	--	--	36.75	3.62	
Offsite Total	**0.55**	**3.59**	**3.82**	**0.01**	**36.96**	**3.79**	**38.1**
Total	**2.15**	**12.78**	**10.36**	**0.04**	**38.82**	**4.37**	**97.1**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Backhoe/Front Loader	125	1	60	6
Boom/Crane Truck	350	1	60	4
Auger Truck	210	1	60	6
Concrete Mixer Truck	350	3	60	2

Construction Equipment Exhaust Emission Factors

Equipment	Horse-power	VOC (lb/hr)[a]	CO (lb/hr)[a]	NOX (lb/hr)[a]	SOX (lb/hr)[a]	PM10 (lb/hr)[a]	PM2.5 (lb/hr)[b]	CO2 (lb/hr)[a]	CH4 (lb/hr)[a]	Category
Backhoe/Front Loader	125	0.067	0.584	0.257	0.001	0.001	0.001	101.387	0.006	Tractors/Loaders/Backhoes
Boom/Crane Truck	350	0.120	0.409	0.070	0.002	0.002	0.002	180.101	0.011	Cranes
Auger Truck	210	0.111	0.633	0.733	0.001	0.041	0.038	132.309	0.010	Drill Rigs
Concrete Mixer Truck	350	0.009	0.042	0.054	0.000	0.002	0.002	7.248	0.001	Concrete Mixers

a From Table 34

b Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006, http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

Construction Equipment Daily Criteria Pollutant Exhaust Emissions

Equipment	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Backhoe/Front Loader	0.40	3.51	1.54	0.01	0.01	0.01
Boom/Crane Truck	0.48	1.63	0.28	0.01	0.01	0.01
Auger Truck	0.67	3.80	4.40	0.01	0.25	0.23
Concrete Mixer Truck	0.05	0.25	0.32	0.00	0.01	0.01
Total	**1.60**	**9.19**	**6.54**	**0.02**	**0.28**	**0.25**

[a] Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

Construction Equipment Total Greenhouse Gas Emissions

Equipment	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Backhoe/Front Loader	16.6	0.0	16.6
Boom/Crane Truck	19.6	0.0	19.6
Auger Truck	21.6	0.0	21.6
Concrete Mixer Truck	1.2	0.0	1.2
Total	**59.0**	**0.0**	**59.0**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 34

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Usage

Vehicle	Number[a]	Days Used	Hours Used/ Day	Miles/ Day/ Veh.[a]
Onsite				
None				
Offsite				
3/4-Ton Truck, 4x4	1	60	N/A	15.4
Boom/Crane Truck	1	60	N/A	15.4
Auger Truck	1	60	N/A	15.4
Water Truck	1	60	N/A	15.4
Dump Truck	1	60	N/A	15.4
Material Handling Truck	1	60	N/A	15.4
Concrete Mixer Truck	3	60	N/A	50
Worker Commute	6	60	N/A	60

[a] Offsite travel assumed to be 15.4 miles per day, equal to 1/2 total distance of Proposed Project x 2 trips/day; offsite worker commute based on estimated 60 mile roundtrip distance; offsite concrete mixer truck (vendor) based on estimated 50 mile roundtrip distance.

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Onsite									
None									
Offsite									
3/4-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Boom/Crane Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Auger Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Water Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Dump Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Material Handling Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Concrete Mixer Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Worker Commute	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

a From Table 35 or Table 36

Table 15
Subtransmission Line Construction Emissions
Tubular Steel Pole Foundations Installation

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Onsite						
None	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Offsite						
3/4-Ton Truck, 4x4	0.02	0.14	0.15	0.00	0.01	0.00
Boom/Crane Truck	0.02	0.09	0.24	0.00	0.01	0.01
Auger Truck	0.02	0.09	0.24	0.00	0.01	0.01
Water Truck	0.02	0.09	0.24	0.00	0.01	0.01
Dump Truck	0.02	0.09	0.24	0.00	0.01	0.01
Material Handling Truck	0.02	0.09	0.24	0.00	0.01	0.01
Concrete Mixer Truck	0.20	0.91	2.29	0.01	0.12	0.09
Worker Commute	0.23	2.07	0.20	0.00	0.03	0.02
Offsite Total	**0.55**	**3.59**	**3.82**	**0.01**	**0.21**	**0.17**
Total	**0.55**	**3.59**	**3.82**	**0.01**	**0.21**	**0.17**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			
None	0.0	0.0	0.0
Onsite Total	**0.0**	**0.0**	**0.0**
Offsite			
3/4-Ton Truck, 4x4	1.2	0.0	1.2
Boom/Crane Truck	1.8	0.0	1.8
Auger Truck	1.8	0.0	1.8
Water Truck	1.8	0.0	1.8
Dump Truck	1.8	0.0	1.8
Material Handling Truck	1.8	0.0	1.8
Concrete Mixer Truck	17.2	0.0	17.2
Worker Commute	10.8	0.0	10.9
Offsite Total	**38.0**	**0.0**	**38.1**
Total	**38.0**	**0.0**	**38.1**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle[a]	PM10 Emission Factor (lb/mi)[b]	PM2.5 Emission Factor (lb/mi)[b]	PM10 Emissions (lb/day)[c]	PM2.5 Emissions (lb/day)[c]
Onsite							
None							
Onsite Total						**0.00**	**0.00**
Offsite							
3/4-Ton Truck, 4x4	1	Paved	8.5	0.001	0.000	0.01	0.00
Boom/Crane Truck	1	Paved	8.5	0.001	0.000	0.01	0.00
Auger Truck	1	Paved	8.5	0.001	0.000	0.01	0.00
Water Truck	1	Paved	8.5	0.001	0.000	0.01	0.00
Dump Truck	1	Paved	8.5	0.001	0.000	0.01	0.00
Material Handling Truck	1	Paved	8.5	0.001	0.000	0.01	0.00
Concrete Mixer Truck	3	Paved	50	0.001	0.000	0.12	0.00
3/4-Ton Truck, 4x4	1	Unpaved - private	4.2	1.052	0.105	4.42	0.44
Boom/Crane Truck	1	Unpaved - private	4.2	1.052	0.105	4.42	0.44
Auger Truck	1	Unpaved - private	4.2	1.052	0.105	4.42	0.44
Dump Truck	1	Unpaved - private	4.2	1.052	0.105	4.42	0.44
Material Handling Truck	1	Unpaved - private	4.2	1.052	0.105	4.42	0.44
3/4-Ton Truck, 4x4	1	Unpaved - public	2.7	1.052	0.105	2.84	0.28
Boom/Crane Truck	1	Unpaved - public	2.7	1.052	0.105	2.84	0.28
Auger Truck	1	Unpaved - public	2.7	1.052	0.105	2.84	0.28
Dump Truck	1	Unpaved - public	2.7	1.052	0.105	2.84	0.28
Material Handling Truck	1	Unpaved - public	2.7	1.052	0.105	2.84	0.28
Worker Commute	6	Paved	60	0.001	0.000	0.29	0.00
Offsite Total						**36.75**	**3.62**
Total						**36.75**	**3.62**

a Of the 15.4 mile alignment, 8.5 miles occur on paved roadways and 6.9 miles occur on unpaved roadways (2.7 miles are unpaved public roadways and 4.2 miles are unpaved private roadways). Daily VMT per vehicle assumes 1/2 total distance of Proposed Project x 2 trips per day.

b From Table 37

[c] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Earthwork Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM10 Emission Factor[a]	PM2.5 Emission Factor[a]	PM10 (lb/day)[b]	PM2.5 (lb/day)[b]
Soil Handling[c]	CY/day	95	1.67E-02	3.47E-03	1.58	0.33
Bulldozing, Scraping and Grading	hr/day		5.837	1.214	0.00	0.00
Storage Pile Wind Erosion	acres		4.4	0.92	0.00	0.00
Total					**1.58**	**0.33**

a From Table 38

[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

[c] Based on excavating one foundation per day at max. 95 CY per foundation

Table 16
Subtransmission Line Construction Emissions
Tubular Steel Pole Haul

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	0.72	2.45	0.42	0.01	0.01	0.01	4.4
Onsite Motor Vehicle Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.00	0.00	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
Onsite Total	**0.72**	**2.45**	**0.42**	**0.01**	**0.01**	**0.01**	**4.4**
Offsite Motor Vehicle Exhaust	0.22	1.76	0.67	0.00	0.05	0.03	1.7
Offsite Motor Vehicle Fugitive PM	--	--	--	--	21.99	2.17	
Offsite Total	**0.22**	**1.76**	**0.67**	**0.00**	**22.04**	**2.21**	**1.7**
Total	**0.94**	**4.21**	**1.09**	**0.01**	**22.05**	**2.22**	**6.1**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Boom/Crane Truck	350	1	9	6

Construction Equipment Exhaust Emission Factors

Equipment	Horse-power	VOC (lb/hr)[a]	CO (lb/hr)[a]	NOX (lb/hr)[a]	SOX (lb/hr)[a]	PM10 (lb/hr)[a]	PM2.5 (lb/hr)[b]	CO2 (lb/hr)[a]	CH4 (lb/hr)[a]	Category
Boom/Crane Truck	350	0.120	0.409	0.070	0.002	0.002	0.002	180.101	0.011	Cranes

a From Table 34

[b] Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006, http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

Construction Equipment Daily Criteria Pollutant Exhaust Emissions

Equipment	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Boom/Crane Truck	0.72	2.45	0.42	0.01	0.01	0.01
Total	**0.72**	**2.45**	**0.42**	**0.01**	**0.01**	**0.01**

[a] Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

Construction Equipment Total Greenhouse Gas Emissions

Equipment	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Boom/Crane Truck	4.4	0.0	4.4
Total	**4.4**	**0.0**	**4.4**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 34

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Usage

Vehicle	Number	Days Used	Hours Used/ Day	Miles/ Day/ Veh.[a]
Onsite				
None				0
Offsite				
3/4-Ton Truck, 4x4	1	9	N/A	15.4
Boom/Crane Truck	1	9	N/A	15.4
Flat Bed Pole Truck	1	9	N/A	15.4
Worker Commute	4	9	N/A	60

[a] Offsite travel assumed to be 15.4 miles per day, equal to 1/2 total distance of Proposed Project x 2 trips/day; offsite worker commute based on estimated 60 mile roundtrip distance; offsite concrete mixer truck (vendor) based on estimated 50 mile roundtrip distance.

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Onsite									
None									
Offsite									
3/4-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Boom/Crane Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Flat Bed Pole Truck	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Worker Commute	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

a From Table 35 or Table 36

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Onsite						
None	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Offsite						
3/4-Ton Truck, 4x4	0.02	0.14	0.15	0.00	0.01	0.00
Boom/Crane Truck	0.02	0.09	0.24	0.00	0.01	0.01
Flat Bed Pole Truck	0.02	0.14	0.15	0.00	0.01	0.00
Worker Commute	0.15	1.38	0.13	0.00	0.02	0.01
Offsite Total	**0.22**	**1.76**	**0.67**	**0.00**	**0.05**	**0.03**
Total	**0.22**	**1.76**	**0.67**	**0.00**	**0.05**	**0.03**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Table 16
Subtransmission Line Construction Emissions
Tubular Steel Pole Haul

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			
None	0.0	0.0	0.0
Onsite Total	**0.0**	**0.0**	**0.0**
Offsite			
3/4-Ton Truck, 4x4	0.2	0.0	0.2
Boom/Crane Truck	0.3	0.0	0.3
Flat Bed Pole Truck	0.2	0.0	0.2
Worker Commute	1.1	0.0	1.1
Offsite Total	**1.7**	**0.0**	**1.7**
Total	**1.7**	**0.0**	**1.7**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle[a]	PM10 Emission Factor (lb/mi)[b]	PM2.5 Emission Factor (lb/mi)[b]	PM10 Emissions (lb/day)[c]	PM2.5 Emissions (lb/day)[c]
Onsite							
None	0						
Onsite Total						**0.00**	**0.00**
Offsite							
3/4-Ton Truck, 4x4	1	Paved	8.5	0.001	0.000	0.01	0.00
Boom/Crane Truck	1	Paved	8.5	0.001	0.000	0.01	0.00
Flat Bed Pole Truck	1	Paved	8.5	0.001	0.000	0.01	0.00
3/4-Ton Truck, 4x4	1	Unpaved - private	4.2	1.052	0.105	4.42	0.44
Boom/Crane Truck	1	Unpaved - private	4.2	1.052	0.105	4.42	0.44
Flat Bed Pole Truck	1	Unpaved - private	4.2	1.052	0.105	4.42	0.44
3/4-Ton Truck, 4x4	1	Unpaved - public	2.7	1.052	0.105	2.84	0.28
Boom/Crane Truck	1	Unpaved - public	2.7	1.052	0.105	2.84	0.28
Flat Bed Pole Truck	1	Unpaved - public	2.7	1.052	0.105	2.84	0.28
Worker Commute	4	Paved	60	0.001	0.000	0.19	0.00
Offsite Total						**21.99**	**2.17**
Total						**21.99**	**2.17**

a Of the 15.4 mile alignment, 8.5 miles occur on paved roadways and 6.9 miles occur on unpaved roadways (2.7 miles are unpaved public roadways and 4.2 miles are unpaved private roadways). Daily VMT per vehicle assumes 1/2 total distance of Proposed Project x 2 trips per day.

b From Table 37

[c] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Earthwork Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM10 Emission Factor[a]	PM2.5 Emission Factor[a]	PM10 (lb/day)[b]	PM2.5 (lb/day)[b]
Soil Handling	CY/day		1.67E-02	3.47E-03	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		5.837	1.214	0.00	0.00
Storage Pile Wind Erosion	acres		4.4	0.92	0.00	0.00
Total					**0.00**	**0.00**

a From Table 38

[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 17
Subtransmission Line Construction Emissions
Tubular Steel Pole Assembly

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	1.31	5.15	2.92	0.02	0.17	0.15	24.8
Onsite Motor Vehicle Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.00	0.00	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
Onsite Total	**1.31**	**5.15**	**2.92**	**0.02**	**0.17**	**0.15**	**24.8**
Offsite Motor Vehicle Exhaust	0.43	3.52	1.34	0.01	0.09	0.07	11.4
Offsite Motor Vehicle Fugitive PM	--	--	--	--	43.98	4.34	
Offsite Total	**0.43**	**3.52**	**1.34**	**0.01**	**44.08**	**4.41**	**11.4**
Total	**1.74**	**8.67**	**4.26**	**0.03**	**44.24**	**4.57**	**36.2**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Compressor Trailer	60	1	30	6
Boom/Crane Truck	350	1	30	8

Construction Equipment Exhaust Emission Factors

Equipment	Horse-power	VOC (lb/hr)[a]	CO (lb/hr)[a]	NOX (lb/hr)[a]	SOX (lb/hr)[a]	PM10 (lb/hr)[a]	PM2.5 (lb/hr)[b]	CO2 (lb/hr)[a]	CH4 (lb/hr)[a]	Category
Compressor Trailer	60	0.058	0.313	0.394	0.001	0.025	0.023	63.607	0.005	Air Compressors
Boom/Crane Truck	350	0.120	0.409	0.070	0.002	0.002	0.002	180.101	0.011	Cranes

a From Table 34

b Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006, http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

Construction Equipment Daily Criteria Pollutant Exhaust Emissions

Equipment	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Compressor Trailer	0.35	1.88	2.36	0.00	0.15	0.14
Boom/Crane Truck	0.96	3.27	0.56	0.01	0.02	0.02
Total	**1.31**	**5.15**	**2.92**	**0.02**	**0.17**	**0.15**

[a] Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

Construction Equipment Total Greenhouse Gas Emissions

Equipment	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Compressor Trailer	5.2	0.0	5.2
Boom/Crane Truck	19.6	0.0	19.6
Total	**24.8**	**0.0**	**24.8**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 34

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Usage

Vehicle	Number	Days Used	Hours Used/ Day	Miles/ Day/ Vehicle[a]
Onsite				
None				0
Offsite				
3/4-Ton Truck, 4x4	2	30	N/A	15.4
1-Ton Truck, 4x4	2	30	N/A	15.4
Material Handling Truck	1	30	N/A	15.4
Boom/Crane Truck	1	30	N/A	15.4
Worker Commute	8	30	N/A	60

[a] Offsite travel assumed to be 15.4 miles per day, equal to 1/2 total distance of Proposed Project x 2 trips/day; offsite worker commute based on estimated 60 mile roundtrip distance; offsite concrete mixer truck (vendor) based on estimated 50 mile roundtrip distance.

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Onsite									
None		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Offsite									
3/4-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
1-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Material Handling Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Boom/Crane Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Worker Commute	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

a From Table 35 or Table 36

Table 17
Subtransmission Line Construction Emissions
Tubular Steel Pole Assembly

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Onsite						
None	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Offsite						
3/4-Ton Truck, 4x4	0.04	0.28	0.30	0.00	0.01	0.01
1-Ton Truck, 4x4	0.04	0.28	0.30	0.00	0.01	0.01
Material Handling Truck	0.02	0.09	0.24	0.00	0.01	0.01
Boom/Crane Truck	0.02	0.09	0.24	0.00	0.01	0.01
Worker Commute	0.30	2.76	0.27	0.01	0.05	0.03
Offsite Total	**0.43**	**3.52**	**1.34**	**0.01**	**0.09**	**0.07**
Total	**0.43**	**3.52**	**1.34**	**0.01**	**0.09**	**0.07**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			
None	0.0	0.0	0.0
Onsite Total	**0.0**	**0.0**	**0.0**
Offsite			
3/4-Ton Truck, 4x4	1.2	0.0	1.2
1-Ton Truck, 4x4	1.2	0.0	1.2
Material Handling Truck	0.9	0.0	0.9
Boom/Crane Truck	0.9	0.0	0.9
Worker Commute	7.2	0.0	7.2
Offsite Total	**11.4**	**0.0**	**11.4**
Total	**11.4**	**0.0**	**11.4**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle[a]	PM10 Emission Factor (lb/mi)[b]	PM2.5 Emission Factor (lb/mi)[b]	PM10 Emissions (lb/day)[c]	PM2.5 Emissions (lb/day)[c]
Onsite							
None	0						
Onsite Total						**0.00**	**0.00**
Offsite							
3/4-Ton Truck, 4x4	2	Paved	8.5	0.001	0.000	0.01	0.00
1-Ton Truck, 4x4	2	Paved	8.5	0.001	0.000	0.01	0.00
Material Handling Truck	1	Paved	8.5	0.001	0.000	0.01	0.00
Boom/Crane Truck	1	Paved	8.5	0.001	0.000	0.01	0.00
3/4-Ton Truck, 4x4	2	Unpaved - private	4.2	1.052	0.105	8.84	0.88
1-Ton Truck, 4x4	2	Unpaved - private	4.2	1.052	0.105	8.84	0.88
Material Handling Truck	1	Unpaved - private	4.2	1.052	0.105	4.42	0.44
Boom/Crane Truck	1	Unpaved - private	4.2	1.052	0.105	4.42	0.44
3/4-Ton Truck, 4x4	2	Unpaved - public	2.7	1.052	0.105	5.68	0.57
1-Ton Truck, 4x4	2	Unpaved - public	2.7	1.052	0.105	5.68	0.57
Material Handling Truck	1	Unpaved - public	2.7	1.052	0.105	2.84	0.28
Boom/Crane Truck	1	Unpaved - public	2.7	1.052	0.105	2.84	0.28
Worker Commute	8	Paved	60	0.001	0.000	0.38	0.00
Offsite Total						**43.98**	**4.34**
Total						**43.98**	**4.34**

a Of the 15.4 mile alignment, 8.5 miles occur on paved roadways and 6.9 miles occur on unpaved roadways (2.7 miles are unpaved public roadways and 4.2 miles are unpaved private roadways). Daily VMT per vehicle assumes 1/2 total distance of Proposed Project x 2 trips per day.

b From Table 37

[c] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Earthwork Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM10 Emission Factor[a]	PM2.5 Emission Factor[a]	PM10 (lb/day)[b]	PM2.5 (lb/day)[b]
Soil Handling	CY/day		1.67E-02	3.47E-03	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		5.837	1.214	0.00	0.00
Storage Pile Wind Erosion	acres		4.4	0.92	0.00	0.00
Total					**0.00**	**0.00**

a From Table 38

[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 18
Subtransmission Line Construction Emissions
Tubular Steel Pole Erection

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	1.19	4.52	2.13	0.02	0.12	0.11	23.1
Onsite Motor Vehicle Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.00	0.00	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
Onsite Total	**1.19**	**4.52**	**2.13**	**0.02**	**0.12**	**0.11**	**23.1**
Offsite Motor Vehicle Exhaust	0.41	3.43	1.11	0.01	0.08	0.06	10.5
Offsite Motor Vehicle Fugitive PM	--	--	--	--	36.72	3.62	
Offsite Total	**0.41**	**3.43**	**1.11**	**0.01**	**36.80**	**3.68**	**10.5**
Total	**1.60**	**7.95**	**3.24**	**0.02**	**36.92**	**3.79**	**33.6**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Compressor Trailer	60	1	30	4
Boom/Crane Truck	350	1	30	8

Construction Equipment Exhaust Emission Factors

Equipment	Horse-power	VOC (lb/hr)[a]	CO (lb/hr)[a]	NOX (lb/hr)[a]	SOX (lb/hr)[a]	PM10 (lb/hr)[a]	PM2.5 (lb/hr)[b]	CO2 (lb/hr)[a]	CH4 (lb/hr)[a]	Category
Compressor Trailer	60	0.058	0.313	0.394	0.001	0.025	0.023	63.607	0.005	Air Compressors
Boom/Crane Truck	350	0.120	0.409	0.070	0.002	0.002	0.002	180.101	0.011	Cranes

a From Table 34

b Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006, http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

Construction Equipment Daily Criteria Pollutant Exhaust Emissions

Equipment	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Compressor Trailer	0.23	1.25	1.57	0.00	0.10	0.09
Boom/Crane Truck	0.96	3.27	0.56	0.01	0.02	0.02
Total	**1.19**	**4.52**	**2.13**	**0.02**	**0.12**	**0.11**

[a] Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

Construction Equipment Total Greenhouse Gas Emissions

Equipment	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Compressor Trailer	3.5	0.0	3.5
Boom/Crane Truck	19.6	0.0	19.6
Total	**23.1**	**0.0**	**23.1**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 34

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Usage

Vehicle	Number	Days Used	Hours Used/ Day	Miles/ Day/ Veh.[a]
Onsite				
None				0
Offsite				
3/4-Ton Truck, 4x4	2	30	N/A	15.4
1-Ton Truck, 4x4	2	30	N/A	15.4
Boom/Crane Truck	1	30	N/A	15.4
Worker Commute	8	30	N/A	60

[a] Offsite travel assumed to be 15.4 miles per day, equal to 1/2 total distance of Proposed Project x 2 trips/day; offsite worker commute based on estimated 60 mile roundtrip distance; offsite concrete mixer truck (vendor) based on estimated 50 mile roundtrip distance.

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Onsite									
None		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Offsite									
3/4-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
1-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Boom/Crane Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Worker Commute	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

a From Table 35 or Table 36

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Onsite						
None	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Offsite						
3/4-Ton Truck, 4x4	0.04	0.28	0.30	0.00	0.01	0.01
1-Ton Truck, 4x4	0.04	0.28	0.30	0.00	0.01	0.01
Boom/Crane Truck	0.02	0.09	0.24	0.00	0.01	0.01
Worker Commute	0.30	2.76	0.27	0.01	0.05	0.03
Offsite Total	**0.41**	**3.43**	**1.11**	**0.01**	**0.08**	**0.06**
Total	**0.41**	**3.43**	**1.11**	**0.01**	**0.08**	**0.06**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Table 18
Subtransmission Line Construction Emissions
Tubular Steel Pole Erection

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			
None	0.0	0.0	0.0
Onsite Total	**0.0**	**0.0**	**0.0**
Offsite			
3/4-Ton Truck, 4x4	1.2	0.0	1.2
1-Ton Truck, 4x4	1.2	0.0	1.2
Boom/Crane Truck	0.9	0.0	0.9
Worker Commute	7.2	0.0	7.2
Offsite Total	**10.5**	**0.0**	**10.5**
Total	**10.5**	**0.0**	**10.5**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle[a]	PM10 Emission Factor (lb/mi)[b]	PM2.5 Emission Factor (lb/mi)[b]	PM10 Emissions (lb/day)[c]	PM2.5 Emissions (lb/day)[c]
Onsite							
None	0						
Onsite Total						**0.00**	**0.00**
Offsite							
3/4-Ton Truck, 4x4	2	Paved	8.5	0.001	0.000	0.01	0.00
1-Ton Truck, 4x4	2	Paved	8.5	0.001	0.000	0.01	0.00
Boom/Crane Truck	1	Paved	8.5	0.001	0.000	0.01	0.00
3/4-Ton Truck, 4x4	2	Unpaved - private	4.2	1.052	0.105	8.84	0.88
1-Ton Truck, 4x4	2	Unpaved - private	4.2	1.052	0.105	8.84	0.88
Boom/Crane Truck	1	Unpaved - private	4.2	1.052	0.105	4.42	0.44
3/4-Ton Truck, 4x4	2	Unpaved - public	2.7	1.052	0.105	5.68	0.57
1-Ton Truck, 4x4	2	Unpaved - public	2.7	1.052	0.105	5.68	0.57
Boom/Crane Truck	1	Unpaved - public	2.7	1.052	0.105	2.84	0.28
Worker Commute	8	Paved	60	0.001	0.000	0.38	0.00
Offsite Total						**36.72**	**3.62**
Total						**36.72**	**3.62**

a Of the 15.4 mile alignment, 8.5 miles occur on paved roadways and 6.9 miles occur on unpaved roadways (2.7 miles are unpaved public roadways and 4.2 miles are unpaved private roadways). Daily VMT per vehicle assumes 1/2 total distance of Proposed Project x 2 trips per day.

b From Table 37

[c] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Earthwork Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM10 Emission Factor[a]	PM2.5 Emission Factor[a]	PM10 (lb/day)[b]	PM2.5 (lb/day)[b]
Soil Handling	CY/day		1.67E-02	3.47E-03	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		5.837	1.214	0.00	0.00
Storage Pile Wind Erosion	acres		4.4	0.92	0.00	0.00
Total					**0.00**	**0.00**

a From Table 38

[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 19
Subtransmission Line Construction Emissions
Wood Guy Stub Pole/LWS Pole Haul

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	0.72	2.45	0.42	0.01	0.01	0.01	23.1
Onsite Motor Vehicle Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.00	0.00	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
Onsite Total	**0.72**	**2.45**	**0.42**	**0.01**	**0.01**	**0.01**	**23.1**
Offsite Motor Vehicle Exhaust	0.21	1.71	0.75	0.00	0.05	0.04	9.4
Offsite Motor Vehicle Fugitive PM	--	--	--	--	21.99	2.17	
Offsite Total	**0.21**	**1.71**	**0.75**	**0.00**	**22.04**	**2.21**	**9.4**
Total	**0.93**	**4.16**	**1.17**	**0.01**	**22.06**	**2.22**	**32.4**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Boom/Crane Truck	350	1	47	6

Construction Equipment Exhaust Emission Factors

Equipment	Horse-power	VOC (lb/hr)[a]	CO (lb/hr)[a]	NOX (lb/hr)[a]	SOX (lb/hr)[a]	PM10 (lb/hr)[a]	PM2.5 (lb/hr)[b]	CO2 (lb/hr)[a]	CH4 (lb/hr)[a]	Category
Boom/Crane Truck	350	0.120	0.409	0.070	0.002	0.002	0.002	180.101	0.011	Cranes

a From Table 34

[b] Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006, http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

Construction Equipment Daily Criteria Pollutant Exhaust Emissions

Equipment	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Boom/Crane Truck	0.72	2.45	0.42	0.01	0.01	0.01
Total	**0.72**	**2.45**	**0.42**	**0.01**	**0.01**	**0.01**

[a] Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

Construction Equipment Total Greenhouse Gas Emissions

Equipment	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Boom/Crane Truck	23.0	0.0	23.1
Total	**23.0**	**0.0**	**23.1**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 34

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Usage

Vehicle	Number	Days Used	Hours Used/ Day	Miles/ Day/ Veh.[a]
Onsite				
None				
Offsite				
3/4-Ton Truck, 4x4	1	47	N/A	15.4
Boom/Crane Truck	1	47	N/A	15.4
Flat Bed Pole Truck	1	47	N/A	15.4
Worker Commute	4	47	N/A	60

[a] Offsite travel assumed to be 15.4 miles per day, equal to 1/2 total distance of Proposed Project x 2 trips/day; offsite worker commute based on estimated 60 mile roundtrip distance; offsite concrete mixer truck (vendor) based on estimated 50 mile roundtrip distance.

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Onsite									
None		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Offsite									
3/4-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Boom/Crane Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Flat Bed Pole Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Worker Commute	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

a From Table 35 or Table 36

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Onsite						
None	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Offsite						
3/4-Ton Truck, 4x4	0.02	0.14	0.15	0.00	0.01	0.00
Boom/Crane Truck	0.02	0.09	0.24	0.00	0.01	0.01
Flat Bed Pole Truck	0.02	0.09	0.24	0.00	0.01	0.01
Worker Commute	0.15	1.38	0.13	0.00	0.02	0.01
Offsite Total	**0.21**	**1.71**	**0.75**	**0.00**	**0.05**	**0.04**
Total	**0.21**	**1.71**	**0.75**	**0.00**	**0.05**	**0.04**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Table 19
Subtransmission Line Construction Emissions
Wood Guy Stub Pole/LWS Pole Haul

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			
None	0.0	0.0	0.0
Onsite Total	**0.0**	**0.0**	**0.0**
Offsite			
3/4-Ton Truck, 4x4	0.9	0.0	0.9
Boom/Crane Truck	1.4	0.0	1.4
Flat Bed Pole Truck	1.4	0.0	1.4
Worker Commute	5.7	0.0	5.7
Offsite Total	**9.4**	**0.0**	**9.4**
Total	**9.4**	**0.0**	**9.4**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle[a]	PM10 Emission Factor (lb/mi)[b]	PM2.5 Emission Factor (lb/mi)[b]	PM10 Emissions (lb/day)[c]	PM2.5 Emissions (lb/day)[c]
Onsite							
None							
Onsite Total						**0.00**	**0.00**
Offsite							
3/4-Ton Truck, 4x4	1	Paved	8.5	0.001	0.000	0.01	0.00
Boom/Crane Truck	1	Paved	8.5	0.001	0.000	0.01	0.00
Flat Bed Pole Truck	1	Paved	8.5	0.001	0.000	0.01	0.00
3/4-Ton Truck, 4x4	1	Unpaved - private	4.2	1.052	0.105	4.42	0.44
Boom/Crane Truck	1	Unpaved - private	4.2	1.052	0.105	4.42	0.44
Flat Bed Pole Truck	1	Unpaved - private	4.2	1.052	0.105	4.42	0.44
3/4-Ton Truck, 4x4	1	Unpaved - public	2.7	1.052	0.105	2.84	0.28
Boom/Crane Truck	1	Unpaved - public	2.7	1.052	0.105	2.84	0.28
Flat Bed Pole Truck	1	Unpaved - public	2.7	1.052	0.105	2.84	0.28
Worker Commute	4	Paved	60	0.001	0.000	0.19	0.00
Offsite Total						**21.99**	**2.17**
Total						**21.99**	**2.17**

a Of the 15.4 mile alignment, 8.5 miles occur on paved roadways and 6.9 miles occur on unpaved roadways (2.7 miles are unpaved public roadways and 4.2 miles are unpaved private roadways). Daily VMT per vehicle assumes 1/2 total distance of Proposed Project x 2 trips per day.

b From Table 37

[c] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Earthwork Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM10 Emission Factor[a]	PM2.5 Emission Factor[a]	PM10 (lb/day)[b]	PM2.5 (lb/day)[b]
Soil Handling	CY/day		1.67E-02	3.47E-03	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		5.837	1.214	0.00	0.00
Storage Pile Wind Erosion	acres		4.4	0.92	0.00	0.00
Total					**0.00**	**0.00**

a From Table 38

[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 20
Subtransmission Line Construction Emissions
Wood/LWS Pole Assembly

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	1.31	5.15	2.92	0.02	0.17	0.15	53.8
Onsite Motor Vehicle Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.00	0.00	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
Onsite Total	**1.31**	**5.15**	**2.92**	**0.02**	**0.17**	**0.15**	**53.8**
Offsite Motor Vehicle Exhaust	0.43	3.52	1.34	0.01	0.09	0.07	24.7
Offsite Motor Vehicle Fugitive PM	--	--	--	--	43.98	4.34	
Offsite Total	**0.43**	**3.52**	**1.34**	**0.01**	**44.08**	**4.41**	**24.7**
Total	**1.74**	**8.67**	**4.26**	**0.03**	**44.24**	**4.57**	**78.5**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Compressor Trailer	60	1	65	6
Boom/Crane Truck	350	1	65	8

Construction Equipment Exhaust Emission Factors

Equipment	Horse-power	VOC (lb/hr)[a]	CO (lb/hr)[a]	NOX (lb/hr)[a]	SOX (lb/hr)[a]	PM10 (lb/hr)[a]	PM2.5 (lb/hr)[b]	CO2 (lb/hr)[a]	CH4 (lb/hr)[a]	Category
Compressor Trailer	60	0.058	0.313	0.394	0.001	0.025	0.023	63.607	0.005	Air Compressors
Boom/Crane Truck	350	0.120	0.409	0.070	0.002	0.002	0.002	180.101	0.011	Cranes

a From Table 34

[b] Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006, http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

Construction Equipment Daily Criteria Pollutant Exhaust Emissions

Equipment	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Compressor Trailer	0.35	1.88	2.36	0.00	0.15	0.14
Boom/Crane Truck	0.96	3.27	0.56	0.01	0.02	0.02
Total	**1.31**	**5.15**	**2.92**	**0.02**	**0.17**	**0.15**

[a] Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

Construction Equipment Total Greenhouse Gas Emissions

Equipment	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Compressor Trailer	11.3	0.0	11.3
Boom/Crane Truck	42.5	0.0	42.5
Total	**53.7**	**0.0**	**53.8**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 34

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Usage

Vehicle	Number	Days Used	Hours Used/ Day	Miles/ Day/ Veh.[a]
Onsite				
None				
Offsite				
3/4-Ton Truck, 4x4	2	65	N/A	15.4
1-Ton Truck, 4x4	2	65	N/A	15.4
Material Handling Truck	1	65	N/A	15.4
Boom/Crane Truck	1	65	N/A	15.4
Worker Commute	8	65	N/A	60

[a] Offsite travel assumed to be 15.4 miles per day, equal to 1/2 total distance of Proposed Project x 2 trips/day; offsite worker commute based on estimated 60 mile roundtrip distance; offsite concrete mixer truck (vendor) bsaed on estimated 50 mile roundtrip distance.

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Onsite									
None		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Offsite									
3/4-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
1-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Material Handling Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Boom/Crane Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Worker Commute	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

a From Table 35 or Table 36

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Onsite						
None	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Offsite						
3/4-Ton Truck, 4x4	0.04	0.28	0.30	0.00	0.01	0.01
1-Ton Truck, 4x4	0.04	0.28	0.30	0.00	0.01	0.01
Material Handling Truck	0.02	0.09	0.24	0.00	0.01	0.01
Boom/Crane Truck	0.02	0.09	0.24	0.00	0.01	0.01
Worker Commute	0.30	2.76	0.27	0.01	0.05	0.03
Offsite Total	**0.43**	**3.52**	**1.34**	**0.01**	**0.09**	**0.07**
Total	**0.43**	**3.52**	**1.34**	**0.01**	**0.09**	**0.07**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Table 20
Subtransmission Line Construction Emissions
Wood/LWS Pole Assembly

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			
None	0.0	0.0	0.0
Onsite Total	**0.0**	**0.0**	**0.0**
Offsite			
3/4-Ton Truck, 4x4	2.6	0.0	2.6
1-Ton Truck, 4x4	2.6	0.0	2.6
Material Handling Truck	1.9	0.0	1.9
Boom/Crane Truck	1.9	0.0	1.9
Worker Commute	15.7	0.0	15.7
Offsite Total	**24.7**	**0.0**	**24.7**
Total	**24.7**	**0.0**	**24.7**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle[a]	PM10 Emission Factor (lb/mi)[b]	PM2.5 Emission Factor (lb/mi)[b]	PM10 Emissions (lb/day)[c]	PM2.5 Emissions (lb/day)[c]
Onsite							
None							
Onsite Total						**0.00**	**0.00**
Offsite							
3/4-Ton Truck, 4x4	2	Paved	8.5	0.001	0.000	0.01	0.00
1-Ton Truck, 4x4	2	Paved	8.5	0.001	0.000	0.01	0.00
Material Handling Truck	1	Paved	8.5	0.001	0.000	0.01	0.00
Boom/Crane Truck	1	Paved	8.5	0.001	0.000	0.01	0.00
3/4-Ton Truck, 4x4	2	Unpaved - private	4.2	1.052	0.105	8.84	0.88
1-Ton Truck, 4x4	2	Unpaved - private	4.2	1.052	0.105	8.84	0.88
Material Handling Truck	1	Unpaved - private	4.2	1.052	0.105	4.42	0.44
Boom/Crane Truck	1	Unpaved - private	4.2	1.052	0.105	4.42	0.44
3/4-Ton Truck, 4x4	2	Unpaved - public	2.7	1.052	0.105	5.68	0.57
1-Ton Truck, 4x4	2	Unpaved - public	2.7	1.052	0.105	5.68	0.57
Material Handling Truck	1	Unpaved - public	2.7	1.052	0.105	2.84	0.28
Boom/Crane Truck	1	Unpaved - public	2.7	1.052	0.105	2.84	0.28
Worker Commute	8	Paved	60	0.001	0.000	0.38	0.00
Offsite Total						**43.98**	**4.34**
Total						**43.98**	**4.34**

a Of the 15.4 mile alignment, 8.5 miles occur on paved roadways and 6.9 miles occur on unpaved roadways (2.7 miles are unpaved public roadways and 4.2 miles are unpaved private roadways). Daily VMT per vehicle assumes 1/2 total distance of Proposed Project x 2 trips per day.

b From Table 37

[c] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Earthwork Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM10 Emission Factor[a]	PM2.5 Emission Factor[a]	PM10 (lb/day)[b]	PM2.5 (lb/day)[b]
Soil Handling	CY/day		1.67E-02	3.47E-03	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		5.837	1.214	0.00	0.00
Storage Pile Wind Erosion	acres		4.4	0.92	0.00	0.00
Total					**0.00**	**0.00**

a From Table 38

[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 21
Subtransmission Line Construction Emissions
Install Wood/Wood Guy Stub Pole/LWS Pole

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	2.33	13.15	9.74	0.03	0.40	0.37	102.3
Onsite Motor Vehicle Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.00	0.00	
Earthwork Fugitive PM	--	--	--	--	0.23	0.05	
Onsite Total	**2.33**	**13.15**	**9.74**	**0.03**	**0.64**	**0.42**	**102.3**
Offsite Motor Vehicle Exhaust	0.35	2.68	1.53	0.01	0.10	0.08	24.3
Offsite Motor Vehicle Fugitive PM	--	--	--	--	43.89	4.34	
Offsite Total	**0.35**	**2.68**	**1.53**	**0.01**	**43.99**	**4.42**	**24.3**
Total	**2.68**	**15.83**	**11.26**	**0.04**	**44.62**	**4.84**	**126.6**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Backhoe/Front Loader	125	1	70	8
Manlift/Bucket Truck	250	1	70	6
Boom/Crane Truck	350	1	70	6
Auger Truck	210	1	70	4

Construction Equipment Exhaust Emission Factors

Equipment	Horse-power	VOC (lb/hr)[a]	CO (lb/hr)[a]	NOX (lb/hr)[a]	SOX (lb/hr)[a]	PM10 (lb/hr)[a]	PM2.5 (lb/hr)[b]	CO2 (lb/hr)[a]	CH4 (lb/hr)[a]	Category
Backhoe/Front Loader	125	0.067	0.584	0.257	0.001	0.001	0.001	101.387	0.006	Tractors/Loaders/Backhoes
Manlift/Bucket Truck	250	0.105	0.581	0.722	0.001	0.035	0.033	132.743	0.009	Manlifts
Boom/Crane Truck	350	0.120	0.409	0.070	0.002	0.002	0.002	180.101	0.011	Cranes
Auger Truck	210	0.111	0.633	0.733	0.001	0.041	0.038	132.309	0.010	Drill Rigs

a From Table 34

[b] Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006, http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

Construction Equipment Daily Criteria Pollutant Exhaust Emissions

Equipment	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Backhoe/Front Loader	0.54	4.68	2.06	0.01	0.01	0.01
Manlift/Bucket Truck	0.63	3.49	4.33	0.01	0.21	0.20
Boom/Crane Truck	0.72	2.45	0.42	0.01	0.01	0.01
Auger Truck	0.44	2.53	2.93	0.01	0.16	0.15
Total	**2.33**	**13.15**	**9.74**	**0.03**	**0.40**	**0.37**

[a] Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

Construction Equipment Total Greenhouse Gas Emissions

Equipment	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Backhoe/Front Loader	25.8	1.5E-03	25.8
Manlift/Bucket Truck	25.3	1.8E-03	25.3
Boom/Crane Truck	34.3	2.1E-03	34.4
Auger Truck	16.8	1.3E-03	16.8
Total	**102.2**	**0.0**	**102.3**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 34

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Usage

Vehicle	Number	Days Used	Hours Used/ Day	Miles/ Day/ Veh.[a]
Onsite				
None				
Offsite				
1-Ton Truck, 4x4	1	70	N/A	15.4
Manlift/Bucket Truck	1	70	N/A	15.4
Boom/Crane Truck	1	70	N/A	15.4
Auger Truck	1	70	N/A	15.4
Material Handling Truck	1	70	N/A	15.4
Extendable Flat Bed Pole Truck	1	70	N/A	15.4
Worker Commute	6	70	N/A	60

[a] Offsite travel assumed to be 15.4 miles per day, equal to 1/2 total distance of Proposed Project x 2 trips/day; offsite worker commute based on estimated 60 mile roundtrip distance; offsite concrete mixer truck (vendor) bsaed on estimated 50 mile roundtrip distance.

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Onsite									
None		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Offsite									
1-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Manlift/Bucket Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Boom/Crane Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Auger Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Material Handling Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Extendable Flat Bed Pole Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Worker Commute	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

a From Table 35 or Table 36

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Onsite						
None	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Offsite						
1-Ton Truck, 4x4	0.02	0.14	0.15	0.00	0.01	0.00
Manlift/Bucket Truck	0.02	0.09	0.24	0.00	0.01	0.01
Boom/Crane Truck	0.02	0.09	0.24	0.00	0.01	0.01
Auger Truck	0.02	0.09	0.24	0.00	0.01	0.01
Material Handling Truck	0.02	0.09	0.24	0.00	0.01	0.01
Extendable Flat Bed Pole Truck	0.02	0.09	0.24	0.00	0.01	0.01
Worker Commute	0.23	2.07	0.20	0.00	0.03	0.02
Offsite Total	**0.35**	**2.68**	**1.53**	**0.01**	**0.10**	**0.08**
Total	**0.35**	**2.68**	**1.53**	**0.01**	**0.10**	**0.08**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Table 21
Subtransmission Line Construction Emissions
Install Wood/Wood Guy Stub Pole/LWS Pole

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			
None	0.0	0.0	0.0
Onsite Total	**0.0**	**0.0**	**0.0**
Offsite			
1-Ton Truck, 4x4	1.4	0.0	1.4
Manlift/Bucket Truck	2.1	0.0	2.1
Boom/Crane Truck	2.1	0.0	2.1
Auger Truck	2.1	0.0	2.1
Material Handling Truck	2.1	0.0	2.1
Extendable Flat Bed Pole Truck	2.1	0.0	2.1
Worker Commute	12.7	0.0	12.7
Offsite Total	**24.3**	**0.0**	**24.3**
Total	**24.3**	**0.0**	**24.3**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle[a]	PM10 Emission Factor (lb/mi)[b]	PM2.5 Emission Factor (lb/mi)[b]	PM10 Emissions (lb/day)[c]	PM2.5 Emissions (lb/day)[c]
Onsite							
None							
Onsite Total						**0.00**	**0.00**
Offsite							
1-Ton Truck, 4x4	1	Paved	8.5	0.001	0.000	0.01	0.00
Manlift/Bucket Truck	1	Paved	8.5	0.001	0.000	0.01	0.00
Boom/Crane Truck	1	Paved	8.5	0.001	0.000	0.01	0.00
Auger Truck	1	Paved	8.5	0.001	0.000	0.01	0.00
Material Handling Truck	1	Paved	8.5	0.001	0.000	0.01	0.00
Extendable Flat Bed Pole Truck	1	Paved	8.5	0.001	0.000	0.01	0.00
1-Ton Truck, 4x4	1	Unpaved - private	4.2	1.052	0.105	4.42	0.44
Manlift/Bucket Truck	1	Unpaved - private	4.2	1.052	0.105	4.42	0.44
Boom/Crane Truck	1	Unpaved - private	4.2	1.052	0.105	4.42	0.44
Auger Truck	1	Unpaved - private	4.2	1.052	0.105	4.42	0.44
Material Handling Truck	1	Unpaved - private	4.2	1.052	0.105	4.42	0.44
Extendable Flat Bed Pole Truck	1	Unpaved - private	4.2	1.052	0.105	4.42	0.44
1-Ton Truck, 4x4	1	Unpaved - public	2.7	1.052	0.105	2.84	0.28
Manlift/Bucket Truck	1	Unpaved - public	2.7	1.052	0.105	2.84	0.28
Boom/Crane Truck	1	Unpaved - public	2.7	1.052	0.105	2.84	0.28
Auger Truck	1	Unpaved - public	2.7	1.052	0.105	2.84	0.28
Material Handling Truck	1	Unpaved - public	2.7	1.052	0.105	2.84	0.28
Extendable Flat Bed Pole Truck	1	Unpaved - public	2.7	1.052	0.105	2.84	0.28
Worker Commute	6	Paved	60	0.001	0.000	0.29	0.00
Offsite Total						**43.89**	**4.34**
Total						**43.89**	**4.34**

a Of the 15.4 mile alignment, 8.5 miles occur on paved roadways and 6.9 miles occur on unpaved roadways (2.7 miles are unpaved public roadways and 4.2 miles are unpaved private roadways). Daily VMT per vehicle assumes 1/2 total distance of Proposed Project x 2 trips per day.

b From Table 37

[c] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Earthwork Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM10 Emission Factor[a]	PM2.5 Emission Factor[a]	PM10 (lb/day)[b]	PM2.5 (lb/day)[b]
Soil Handling	CY/day	14	1.67E-02	3.47E-03	0.23	0.05
Bulldozing, Scraping and Grading	hr/day		5.837	1.214	0.00	0.00
Storage Pile Wind Erosion	acres		4.4	0.92	0.00	0.00
Total					**0.23**	**0.05**

a From Table 38

[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

[c] Based on excavating 3.5 ft. diameter x 10 ft. deep per pole x 274 poles = 976 CY over 69 days

Table 22
Subtransmission Line Construction Emissions
Reconfigure Existing Structures

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	1.31	5.15	2.92	0.02	0.17	0.15	10.8
Onsite Motor Vehicle Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.00	0.00	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
Onsite Total	**1.31**	**5.15**	**2.92**	**0.02**	**0.17**	**0.15**	**10.8**
Offsite Motor Vehicle Exhaust	0.86	7.50	1.50	0.02	0.15	0.10	9.2
Offsite Motor Vehicle Fugitive PM	--	--	--	--	28.14	2.71	
Offsite Total	**0.86**	**7.50**	**1.50**	**0.02**	**28.29**	**2.81**	**9.2**
Total	**2.17**	**12.64**	**4.42**	**0.03**	**28.46**	**2.96**	**20.0**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Compressor Trailer	60	1	13	6
Boom/Crane Truck	350	1	13	8

Construction Equipment Exhaust Emission Factors

Equipment	Horse-power	VOC (lb/hr)[a]	CO (lb/hr)[a]	NOX (lb/hr)[a]	SOX (lb/hr)[a]	PM10 (lb/hr)[a]	PM2.5 (lb/hr)[b]	CO2 (lb/hr)[a]	CH4 (lb/hr)[a]	Category
Compressor Trailer	60	0.058	0.313	0.394	0.001	0.025	0.023	63.607	0.005	Air Compressors
Boom/Crane Truck	350	0.120	0.409	0.070	0.002	0.002	0.002	180.101	0.011	Cranes

a From Table 34

b Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006, http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

Construction Equipment Daily Criteria Pollutant Exhaust Emissions

Equipment	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Compressor Trailer	0.35	1.88	2.36	0.00	0.15	0.14
Boom/Crane Truck	0.96	3.27	0.56	0.01	0.02	0.02
Total	**1.31**	**5.15**	**2.92**	**0.02**	**0.17**	**0.15**

[a] Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

Construction Equipment Total Greenhouse Gas Emissions

Equipment	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Compressor Trailer	2.3	0.0	2.3
Boom/Crane Truck	8.5	0.0	8.5
Total	**10.7**	**0.0**	**10.8**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 34

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Usage

Vehicle	Number	Days Used	Hours Used/ Day	Miles/ Day/ Veh.[a]
Onsite				
None				0
Offsite				
3/4-Ton Truck, 4x4	2	13	N/A	12
1-Ton Truck, 4x4	2	13	N/A	12
Material Handling Truck	1	13	N/A	12
Boom/Crane Truck	1	13	N/A	12
Worker Commute	20	13	N/A	60

[a] Offsite travel assumed to be 12 miles per day, equal to 1/2 total distance of Segment 1 of the Proposed Project x 2 trips/day; offsite worker commute based on estimated 60 mile roundtrip distance.

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Onsite									
None		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Offsite									
3/4-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
1-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Material Handling Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Boom/Crane Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Worker Commute	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

a From Table 35 or Table 36

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Onsite						
None	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Offsite						
3/4-Ton Truck, 4x4	0.03	0.22	0.24	0.00	0.01	0.01
1-Ton Truck, 4x4	0.03	0.22	0.24	0.00	0.01	0.01
Material Handling Truck	0.02	0.07	0.18	0.00	0.01	0.01
Boom/Crane Truck	0.02	0.07	0.18	0.00	0.01	0.01
Worker Commute	0.76	6.91	0.67	0.01	0.11	0.07
Offsite Total	**0.86**	**7.50**	**1.50**	**0.02**	**0.15**	**0.10**
Total	**0.86**	**7.50**	**1.50**	**0.02**	**0.15**	**0.10**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Table 22
Subtransmission Line Construction Emissions
Reconfigure Existing Structures

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			
None	0.0	0.0	0.0
Onsite Total	**0.0**	**0.0**	**0.0**
Offsite			
3/4-Ton Truck, 4x4	0.4	0.0	0.4
1-Ton Truck, 4x4	0.4	0.0	0.4
Material Handling Truck	0.3	0.0	0.3
Boom/Crane Truck	0.3	0.0	0.3
Worker Commute	7.8	0.0	7.8
Offsite Total	**9.2**	**0.0**	**9.2**
Total	**9.2**	**0.0**	**9.2**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle[a]	PM10 Emission Factor (lb/mi)[b]	PM2.5 Emission Factor (lb/mi)[b]	PM10 Emissions (lb/day)[c]	PM2.5 Emissions (lb/day)[c]
Onsite							
None	0						
Onsite Total						**0.00**	**0.00**
Offsite							
3/4-Ton Truck, 4x4	2	Paved	7.7	0.001	0.000	0.01	0.00
1-Ton Truck, 4x4	2	Paved	7.7	0.001	0.000	0.01	0.00
Material Handling Truck	1	Paved	7.7	0.001	0.000	0.01	0.00
Boom/Crane Truck	1	Paved	7.7	0.001	0.000	0.01	0.00
3/4-Ton Truck, 4x4	2	Unpaved - private	1.9	1.052	0.105	4.00	0.40
1-Ton Truck, 4x4	2	Unpaved - private	1.9	1.052	0.105	4.00	0.40
Material Handling Truck	1	Unpaved - private	1.9	1.052	0.105	2.00	0.20
Boom/Crane Truck	1	Unpaved - private	1.9	1.052	0.105	2.00	0.20
3/4-Ton Truck, 4x4	2	Unpaved - public	2.4	1.052	0.105	5.05	0.50
1-Ton Truck, 4x4	2	Unpaved - public	2.4	1.052	0.105	5.05	0.50
Material Handling Truck	1	Unpaved - public	2.4	1.052	0.105	2.53	0.25
Boom/Crane Truck	1	Unpaved - public	2.4	1.052	0.105	2.53	0.25
Worker Commute	20	Paved	60	0.001	0.000	0.96	0.00
Offsite Total						**28.14**	**2.71**
Total						**28.14**	**2.71**

a For Segment 1 of the Proposed Project, 7.7 miles occur on paved roadways and 4.3 miles occur on unpaved roadways (2.4 miles are unpaved public roadways and 1.9 miles are unpaved private roadways). Daily VMT per vehicle assumes 1/2 total distance of Proposed Project x 2 trips per day. Existing structures would not be reconfigured along Segment 2 of the Proposed Project.
b From Table 37
[c] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Earthwork Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM10 Emission Factor[a]	PM2.5 Emission Factor[a]	PM10 (lb/day)[b]	PM2.5 (lb/day)[b]
Soil Handling	CY/day		1.67E-02	3.47E-03	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		5.837	1.214	0.00	0.00
Storage Pile Wind Erosion	acres		4.4	0.92	0.00	0.00
Total					**0.00**	**0.00**

a From Table 38
[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 23
Subtransmission Line Construction Emissions
Install Conductor & GW

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	7.00	33.06	35.82	0.11	1.56	1.44	360.5
Onsite Motor Vehicle Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.00	0.00	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
Onsite Total	**7.00**	**33.06**	**35.82**	**0.11**	**1.56**	**1.44**	**360.5**
Offsite Motor Vehicle Exhaust	0.92	8.35	0.92	0.02	0.14	0.09	55.4
Offsite Motor Vehicle Fugitive PM	--	--	--	--	4.73	0.36	
Offsite Total	**0.92**	**8.35**	**0.92**	**0.02**	**4.88**	**0.45**	**55.4**
Total	**7.92**	**41.41**	**36.74**	**0.13**	**6.44**	**1.89**	**415.9**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Backhoe/Front Loader	125	1	75	2
Manlift/Bucket Truck	250	4	75	8
Boom/Crane Truck	350	1	75	8
Boom Truck (guard)	350	4	75	2
Wire Truck/Trailer	10	2	75	6
Sock Line Puller	300	1	75	6
Bull Wheel Puller	16	1	75	6
Static Truck/Tensioner	350	1	75	6

Construction Equipment Exhaust Emission Factors

Equipment	Horse-power	VOC (lb/hr)[a]	CO (lb/hr)[a]	NOX (lb/hr)[a]	SOX (lb/hr)[a]	PM10 (lb/hr)[a]	PM2.5 (lb/hr)[b]	CO2 (lb/hr)[a]	CH4 (lb/hr)[a]	Category
Backhoe/Front Loader	125	0.067	0.584	0.257	0.001	0.001	0.001	101.387	0.006	Tractors/Loaders/Backhoes
Manlift/Bucket Truck	250	0.105	0.581	0.722	0.001	0.035	0.033	132.743	0.009	Manlifts
Boom/Crane Truck	350	0.120	0.409	0.070	0.002	0.002	0.002	180.101	0.011	Cranes
Boom Truck (guard)	350	0.120	0.409	0.070	0.002	0.002	0.002	180.101	0.011	Cranes
Wire Truck/Trailer	10	0.012	0.062	0.074	0.000	0.003	0.003	10.107	0.001	Other Construction Equipment
Sock Line Puller	300	0.112	0.474	0.800	0.002	0.028	0.025	254.238	0.010	Other Construction Equipment
Bull Wheel Puller	16	0.016	0.054	0.101	0.000	0.004	0.003	13.217	0.001	Other Construction Equipment
Static Truck/Tensioner	350	0.112	0.474	0.800	0.002	0.028	0.025	254.238	0.010	Other Construction Equipment

a From Table 34

[b] Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006, http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

Table 23
Subtransmission Line Construction Emissions
Install Conductor & GW

Construction Equipment Daily Criteria Pollutant Exhaust Emissions

Equipment	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Backhoe/Front Loader	0.13	1.17	0.51	0.00	0.00	0.00
Manlift/Bucket Truck	3.36	18.60	23.09	0.05	1.14	1.05
Boom/Crane Truck	0.96	3.27	0.56	0.01	0.02	0.02
Boom Truck (guard)	0.96	3.27	0.56	0.01	0.02	0.02
Wire Truck/Trailer	0.14	0.74	0.88	0.00	0.03	0.03
Sock Line Puller	0.67	2.85	4.80	0.01	0.17	0.15
Bull Wheel Puller	0.10	0.33	0.60	0.00	0.02	0.02
Static Truck/Tensioner	0.67	2.85	4.80	0.01	0.17	0.15
Total	**7.00**	**33.06**	**35.82**	**0.11**	**1.56**	**1.44**

[a] Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

Construction Equipment Total Greenhouse Gas Emissions

Equipment	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Backhoe/Front Loader	6.9	0.0	6.9
Manlift/Bucket Truck	144.5	0.0	144.7
Boom/Crane Truck	49.0	0.0	49.1
Boom Truck (guard)	49.0	0.0	49.1
Wire Truck/Trailer	4.1	0.0	4.1
Sock Line Puller	51.9	0.0	51.9
Bull Wheel Puller	2.7	0.0	2.7
Static Truck/Tensioner	51.9	0.0	51.9
Total	**360.1**	**0.0**	**360.5**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 34

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Usage

Vehicle	Number	Days Used	Hours Used/ Day	Miles/ Day/ Veh.[a]
Onsite				
None				0
Offsite				
1-Ton Truck, 4x4	3	75	4	0.4
Manlift/Bucket Truck	4	75	8	0.4
Boom/Crane Truck	1	75	8	0.4
Boom Truck (guard)	4	75	2	0.4
Dump Truck	1	75	2	0.4
Wire Truck/Trailer	2	75	6	0.4
Sock Line Puller	1	75	6	0.4
Bull Wheel Puller	1	75	6	0.4
Static Truck/Tensioner	1	75	6	0.4
Material Handling Truck	1	75	8	0.4
Lowboy Truck/Trailer	2	75	4	0.4
Worker Commute	24	75	N/A	60

[a] Offsite travel assumed to be 0.2 miles per day x 2 trips/day; offsite worker commute based on estimated 60 mile roundtrip distance.

Table 23
Subtransmission Line Construction Emissions
Install Conductor & GW

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Onsite									
None		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Offsite									
1-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Manlift/Bucket Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Boom/Crane Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Boom Truck (guard)	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Dump Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Wire Truck/Trailer	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Sock Line Puller	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Bull Wheel Puller	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Static Truck/Tensioner	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Material Handling Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Lowboy Truck/Trailer	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Worker Commute	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

a From Table 35 or Table 36

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Onsite						
None	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Offsite						
1-Ton Truck, 4x4	0.00	0.01	0.01	0.00	0.00	0.00
Manlift/Bucket Truck	0.00	0.01	0.02	0.00	0.00	0.00
Boom/Crane Truck	0.00	0.00	0.01	0.00	0.00	0.00
Boom Truck (guard)	0.00	0.01	0.02	0.00	0.00	0.00
Dump Truck	0.00	0.00	0.01	0.00	0.00	0.00
Wire Truck/Trailer	0.00	0.00	0.01	0.00	0.00	0.00
Sock Line Puller	0.00	0.00	0.01	0.00	0.00	0.00
Bull Wheel Puller	0.00	0.00	0.01	0.00	0.00	0.00
Static Truck/Tensioner	0.00	0.00	0.01	0.00	0.00	0.00
Material Handling Truck	0.00	0.00	0.01	0.00	0.00	0.00
Lowboy Truck/Trailer	0.00	0.00	0.01	0.00	0.00	0.00
Worker Commute	0.91	8.29	0.80	0.02	0.14	0.09
Offsite Total	**0.92**	**8.35**	**0.92**	**0.02**	**0.14**	**0.09**
Total	**0.92**	**8.35**	**0.92**	**0.02**	**0.14**	**0.09**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Table 23
Subtransmission Line Construction Emissions
Install Conductor & GW

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			
None	0.0	0.0	0.0
Onsite Total	**0.0**	**0.0**	**0.0**
Offsite			
1-Ton Truck, 4x4	0.1	0.0	0.1
Manlift/Bucket Truck	0.2	0.0	0.2
Boom/Crane Truck	0.1	0.0	0.1
Boom Truck (guard)	0.2	0.0	0.2
Dump Truck	0.1	0.0	0.1
Wire Truck/Trailer	0.1	0.0	0.1
Sock Line Puller	0.1	0.0	0.1
Bull Wheel Puller	0.1	0.0	0.1
Static Truck/Tensioner	0.1	0.0	0.1
Material Handling Truck	0.1	0.0	0.1
Lowboy Truck/Trailer	0.1	0.0	0.1
Worker Commute	54.2	0.0	54.3
Offsite Total	**55.4**	**0.0**	**55.4**
Total	**55.4**	**0.0**	**55.4**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Table 23
Subtransmission Line Construction Emissions
Install Conductor & GW

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle[a]	PM10 Emission Factor (lb/mi)[b]	PM2.5 Emission Factor (lb/mi)[b]	PM10 Emissions (lb/day)[c]	PM2.5 Emissions (lb/day)[c]
Onsite							
None	0						
Onsite Total						**0.00**	**0.00**
Offsite							
1-Ton Truck, 4x4	3	Paved	0.2	0.001	0.000	0.00	0.00
Manlift/Bucket Truck	4	Paved	0.2	0.001	0.000	0.00	0.00
Boom/Crane Truck	1	Paved	0.2	0.001	0.000	0.00	0.00
Boom Truck (guard)	4	Paved	0.2	0.001	0.000	0.00	0.00
Dump Truck	1	Paved	0.2	0.001	0.000	0.00	0.00
Wire Truck/Trailer	2	Paved	0.2	0.001	0.000	0.00	0.00
Sock Line Puller	1	Paved	0.2	0.001	0.000	0.00	0.00
Bull Wheel Puller	1	Paved	0.2	0.001	0.000	0.00	0.00
Static Truck/Tensioner	1	Paved	0.2	0.001	0.000	0.00	0.00
Material Handling Truck	1	Paved	0.2	0.001	0.000	0.00	0.00
Lowboy Truck/Trailer	2	Paved	0.2	0.001	0.000	0.00	0.00
1-Ton Truck, 4x4	3	Unpaved - public	0.2	1.052	0.105	0.63	0.06
Manlift/Bucket Truck	4	Unpaved - public	0.2	1.052	0.105	0.84	0.08
Boom/Crane Truck	1	Unpaved - public	0.2	1.052	0.105	0.21	0.02
Boom Truck (guard)							
Dump Truck	1	Unpaved - public	0.2	1.052	0.105	0.21	0.02
Wire Truck/Trailer	2	Unpaved - public	0.2	1.052	0.105	0.42	0.04
Sock Line Puller	1	Unpaved - public	0.2	1.052	0.105	0.21	0.02
Bull Wheel Puller	1	Unpaved - public	0.2	1.052	0.105	0.21	0.02
Static Truck/Tensioner	1	Unpaved - public	0.2	1.052	0.105	0.21	0.02
Material Handling Truck	1	Unpaved - public	0.2	1.052	0.105	0.21	0.02
Lowboy Truck/Trailer	2	Unpaved - public	0.2	1.052	0.105	0.42	0.04
Worker Commute	24	Paved	60	0.001	0.000	1.15	0.00
Offsite Total						**4.73**	**0.36**
Total						**4.73**	**0.36**

[a] Assumes distance travelled on unpaved roadways is 1/2 total distance (0.2 miles/day) x two trips per day

b From Table 37

[c] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Earthwork Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM10 Emission Factor[a]	PM2.5 Emission Factor[a]	PM10 (lb/day)[b]	PM2.5 (lb/day)[b]
Soil Handling	CY/day		1.67E-02	3.47E-03	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		5.837	1.214	0.00	0.00
Storage Pile Wind Erosion	acres		4.4	0.92	0.00	0.00
Total					**0.00**	**0.00**

a From Table 38

[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 24
Subtransmission Line Construction Emissions
Guard Structure Removal

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	1.51	7.20	5.39	0.02	0.26	0.24	8.5
Onsite Motor Vehicle Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.00	0.00	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
Onsite Total	**1.51**	**7.20**	**5.39**	**0.02**	**0.26**	**0.24**	**8.5**
Offsite Motor Vehicle Exhaust	0.33	2.64	1.21	0.01	0.08	0.06	2.8
Offsite Motor Vehicle Fugitive PM	--	--	--	--	36.62	3.62	
Offsite Total	**0.33**	**2.64**	**1.21**	**0.01**	**36.70**	**3.68**	**2.8**
Total	**1.84**	**9.83**	**6.60**	**0.03**	**36.96**	**3.92**	**11.2**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Compressor Trailer	60	1	9	4
Backhoe/Front Loader	125	1	9	2
Manlift/Bucket Truck	250	1	9	4
Boom/Crane Truck	350	1	9	6

Construction Equipment Exhaust Emission Factors

Equipment	Horse-power	VOC (lb/hr)[a]	CO (lb/hr)[a]	NOX (lb/hr)[a]	SOX (lb/hr)[a]	PM10 (lb/hr)[a]	PM2.5 (lb/hr)[b]	CO2 (lb/hr)[a]	CH4 (lb/hr)[a]	Category
Compressor Trailer	60	0.058	0.313	0.394	0.001	0.025	0.023	63.607	0.005	Air Compressors
Backhoe/Front Loader	125	0.067	0.584	0.257	0.001	0.001	0.001	101.387	0.006	Tractors/Loaders/Backhoes
Manlift/Bucket Truck	250	0.105	0.581	0.722	0.001	0.035	0.033	132.743	0.009	Manlifts
Boom/Crane Truck	350	0.120	0.409	0.070	0.002	0.002	0.002	180.101	0.011	Cranes

a From Table 34

[b] Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006, http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

Construction Equipment Daily Criteria Pollutant Exhaust Emissions

Equipment	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Compressor Trailer	0.23	1.25	1.57	0.00	0.10	0.09
Backhoe/Front Loader	0.13	1.17	0.51	0.00	0.00	0.00
Manlift/Bucket Truck	0.42	2.32	2.89	0.01	0.14	0.13
Boom/Crane Truck	0.72	2.45	0.42	0.01	0.01	0.01
Total	**1.51**	**7.20**	**5.39**	**0.02**	**0.26**	**0.24**

[a] Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

Construction Equipment Total Greenhouse Gas Emissions

Equipment	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Compressor Trailer	1.0	0.0	1.0
Backhoe/Front Loader	0.8	0.0	0.8
Manlift/Bucket Truck	2.2	0.0	2.2
Boom/Crane Truck	4.4	0.0	4.4
Total	**8.4**	**0.0**	**8.5**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 34

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Usage

Vehicle	Number	Days Used	Hours Used/ Day	Miles/ Day/ Veh.[a]
Onsite				
None				
Offsite				
3/4-Ton Truck, 4x4	1	9	N/A	15.4
1-Ton Truck, 4x4	1	9	N/A	15.4
Manlift/Bucket Truck	1	9	N/A	15.4
Boom/Crane Truck	1	9	N/A	15.4
Extendable Flat Bed Pole Truck	1	9	N/A	15.4
Worker Commute	6	9	N/A	60

[a] Offsite travel assumed to be 15.4 miles per day, equal to 1/2 total distance of Proposed Project x 2 trips/day; offsite worker commute based on estimated 60 mile roundtrip distance.

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Onsite									
None		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Offsite									
3/4-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
1-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Manlift/Bucket Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Boom/Crane Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Extendable Flat Bed Pole Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Worker Commute	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

a From Table 35 or Table 36

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Onsite						
None	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Offsite						
3/4-Ton Truck, 4x4	0.02	0.14	0.15	0.00	0.01	0.00
1-Ton Truck, 4x4	0.02	0.14	0.15	0.00	0.01	0.00
Manlift/Bucket Truck	0.02	0.09	0.24	0.00	0.01	0.01
Boom/Crane Truck	0.02	0.09	0.24	0.00	0.01	0.01
Extendable Flat Bed Pole Truck	0.02	0.09	0.24	0.00	0.01	0.01
Worker Commute	0.23	2.07	0.20	0.00	0.03	0.02
Offsite Total	**0.33**	**2.64**	**1.21**	**0.01**	**0.08**	**0.06**
Total	**0.33**	**2.64**	**1.21**	**0.01**	**0.08**	**0.06**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Table 24
Subtransmission Line Construction Emissions
Guard Structure Removal

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			
None	0.0	0.0	0.0
Onsite Total	**0.0**	**0.0**	**0.0**
Offsite			
3/4-Ton Truck, 4x4	0.2	0.0	0.2
1-Ton Truck, 4x4	0.2	0.0	0.2
Manlift/Bucket Truck	0.3	0.0	0.3
Boom/Crane Truck	0.3	0.0	0.3
Extendable Flat Bed Pole Truck	0.3	0.0	0.3
Worker Commute	1.6	0.0	1.6
Offsite Total	**2.8**	**0.0**	**2.8**
Total	**2.8**	**0.0**	**2.8**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle[a]	PM10 Emission Factor (lb/mi)[b]	PM2.5 Emission Factor (lb/mi)[b]	PM10 Emissions (lb/day)[c]	PM2.5 Emissions (lb/day)[c]
Onsite							
None							
Onsite Total						**0.00**	**0.00**
Offsite							
3/4-Ton Truck, 4x4	1	Paved	8.5	0.001	0.000	0.01	0.00
1-Ton Truck, 4x4	1	Paved	8.5	0.001	0.000	0.01	0.00
Manlift/Bucket Truck	1	Paved	8.5	0.001	0.000	0.01	0.00
Boom/Crane Truck	1	Paved	8.5	0.001	0.000	0.01	0.00
Extendable Flat Bed Pole Truck	1	Paved	8.5	0.001	0.000	0.01	0.00
3/4-Ton Truck, 4x4	1	Unpaved - private	4.2	1.052	0.105	4.42	0.44
1-Ton Truck, 4x4	1	Unpaved - private	4.2	1.052	0.105	4.42	0.44
Manlift/Bucket Truck	1	Unpaved - private	4.2	1.052	0.105	4.42	0.44
Boom/Crane Truck	1	Unpaved - private	4.2	1.052	0.105	4.42	0.44
Extendable Flat Bed Pole Truck	1	Unpaved - private	4.2	1.052	0.105	4.42	0.44
3/4-Ton Truck, 4x4	1	Unpaved - public	2.7	1.052	0.105	2.84	0.28
1-Ton Truck, 4x4	1	Unpaved - public	2.7	1.052	0.105	2.84	0.28
Manlift/Bucket Truck	1	Unpaved - public	2.7	1.052	0.105	2.84	0.28
Boom/Crane Truck	1	Unpaved - public	2.7	1.052	0.105	2.84	0.28
Extendable Flat Bed Pole Truck	1	Unpaved - public	2.7	1.052	0.105	2.84	0.28
Worker Commute	6	Paved	60	0.001	0.000	0.29	0.00
Offsite Total						**36.62**	**3.62**
Total						**36.62**	**3.62**

a Of the 15.4 mile alignment, 8.5 miles occur on paved roadways and 6.9 miles occur on unpaved roadways (2.7 miles are unpaved public roadways and 4.2 miles are unpaved private roadways). Daily VMT per vehicle assumes 1/2 total distance of Proposed Project x 2 trips per day.

b From Table 37

[c] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Earthwork Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM10 Emission Factor[a]	PM2.5 Emission Factor[a]	PM10 (lb/day)[b]	PM2.5 (lb/day)[b]
Soil Handling	CY/day		1.67E-02	3.47E-03	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		5.837	1.214	0.00	0.00
Storage Pile Wind Erosion	acres		4.4	0.92	0.00	0.00
Total					**0.00**	**0.00**

a From Table 38

[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 25
Subtransmission Line Construction Emissions
Restoration

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	1.21	6.17	3.40	0.02	0.16	0.15	11.4
Onsite Motor Vehicle Exhaust	0.00	0.01	0.02	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	1.05	0.10	
Earthwork Fugitive PM	--	--	--	--	35.02	7.28	
Onsite Total	**1.21**	**6.18**	**3.42**	**0.02**	**36.24**	**7.54**	**11.4**
Offsite Motor Vehicle Exhaust	0.35	2.89	1.01	0.01	0.08	0.05	4.6
Offsite Motor Vehicle Fugitive PM	--	--	--	--	29.40	2.90	
Offsite Total	**0.35**	**2.89**	**1.01**	**0.01**	**29.48**	**2.95**	**4.6**
Total	**1.56**	**9.07**	**4.42**	**0.03**	**65.72**	**10.49**	**16.1**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Backhoe/Front Loader	125	1	15	4
Motor Grader	250	1	15	6
Drum Type Compactor	100	1	15	4

Construction Equipment Exhaust Emission Factors

Equipment	Horse-power	VOC (lb/hr)[a]	CO (lb/hr)[a]	NOX (lb/hr)[a]	SOX (lb/hr)[a]	PM10 (lb/hr)[a]	PM2.5 (lb/hr)[b]	CO2 (lb/hr)[a]	CH4 (lb/hr)[a]	Category
Backhoe/Front Loader	125	0.067	0.584	0.257	0.001	0.001	0.001	101.387	0.006	Tractors/Loaders/Backhoes
Motor Grader	250	0.111	0.378	0.102	0.002	0.004	0.003	172.113	0.010	Graders
Drum Type Compactor	100	0.068	0.392	0.441	0.001	0.034	0.031	58.989	0.006	Rollers

a From Table 34

[b] Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006, http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

Construction Equipment Daily Criteria Pollutant Exhaust Emissions

Equipment	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Backhoe/Front Loader	0.27	2.34	1.03	0.00	0.00	0.00
Motor Grader	0.67	2.27	0.61	0.01	0.02	0.02
Drum Type Compactor	0.27	1.57	1.76	0.00	0.14	0.13
Total	**1.21**	**6.17**	**3.40**	**0.02**	**0.16**	**0.15**

[a] Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

Construction Equipment Total Greenhouse Gas Emissions

Equipment	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Backhoe/Front Loader	2.8	0.0	2.8
Motor Grader	7.0	0.0	7.0
Drum Type Compactor	1.6	0.0	1.6
Total	**11.4**	**0.0**	**11.4**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 34

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Usage

Vehicle	Number	Days Used	Hours Used/ Day	Miles/ Day/ Veh.[a]
Onsite				
Water Truck	1	15	2	1
Offsite				
1-Ton Crew Cab, 4x4	2	15	4	15.4
Water Truck	1	15	6	15.4
Lowboy Truck/Trailer	1	15	4	15.4
Worker Commute	7	15	N/A	60

[a] Onsite travel assumed to be 1 mile per day

[a] Offsite travel assumed to be 15.4 miles per day, equal to 1/2 total distance of Proposed Project x 2 trips/day; offsite worker commute based on estimated 60 mile roundtrip distance; offsite concrete mixer truck (vendor) bsaed on estimated 50 mile roundtrip distance.

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Onsite									
Water Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Offsite									
1-Ton Crew Cab, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Water Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Lowboy Truck/Trailer	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Worker Commute	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

a From Table 35 or Table 36

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Onsite						
Water Truck	0.00	0.01	0.02	0.00	0.00	0.00
Onsite Total	**0.00**	**0.01**	**0.02**	**0.00**	**0.00**	**0.00**
Offsite						
1-Ton Crew Cab, 4x4	0.04	0.28	0.30	0.00	0.01	0.01
Water Truck	0.02	0.09	0.24	0.00	0.01	0.01
Lowboy Truck/Trailer	0.02	0.09	0.24	0.00	0.01	0.01
Worker Commute	0.27	2.42	0.23	0.00	0.04	0.03
Offsite Total	**0.35**	**2.89**	**1.01**	**0.01**	**0.08**	**0.05**
Total	**0.35**	**2.90**	**1.02**	**0.01**	**0.08**	**0.06**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Table 25
Subtransmission Line Construction Emissions
Restoration

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			
Water Truck	0.0	0.0	0.0
Onsite Total	**0.0**	**0.0**	**0.0**
Offsite			
1-Ton Crew Cab, 4x4	0.6	0.0	0.6
Water Truck	0.4	0.0	0.4
Lowboy Truck/Trailer	0.4	0.0	0.4
Worker Commute	3.2	0.0	3.2
Offsite Total	**4.6**	**0.0**	**4.6**
Total	**4.7**	**0.0**	**4.7**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle[a]	PM10 Emission Factor (lb/mi)[b]	PM2.5 Emission Factor (lb/mi)[b]	PM10 Emissions (lb/day)[c]	PM2.5 Emissions (lb/day)[c]
Onsite							
Water Truck	1	Unpaved - private	1	1.052	0.105	1.05	0.10
Onsite Total						**1.05**	**0.10**
Offsite							
1-Ton Crew Cab, 4x4	2	Paved	8.5	0.001	0.000	0.01	0.00
Water Truck	1	Paved	8.5	0.001	0.000	0.01	0.00
Lowboy Truck/Trailer	1	Paved	8.5	0.001	0.000	0.01	0.00
1-Ton Crew Cab, 4x4	2	Unpaved - private	4.2	1.052	0.105	8.84	0.88
Water Truck	1	Unpaved - private	4.2	1.052	0.105	4.42	0.44
Lowboy Truck/Trailer	1	Unpaved - private	4.2	1.052	0.105	4.42	0.44
1-Ton Crew Cab, 4x4	2	Unpaved - public	2.7	1.052	0.105	5.68	0.57
Water Truck	1	Unpaved - public	2.7	1.052	0.105	2.84	0.28
Lowboy Truck/Trailer	1	Unpaved - public	2.7	1.052	0.105	2.84	0.28
Worker Commute	7	Paved	60	0.001	0.000	0.34	0.00
Offsite Total						**29.40**	**2.90**
Total						**30.45**	**3.00**

a Of the 15.4 mile alignment, 8.5 miles occur on paved roadways and 6.9 miles occur on unpaved roadways (2.7 miles are unpaved public roadways and 4.2 miles are unpaved private roadways). Daily VMT per vehicle assumes 1/2 total distance of Proposed Project x 2 trips per day.

b From Table 37

[c] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Earthwork Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM10 Emission Factor[a]	PM2.5 Emission Factor[a]	PM10 (lb/day)[b]	PM2.5 (lb/day)[b]
Soil Handling	CY/day		1.67E-02	3.47E-03	0.00	0.00
Bulldozing, Scraping and Grading	hr/day	6	5.837	1.214	35.02	7.28
Storage Pile Wind Erosion	acres		4.4	0.92	0.00	0.00
Total					**35.02**	**7.28**

a From Table 38

[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 26
Subtransmission Line Construction Emissions
Vault Installation

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	1.87	9.37	3.08	0.03	0.05	0.04	11.8
Onsite Motor Vehicle Exhaust	0.01	0.06	0.09	0.00	0.00	0.00	0.1
Onsite Motor Vehicle Fugitive PM	--	--	--	--	7.77	0.77	
Earthwork Fugitive PM	--	--	--	--	0.80	0.17	
Onsite Total	**1.88**	**9.43**	**3.17**	**0.03**	**8.62**	**0.99**	**11.9**
Offsite Motor Vehicle Exhaust	0.49	3.38	3.09	0.01	0.18	0.14	4.9
Offsite Motor Vehicle Fugitive PM	--	--	--	--	0.45	0.00	
Offsite Total	**0.49**	**3.38**	**3.09**	**0.01**	**0.62**	**0.14**	**4.9**
Total	**2.37**	**12.80**	**6.26**	**0.04**	**9.25**	**1.13**	**16.8**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Backhoe/Front Loader	125	1	9	8
Excavator	250	1	9	6
Crane (L)	500	1	9	6
Concrete Mixer Truck	350	3	9	2

Construction Equipment Exhaust Emission Factors

Equipment	Horse-power	VOC (lb/hr)[a]	CO (lb/hr)[a]	NOX (lb/hr)[a]	SOX (lb/hr)[a]	PM10 (lb/hr)[a]	PM2.5 (lb/hr)[b]	CO2 (lb/hr)[a]	CH4 (lb/hr)[a]	Category
Backhoe/Front Loader	125	0.067	0.584	0.257	0.001	0.001	0.001	101.387	0.006	Tractors/Loaders/Backhoes
Excavator	250	0.093	0.332	0.047	0.002	0.002	0.002	158.683	0.008	Excavators
Crane (L)	500	0.120	0.409	0.070	0.002	0.002	0.002	180.101	0.011	Cranes
Concrete Mixer Truck	350	0.009	0.042	0.054	0.000	0.002	0.002	7.248	0.001	Concrete Mixers

a From Table 34

b Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006, http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

Construction Equipment Daily Criteria Pollutant Exhaust Emissions

Equipment	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Backhoe/Front Loader	0.54	4.68	2.06	0.01	0.01	0.01
Excavator	0.56	1.99	0.28	0.01	0.01	0.01
Crane (L)	0.72	2.45	0.42	0.01	0.01	0.01
Concrete Mixer Truck	0.05	0.25	0.32	0.00	0.01	0.01
Total	**1.87**	**9.37**	**3.08**	**0.03**	**0.05**	**0.04**

[a] Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

Construction Equipment Total Greenhouse Gas Emissions

Equipment	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Backhoe/Front Loader	3.3	0.0	3.3
Excavator	3.9	0.0	3.9
Crane (L)	4.4	0.0	4.4
Concrete Mixer Truck	0.2	0.0	0.2
Total	**11.8**	**0.0**	**11.8**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 34

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Usage

Vehicle	Number	Days Used	Hours Used/ Day	Miles/ Day/ Veh.[a]
Onsite				
1-Ton Truck, 4x4	2	9	N/A	0.6
Dump Truck	2	9	N/A	0.6
Water Truck	1	9	N/A	0.6
Concrete Mixer Truck	3	9	N/A	0.6
Lowboy Truck/Trailer	1	9	N/A	0.6
Material Handling Truck	1	9	N/A	0.6
Flat Bed Truck/Trailer	3	9	N/A	0.6
Offsite				
1-Ton Truck, 4x4	2	9	N/A	5
Dump Truck	2	9	N/A	5
Water Truck	1	9	N/A	5
Concrete Mixer Truck	3	9	N/A	50
Lowboy Truck/Trailer	1	9	N/A	5
Material Handling Truck	1	9	N/A	5
Flat Bed Truck/Trailer	3	9	N/A	5
Worker Commute	6	9	N/A	60

[a] Assumes onsite vehicle miles travelled would occur on unpaved areas based on length of underground subtransmission line (1,500 ft) x two trips per day during vault installation (3000 ft / 5,280 ft/mile = 0.6 miles/day).

[a] Offsite truck travel based on location of Staging Area 1 (0.25 miles from Valley Substation) and up to 10 haul trips per day; offsite worker commute based on estimated 60 mile roundtrip distance.

VMT estimation basis:	Value	Units	Basis
	0.5	miles/roundtrip/haul truck	Based on roundtrip distance from Valley Substation to Staging Area 1
	10	roundtrips/day/haul truck	Assumption
	5	miles/day/haul truck	Calculation
	50	miles/roundtrip/vendor trip	Vendor roundtrip distance, assumption
	60	miles/roundtrip/worker commute	Assumption

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Onsite									
1-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Dump Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Water Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Concrete Mixer Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Lowboy Truck/Trailer	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Material Handling Truck	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Flat Bed Truck/Trailer	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Offsite									
1-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Dump Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Water Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Concrete Mixer Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Lowboy Truck/Trailer	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Material Handling Truck	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Flat Bed Truck/Trailer	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Worker Commute	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

Table 26
Subtransmission Line Construction Emissions
Vault Installation

a From Table 35 or Table 36

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Onsite						
1-Ton Truck, 4x4	0.00	0.01	0.01	0.00	0.00	0.00
Dump Truck	0.00	0.01	0.02	0.00	0.00	0.00
Water Truck	0.00	0.00	0.01	0.00	0.00	0.00
Concrete Mixer Truck	0.00	0.01	0.03	0.00	0.00	0.00
Lowboy Truck/Trailer	0.00	0.00	0.01	0.00	0.00	0.00
Material Handling Truck	0.00	0.01	0.01	0.00	0.00	0.00
Flat Bed Truck/Trailer	0.00	0.02	0.02	0.00	0.00	0.00
Onsite Total	**0.01**	**0.06**	**0.09**	**0.00**	**0.00**	**0.00**
Offsite						
1-Ton Truck, 4x4	0.01	0.09	0.10	0.00	0.00	0.00
Dump Truck	0.01	0.06	0.15	0.00	0.01	0.01
Water Truck	0.01	0.03	0.08	0.00	0.00	0.00
Concrete Mixer Truck	0.20	0.91	2.29	0.01	0.12	0.09
Lowboy Truck/Trailer	0.01	0.03	0.08	0.00	0.00	0.00
Material Handling Truck	0.01	0.05	0.05	0.00	0.00	0.00
Flat Bed Truck/Trailer	0.02	0.14	0.15	0.00	0.01	0.00
Worker Commute	0.23	2.07	0.20	0.00	0.03	0.02
Offsite Total	**0.49**	**3.38**	**3.09**	**0.01**	**0.18**	**0.14**
Total	**0.50**	**3.43**	**3.18**	**0.01**	**0.18**	**0.14**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			
1-Ton Truck, 4x4	0.0	0.0	0.0
Dump Truck	0.0	0.0	0.0
Water Truck	0.0	0.0	0.0
Concrete Mixer Truck	0.0	0.0	0.0
Lowboy Truck/Trailer	0.0	0.0	0.0
Material Handling Truck	0.0	0.0	0.0
Flat Bed Truck/Trailer	0.0	0.0	0.0
Onsite Total	**0.1**	**0.0**	**0.1**
Offsite			
1-Ton Truck, 4x4	0.1	0.0	0.1
Dump Truck	0.2	0.0	0.2
Water Truck	0.1	0.0	0.1
Concrete Mixer Truck	2.6	0.0	2.6
Lowboy Truck/Trailer	0.1	0.0	0.1
Material Handling Truck	0.1	0.0	0.1
Flat Bed Truck/Trailer	0.2	0.0	0.2
Worker Commute	1.6	0.0	1.6
Offsite Total	**4.9**	**0.0**	**4.9**
Total	**5.0**	**0.0**	**5.0**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle[a]	PM10 Emission Factor (lb/mi)[b]	PM2.5 Emission Factor (lb/mi)[b]	PM10 Emissions (lb/day)[c]	PM2.5 Emissions (lb/day)[c]
Onsite							
1-Ton Truck, 4x4	2	Unpaved - private	0.6	1.052	0.105	1.20	0.12
Dump Truck	2	Unpaved - private	0.6	1.052	0.105	1.20	0.12
Water Truck	1	Unpaved - private	0.6	1.052	0.105	0.60	0.06
Concrete Mixer Truck	3	Unpaved - private	0.6	1.052	0.105	1.79	0.18
Lowboy Truck/Trailer	1	Unpaved - private	0.6	1.052	0.105	0.60	0.06
Material Handling Truck	1	Unpaved - private	0.6	1.052	0.105	0.60	0.06
Flat Bed Truck/Trailer	3	Unpaved - private	0.6	1.052	0.105	1.79	0.18
Onsite Total						**7.77**	**0.77**
Offsite							
1-Ton Truck, 4x4	2	Paved	5	0.001	0.000	0.01	0.00
Dump Truck	2	Paved	5	0.001	0.000	0.01	0.00
Water Truck	1	Paved	5	0.001	0.000	0.00	0.00
Concrete Mixer Truck	3	Paved	50	0.001	0.000	0.12	0.00
Lowboy Truck/Trailer	1	Paved	5	0.001	0.000	0.00	0.00
Material Handling Truck	1	Paved	5	0.001	0.000	0.00	0.00
Flat Bed Truck/Trailer	3	Paved	5	0.001	0.000	0.01	0.00
Worker Commute	6	Paved	60	0.001	0.000	0.29	0.00
Offsite Total						**0.45**	**0.00**
Total						**8.22**	**0.77**

[a] Assumes onsite vehicle miles travelled would occur on unpaved areas based on length of underground subtransmission line (1,500 ft) x two trips per day during vault installation (3000 ft / 5,280 ft/mile = 0.6 miles/day).
[b] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]
c From Table 37

144.0

Earthwork Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM10 Emission Factor[a]	PM2.5 Emission Factor[a]	PM10 (lb/day)[b]	PM2.5 (lb/day)[b]
Soil Handling[c]	CY/day	48	1.67E-02	3.47E-03	0.80	0.17
Bulldozing, Scraping and Grading	hr/day		5.837	1.214	0.00	0.00
Storage Pile Wind Erosion	acres		4.4	0.92	0.00	0.00
Total					**0.80**	**0.17**

a From Table 38
[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]
[c] Based on 48 CY per vault

Table 27
Subtransmission Line Construction Emissions
Duct Bank Installation

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	0.69	5.01	3.44	0.01	0.12	0.11	2.9
Onsite Motor Vehicle Exhaust	0.01	0.04	0.09	0.00	0.00	0.00	0.1
Onsite Motor Vehicle Fugitive PM	--	--	--	--	6.31	0.63	
Earthwork Fugitive PM	--	--	--	--	1.64	0.34	
Onsite Total	**0.69**	**5.05**	**3.52**	**0.01**	**8.07**	**1.08**	**3.0**
Offsite Motor Vehicle Exhaust	0.47	3.22	2.97	0.01	0.17	0.13	3.7
Offsite Motor Vehicle Fugitive PM	--	--	--	--	0.44	0.00	
Offsite Total	**0.47**	**3.22**	**2.97**	**0.01**	**0.61**	**0.13**	**3.7**
Total	**1.17**	**8.27**	**6.49**	**0.02**	**8.68**	**1.22**	**6.7**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Compressor Trailer	60	1	7	4
Backhoe/Front Loader	125	1	7	6
Concrete Mixer Truck	350	3	7	2

Construction Equipment Exhaust Emission Factors

Equipment	Horse-power	VOC (lb/hr)[a]	CO (lb/hr)[a]	NOX (lb/hr)[a]	SOX (lb/hr)[a]	PM10 (lb/hr)[a]	PM2.5 (lb/hr)[b]	CO2 (lb/hr)[a]	CH4 (lb/hr)[a]	Category
Compressor Trailer	60	0.058	0.313	0.394	0.001	0.025	0.023	63.607	0.005	Air Compressors
Backhoe/Front Loader	125	0.067	0.584	0.257	0.001	0.001	0.001	101.387	0.006	Tractors/Loaders/Backhoes
Concrete Mixer Truck	350	0.009	0.042	0.054	0.000	0.002	0.002	7.248	0.001	Concrete Mixers

a From Table 34

b Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5
and PM 2.5 Significance Thresholds, SCAQMD, October 2006,
http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

Construction Equipment Daily Criteria Pollutant Exhaust Emissions

Equipment	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Compressor Trailer	0.23	1.25	1.57	0.00	0.10	0.09
Backhoe/Front Loader	0.40	3.51	1.54	0.01	0.01	0.01
Concrete Mixer Truck	0.05	0.25	0.32	0.00	0.01	0.01
Total	**0.69**	**5.01**	**3.44**	**0.01**	**0.12**	**0.11**

a Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

Construction Equipment Total Greenhouse Gas Emissions

Equipment	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Compressor Trailer	0.8	0.0	0.8
Backhoe/Front Loader	1.9	0.0	1.9
Concrete Mixer Truck	0.1	0.0	0.1
Total	**2.9**	**0.0**	**2.9**

a Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 34

b CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Usage

Vehicle	Number	Days Used	Hours Used/ Day	Miles/ Day/ Veh.[a]
Onsite				
1-Ton Truck, 4x4	2	7	N/A	0.6
Dump Truck	2	7	N/A	0.6
Pipe Truck/Trailer	1	7	N/A	0.6
Water Truck	1	7	N/A	0.6
Concrete Mixer Truck	3	7	N/A	0.6
Lowboy Truck/Trailer	1	7	N/A	0.6
Offsite				
1-Ton Truck, 4x4	2	7	N/A	5
Dump Truck	2	7	N/A	5
Pipe Truck/Trailer	1	7	N/A	5
Water Truck	1	7	N/A	5
Concrete Mixer Truck	3	7	N/A	50
Lowboy Truck/Trailer	1	7	N/A	5
Worker Commute	6	7	N/A	60

a Assumes onsite vehicle miles travelled would occur on unpaved areas based on length of underground subtransmission line (1,500 ft) x two trips per day during vault installation (3000 ft / 5,280 ft/mile = 0.6 miles/day).

a Offsite truck travel based on location of Staging Area 1 (0.25 miles from Valley Substation) and up to 10 haul trips per day; offsite concrete mixer truck (vendor) based on estimated 50 mile roundtrip distance; offsite worker commute based on estimated 60 mile roundtrip distance.

VMT estimation basis:	Value	Units	Basis
	0.5	miles/roundtrip/haul truck	Based on roundtrip distance from Valley Substation to Staging Area 1
	10	roundtrips/day/haul truck	Assumption
	5	miles/day/haul truck	Calculation
	60	miles/roundtrip/dump truck	Based on roundtrip distance to/from the San Timoteo Sanitary Landfill
	3	roundtrips/day/dump truck	Assumption
	180	miles/day/dump truck	Calculation
	50	miles/roundtrip/vendor trip	Vendor roundtrip distance, assumption
	60	miles/roundtrip/worker commute	Assumption

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Onsite									
1-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Dump Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Pipe Truck/Trailer	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Water Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Concrete Mixer Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Lowboy Truck/Trailer	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Offsite									
1-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Dump Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Pipe Truck/Trailer	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Water Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Concrete Mixer Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Lowboy Truck/Trailer	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Worker Commute	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

a From Table 35 or Table 36

Table 27
Subtransmission Line Construction Emissions
Duct Bank Installation

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Onsite						
1-Ton Truck, 4x4	0.00	0.01	0.01	0.00	0.00	0.00
Dump Truck	0.00	0.01	0.02	0.00	0.00	0.00
Pipe Truck/Trailer	0.00	0.00	0.01	0.00	0.00	0.00
Water Truck	0.00	0.00	0.01	0.00	0.00	0.00
Concrete Mixer Truck	0.00	0.01	0.03	0.00	0.00	0.00
Lowboy Truck/Trailer	0.00	0.00	0.01	0.00	0.00	0.00
Onsite Total	**0.01**	**0.04**	**0.09**	**0.00**	**0.00**	**0.00**
Offsite						
1-Ton Truck, 4x4	0.01	0.09	0.10	0.00	0.00	0.00
Dump Truck	0.01	0.06	0.15	0.00	0.01	0.01
Pipe Truck/Trailer	0.01	0.03	0.08	0.00	0.00	0.00
Water Truck	0.01	0.03	0.08	0.00	0.00	0.00
Concrete Mixer Truck	0.20	0.91	2.29	0.01	0.12	0.09
Lowboy Truck/Trailer	0.01	0.03	0.08	0.00	0.00	0.00
Worker Commute	0.23	2.07	0.20	0.00	0.03	0.02
Offsite Total	**0.47**	**3.22**	**2.97**	**0.01**	**0.17**	**0.13**
Total	**0.48**	**3.26**	**3.05**	**0.01**	**0.18**	**0.14**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			
1-Ton Truck, 4x4	0.0	0.0	0.0
Dump Truck	0.0	0.0	0.0
Pipe Truck/Trailer	0.0	0.0	0.0
Water Truck	0.0	0.0	0.0
Concrete Mixer Truck	0.0	0.0	0.0
Lowboy Truck/Trailer	0.0	0.0	0.0
Onsite Total	**0.1**	**0.0**	**0.1**
Offsite			
1-Ton Truck, 4x4	0.1	0.0	0.1
Dump Truck	0.1	0.0	0.1
Pipe Truck/Trailer	0.1	0.0	0.1
Water Truck	0.1	0.0	0.1
Concrete Mixer Truck	2.0	0.0	2.0
Lowboy Truck/Trailer	0.1	0.0	0.1
Worker Commute	1.3	0.0	1.3
Offsite Total	**3.7**	**0.0**	**3.7**
Total	**3.8**	**0.0**	**3.8**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle[a]	PM10 Emission Factor (lb/mi)[b]	PM2.5 Emission Factor (lb/mi)[b]	PM10 Emissions (lb/day)[c]	PM2.5 Emissions (lb/day)[c]
Onsite							
1-Ton Truck, 4x4	2	Unpaved - private	0.6	1.052	0.105	1.26	0.13
Dump Truck	2	Unpaved - private	0.6	1.052	0.105	1.26	0.13
Pipe Truck/Trailer	1	Unpaved - private	0.6	1.052	0.105	0.63	0.06
Water Truck	1	Unpaved - private	0.6	1.052	0.105	0.63	0.06
Concrete Mixer Truck	3	Unpaved - private	0.6	1.052	0.105	1.89	0.19
Lowboy Truck/Trailer	1	Unpaved - private	0.6	1.052	0.105	0.63	0.06
Onsite Total						**6.31**	**0.63**
Offsite							
1-Ton Truck, 4x4	2	Paved	5	0.001	0.000	0.01	0.00
Dump Truck	2	Paved	5	0.001	0.000	0.01	0.00
Pipe Truck/Trailer	1	Paved	5	0.001	0.000	0.00	0.00
Water Truck	1	Paved	5	0.001	0.000	0.00	0.00
Concrete Mixer Truck	3	Paved	50	0.001	0.000	0.12	0.00
Lowboy Truck/Trailer	1	Paved	5	0.001	0.000	0.00	0.00
Worker Commute	6	Paved	60	0.001	0.000	0.29	0.00
Offsite Total						**0.44**	**0.00**
Total						**6.75**	**0.63**

[a] Assumes onsite vehicle miles travelled would occur on unpaved areas based on length of underground subtransmission line (1,500 ft) x two trips per day during duct bank installation (3000 ft / 5,280 ft/mile = 0.6 miles/day).
[b] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]
c From Table 37

Earthwork Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM10 Emission Factor[a]	PM2.5 Emission Factor[a]	PM10 (lb/day)[b]	PM2.5 (lb/day)[b]
Soil Handling[c]	CY/day	98	1.67E-02	3.47E-03	1.64	0.34
Bulldozing, Scraping and Grading	hr/day		5.837	1.214	0.00	0.00
Storage Pile Wind Erosion	acres		4.4	0.92	0.00	0.00
Total					**1.64**	**0.34**

a From Table 38
[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]
[c] Based on 490 CY over 5 days

Table 28
Subtransmission Line Construction Emissions
Install Underground Cable

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	3.78	20.92	25.98	0.05	1.28	1.18	4.3
Onsite Motor Vehicle Exhaust	0.01	0.04	0.07	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	5.38	0.54	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
Onsite Total	**3.78**	**20.96**	**26.05**	**0.05**	**6.66**	**1.71**	**4.4**
Offsite Motor Vehicle Exhaust	0.36	3.08	0.87	0.01	0.07	0.05	0.6
Offsite Motor Vehicle Fugitive PM	--	--	--	--	0.42	0.00	
Offsite Total	**0.36**	**3.08**	**0.87**	**0.01**	**0.49**	**0.05**	**0.6**
Total	**4.15**	**24.04**	**26.92**	**0.06**	**7.16**	**1.77**	**5.0**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Manlift/Bucket Truck	250	1	2	6
Boom/Crane Truck	350	1	2	6
Wire Truck/Trailer	10	2	2	6
Pulling Rig	350	1	2	6
Static Truck/Tensioner	350	1	2	6

Construction Equipment Exhaust Emission Factors

Equipment	Horse-power	VOC (lb/hr)[a]	CO (lb/hr)[a]	NOX (lb/hr)[a]	SOX (lb/hr)[a]	PM10 (lb/hr)[a]	PM2.5 (lb/hr)[b]	CO2 (lb/hr)[a]	CH4 (lb/hr)[a]	Category
Manlift/Bucket Truck	250	0.105	0.581	0.722	0.001	0.035	0.033	132.743	0.009	Manlifts
Boom/Crane Truck	350	0.105	0.581	0.722	0.001	0.035	0.033	132.743	0.009	Manlifts
Wire Truck/Trailer	10	0.105	0.581	0.722	0.001	0.035	0.033	132.743	0.009	Manlifts
Pulling Rig	350	0.105	0.581	0.722	0.001	0.035	0.033	132.743	0.009	Manlifts
Static Truck/Tensioner	350	0.105	0.581	0.722	0.001	0.035	0.033	132.743	0.009	Manlifts

a From Table 34

[b] Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006, http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

Construction Equipment Daily Criteria Pollutant Exhaust Emissions

Equipment	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Manlift/Bucket Truck	0.63	3.49	4.33	0.01	0.21	0.20
Boom/Crane Truck	0.63	3.49	4.33	0.01	0.21	0.20
Wire Truck/Trailer	1.26	6.97	8.66	0.02	0.43	0.39
Pulling Rig	0.63	3.49	4.33	0.01	0.21	0.20
Static Truck/Tensioner	0.63	3.49	4.33	0.01	0.21	0.20
Total	**3.78**	**20.92**	**25.98**	**0.05**	**1.28**	**1.18**

[a] Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

Construction Equipment Total Greenhouse Gas Emissions

Equipment	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Manlift/Bucket Truck	0.7	0.0	0.7
Boom/Crane Truck	0.7	0.0	0.7
Wire Truck/Trailer	1.4	0.0	1.4
Pulling Rig	0.7	0.0	0.7
Static Truck/Tensioner	0.7	0.0	0.7
Total	**4.3**	**0.0**	**4.3**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 34

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Usage

Vehicle	Number	Days Used	Hours Used/ Day	Miles/ Day/ Veh.[a]
Onsite				
1-Ton Truck, 4x4	2	2	N/A	0.6
Manlift/Bucket Truck	1	2	N/A	0.6
Boom/Crane Truck	1	2	N/A	0.6
Wire Truck/Trailer	2	2	N/A	0.6
Pulling Rig	1	2	N/A	0.6
Material Handling Truck	1	2	N/A	0.6
Static Truck/Tensioner	1	2	N/A	0.6
Offsite				
1-Ton Truck, 4x4	2	2	4	5
Manlift/Bucket Truck	1	2	6	5
Boom/Crane Truck	1	2	6	5
Wire Truck/Trailer	2	2	6	5
Pulling Rig	1	2	6	5
Material Handling Truck	1	2	8	5
Static Truck/Tensioner	1	2	6	5
Worker Commute	8	2	N/A	60

[a] Assumes onsite vehicle miles travelled would occur on unpaved areas based on length of underground subtransmission line (1,500 ft) x two trips per day during vault installation (3000 ft / 5,280 ft/mile = 0.6 miles/day).

[a] Offsite truck travel based on location of Staging Area 1 (0.25 miles from Valley Substation) and up to 10 haul trips per day; offsite worker commute based on estimated 60 mile roundtrip distance.

VMT estimation basis:	Value	Units	Basis
	0.5	miles/roundtrip/haul truck	Based on roundtrip distance from Valley Substation to Staging Area 1
	10	roundtrips/day/haul truck	Assumption
	5	miles/day/haul truck	Calculation
	60	miles/roundtrip/worker commute	Assumption

Table 28
Subtransmission Line Construction Emissions
Install Underground Cable

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Onsite									
1-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Manlift/Bucket Truck	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Boom/Crane Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Wire Truck/Trailer	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Pulling Rig	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Material Handling Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Static Truck/Tensioner	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Offsite									
1-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Manlift/Bucket Truck	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Boom/Crane Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Wire Truck/Trailer	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Pulling Rig	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Material Handling Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Static Truck/Tensioner	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Worker Commute	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

a From Table 35 or Table 36

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Onsite						
1-Ton Truck, 4x4	0.00	0.01	0.01	0.00	0.00	0.00
Manlift/Bucket Truck	0.00	0.01	0.01	0.00	0.00	0.00
Boom/Crane Truck	0.00	0.00	0.01	0.00	0.00	0.00
Wire Truck/Trailer	0.00	0.01	0.02	0.00	0.00	0.00
Pulling Rig	0.00	0.00	0.01	0.00	0.00	0.00
Material Handling Truck	0.00	0.00	0.01	0.00	0.00	0.00
Static Truck/Tensioner	0.00	0.00	0.01	0.00	0.00	0.00
Onsite Total	**0.01**	**0.04**	**0.07**	**0.00**	**0.00**	**0.00**
Offsite						
1-Ton Truck, 4x4	0.01	0.09	0.10	0.00	0.00	0.00
Manlift/Bucket Truck	0.01	0.05	0.05	0.00	0.00	0.00
Boom/Crane Truck	0.01	0.03	0.08	0.00	0.00	0.00
Wire Truck/Trailer	0.01	0.06	0.15	0.00	0.01	0.01
Pulling Rig	0.01	0.03	0.08	0.00	0.00	0.00
Material Handling Truck	0.01	0.03	0.08	0.00	0.00	0.00
Static Truck/Tensioner	0.01	0.03	0.08	0.00	0.00	0.00
Worker Commute	0.30	2.76	0.27	0.01	0.05	0.03
Offsite Total	**0.36**	**3.08**	**0.87**	**0.01**	**0.07**	**0.05**
Total	**0.37**	**3.12**	**0.94**	**0.01**	**0.08**	**0.06**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			
1-Ton Truck, 4x4	0.0	0.0	0.0
Manlift/Bucket Truck	0.0	0.0	0.0
Boom/Crane Truck	0.0	0.0	0.0
Wire Truck/Trailer	0.0	0.0	0.0
Pulling Rig	0.0	0.0	0.0
Material Handling Truck	0.0	0.0	0.0
Static Truck/Tensioner	0.0	0.0	0.0
Onsite Total	**0.0**	**0.0**	**0.0**
Offsite			
1-Ton Truck, 4x4	0.0	0.0	0.0
Manlift/Bucket Truck	0.0	0.0	0.0
Boom/Crane Truck	0.0	0.0	0.0
Wire Truck/Trailer	0.0	0.0	0.0
Pulling Rig	0.0	0.0	0.0
Material Handling Truck	0.0	0.0	0.0
Static Truck/Tensioner	0.0	0.0	0.0
Worker Commute	0.5	0.0	0.5
Offsite Total	**0.6**	**0.0**	**0.6**
Total	**0.7**	**0.0**	**0.7**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Table 28
Subtransmission Line Construction Emissions
Install Underground Cable

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle[a]	PM10 Emission Factor (lb/mi)[b]	PM2.5 Emission Factor (lb/mi)[b]	PM10 Emissions (lb/day)[c]	PM2.5 Emissions (lb/day)[c]
Onsite							
1-Ton Truck, 4x4	2	Unpaved - private	0.6	1.052	0.105	1.20	0.12
Manlift/Bucket Truck	1	Unpaved - private	0.6	1.052	0.105	0.60	0.06
Boom/Crane Truck	1	Unpaved - private	0.6	1.052	0.105	0.60	0.06
Wire Truck/Trailer	2	Unpaved - private	0.6	1.052	0.105	1.20	0.12
Pulling Rig	1	Unpaved - private	0.6	1.052	0.105	0.60	0.06
Material Handling Truck	1	Unpaved - private	0.6	1.052	0.105	0.60	0.06
Static Truck/Tensioner	1	Unpaved - private	0.6	1.052	0.105	0.60	0.06
Onsite Total						**5.38**	**0.54**
Offsite							
1-Ton Truck, 4x4	2	Paved	5	0.001	0.000	0.01	0.00
Manlift/Bucket Truck	1	Paved	5	0.001	0.000	0.00	0.00
Boom/Crane Truck	1	Paved	5	0.001	0.000	0.00	0.00
Wire Truck/Trailer	2	Paved	5	0.001	0.000	0.01	0.00
Pulling Rig	1	Paved	5	0.001	0.000	0.00	0.00
Material Handling Truck	1	Paved	5	0.001	0.000	0.00	0.00
Static Truck/Tensioner	1	Paved	5	0.001	0.000	0.00	0.00
Worker Commute	8	Paved	60	0.001	0.000	0.38	0.00
Offsite Total						**0.42**	**0.00**
Total						**5.80**	**0.54**

[a] Assumes onsite vehicle miles travelled would occur on unpaved areas based on length of underground subtransmission line (1,500 ft) x two trips per day during UG cable installation (3000 ft / 5,280 ft/mile = 0.6 miles/day).

[b] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

c From Table 37

Earthwork Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM10 Emission Factor[a]	PM2.5 Emission Factor[a]	PM10 (lb/day)[b]	PM2.5 (lb/day)[b]
Soil Handling	CY/day		1.67E-02	3.47E-03	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		5.837	1.214	0.00	0.00
Storage Pile Wind Erosion	acres		4.4	0.92	0.00	0.00
Total					**0.00**	**0.00**

a From Table 38

[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 29
Distribution Relocation Emissions
Relocate Existing Conductor

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	0.84	4.65	5.77	0.01	0.28	0.00	80.6
Onsite Motor Vehicle Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.00	0.00	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
Onsite Total	**0.84**	**4.65**	**5.77**	**0.01**	**0.28**	**0.00**	**80.6**
Offsite Motor Vehicle Exhaust	0.26	1.95	1.14	0.01	0.07	0.05	41.5
Offsite Motor Vehicle Fugitive PM	--	--	--	--	36.53	3.62	
Offsite Total	**0.26**	**1.95**	**1.14**	**0.01**	**36.60**	**3.67**	**41.5**
Total	**1.10**	**6.60**	**6.91**	**0.02**	**36.88**	**3.67**	**122.1**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Bucket Truck	300	1	167	8

Construction Equipment Exhaust Emission Factors

Equipment	Horse-power	VOC (lb/hr)[a]	CO (lb/hr)[a]	NOX (lb/hr)[a]	SOX (lb/hr)[a]	PM10 (lb/hr)[a]	PM2.5 (lb/hr)[b]	CO2 (lb/hr)[a]	CH4 (lb/hr)[a]	Category
Bucket Truck	300	0.105	0.581	0.722	0.001	0.035	0.000	132.743	0.009	Manlifts

a From Table 34

[b] Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006, http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

Construction Equipment Daily Criteria Pollutant Exhaust Emissions

Equipment	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Bucket Truck	0.84	4.65	5.77	0.01	0.28	0.00
Total	**0.84**	**4.65**	**5.77**	**0.01**	**0.28**	**0.00**

[a] Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

Construction Equipment Total Greenhouse Gas Emissions

Equipment	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Bucket Truck	80.4	0.0	80.6
Total	**80.4**	**0.0**	**80.6**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 34

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Usage

Vehicle	Number	Days Used	Hours Used/ Day	Miles/ Day/ Veh.[a]
Onsite				
None				
Offsite				
Foreman Truck	1	167	N/A	15.4
Reel Truck	1	167	N/A	15.4
Bucket Truck	1	167	N/A	15.4
Arrow Board Truck	1	167	N/A	15.4
Flat Bed Truck/Trailer	1	167	N/A	15.4
Worker Commute	4	167	N/A	60

[a] Offsite travel assumed to be 15.4 miles per day, equal to 1/2 total distance of Proposed Project x 2 trips/day; offsite worker commute based on estimated 60 mile roundtrip distance.

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Onsite									
None									
Offsite									
Foreman Truck	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Reel Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Bucket Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Arrow Board Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Flat Bed Truck/Trailer	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Worker Commute	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

a From Table 35 or Table 36

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Onsite						
None	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Offsite						
Foreman Truck	0.02	0.14	0.15	0.00	0.01	0.00
Reel Truck	0.02	0.09	0.24	0.00	0.01	0.01
Bucket Truck	0.02	0.09	0.24	0.00	0.01	0.01
Arrow Board Truck	0.02	0.09	0.24	0.00	0.01	0.01
Flat Bed Truck/Trailer	0.02	0.14	0.15	0.00	0.01	0.00
Worker Commute	0.15	1.38	0.13	0.00	0.02	0.01
Offsite Total	**0.26**	**1.95**	**1.14**	**0.01**	**0.07**	**0.05**
Total	**0.26**	**1.95**	**1.14**	**0.01**	**0.07**	**0.05**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Table 29
Distribution Relocation Emissions
Relocate Existing Conductor

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			
None	0.0	0.0	0.0
Onsite Total	**0.0**	**0.0**	**0.0**
Offsite			
Foreman Truck	3.3	0.0	3.3
Reel Truck	4.9	0.0	4.9
Bucket Truck	4.9	0.0	4.9
Arrow Board Truck	4.9	0.0	4.9
Flat Bed Truck/Trailer	3.3	0.0	3.3
Worker Commute	20.1	0.0	20.1
Offsite Total	**41.5**	**0.0**	**41.5**
Total	**41.5**	**0.0**	**41.5**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle[a]	PM10 Emission Factor (lb/mi)[b]	PM2.5 Emission Factor (lb/mi)[b]	PM10 Emissions (lb/day)[c]	PM2.5 Emissions (lb/day)[c]
Onsite							
None							
Onsite Total						**0.00**	**0.00**
Offsite							
Foreman Truck	1	Paved	8.5	0.001	0.000	0.01	0.00
Reel Truck	1	Paved	8.5	0.001	0.000	0.01	0.00
Bucket Truck	1	Paved	8.5	0.001	0.000	0.01	0.00
Arrow Board Truck	1	Paved	8.5	0.001	0.000	0.01	0.00
Flat Bed Truck/Trailer	1	Paved	8.5	0.001	0.000	0.01	0.00
Foreman Truck	1	Unpaved - private	4.2	1.052	0.105	4.42	0.44
Reel Truck	1	Unpaved - private	4.2	1.052	0.105	4.42	0.44
Bucket Truck	1	Unpaved - private	4.2	1.052	0.105	4.42	0.44
Arrow Board Truck	1	Unpaved - private	4.2	1.052	0.105	4.42	0.44
Flat Bed Truck/Trailer	1	Unpaved - private	4.2	1.052	0.105	4.42	0.44
Foreman Truck	1	Unpaved - public	2.7	1.052	0.105	2.84	0.28
Reel Truck	1	Unpaved - public	2.7	1.052	0.105	2.84	0.28
Bucket Truck	1	Unpaved - public	2.7	1.052	0.105	2.84	0.28
Arrow Board Truck	1	Unpaved - public	2.7	1.052	0.105	2.84	0.28
Flat Bed Truck/Trailer	1	Unpaved - public	2.7	1.052	0.105	2.84	0.28
Worker Commute	4	Paved	60	0.001	0.000	0.19	0.00
Offsite Total						**36.53**	**3.62**
Total						**36.53**	**3.62**

a Of the 15.4 mile alignment, 8.5 miles occur on paved roadways and 6.9 miles occur on unpaved roadways (2.7 miles are unpaved public roadways and 4.2 miles are unpaved private roadways). Daily VMT per vehicle assumes 1/2 total distance of Proposed Project x 2 trips per day.

b From Table 37

[c] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Earthwork Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM10 Emission Factor[a]	PM2.5 Emission Factor[a]	PM10 (lb/day)[b]	PM2.5 (lb/day)[b]
Soil Handling	CY/day		1.67E-02	3.47E-03	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		5.837	1.214	0.00	0.00
Storage Pile Wind Erosion	acres		4.4	0.92	0.00	0.00
Total					**0.00**	**0.00**

a From Table 38

[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 30
Distribution Relocation Emissions
Wood Pole Removal

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	0.84	4.65	5.77	0.01	0.28	0.00	19.8
Onsite Motor Vehicle Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.00	0.00	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
Onsite Total	**0.84**	**4.65**	**5.77**	**0.01**	**0.28**	**0.00**	**19.8**
Offsite Motor Vehicle Exhaust	0.18	1.36	0.77	0.00	0.05	0.04	7.2
Offsite Motor Vehicle Fugitive PM	--	--	--	--	18.27	1.80	
Offsite Total	**0.18**	**1.36**	**0.77**	**0.00**	**18.32**	**1.84**	**7.2**
Total	**1.02**	**6.01**	**6.54**	**0.02**	**18.60**	**1.84**	**26.9**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Lineman/Boom Truck	300	1	41	8

Construction Equipment Exhaust Emission Factors

Equipment	Horse-power	VOC (lb/hr)[a]	CO (lb/hr)[a]	NOX (lb/hr)[a]	SOX (lb/hr)[a]	PM10 (lb/hr)[a]	PM2.5 (lb/hr)[b]	CO2 (lb/hr)[a]	CH4 (lb/hr)[a]	Category
Lineman/Boom Truck	300	0.105	0.581	0.722	0.001	0.035	0.000	132.743	0.009	Manlifts

a From Table 34

[b] Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006, http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

Construction Equipment Daily Criteria Pollutant Exhaust Emissions

Equipment	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Lineman/Boom Truck	0.84	4.65	5.77	0.01	0.28	0.00
Total	**0.84**	**4.65**	**5.77**	**0.01**	**0.28**	**0.00**

[a] Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

Construction Equipment Total Greenhouse Gas Emissions

Equipment	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Lineman/Boom Truck	19.7	0.0	19.8
Total	**19.7**	**0.0**	**19.8**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 34

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Usage

Vehicle	Number	Days Used	Hours Used/ Day	Miles/ Day/ Veh.[a]
Onsite				
None				
Offsite				
Foreman Truck	1	41	8	12
Lineman/Boom Truck	1	41	8	12
Flat Bed Truck/Trailer	1	41	8	12
Arrowhead Trailer	1	41	8	12
Worker Commute	3	41	N/A	60

[a] Offsite travel assumed to be 12 miles per day, equal to 1/2 total distance of Segment 1 of the Proposed Project x 2 trips/day; offsite worker commute based on estimated 60 mile roundtrip distance.

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Onsite									
None									
Offsite									
Foreman Truck	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Lineman/Boom Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Flat Bed Truck/Trailer	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Arrowhead Trailer	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Worker Commute	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

a From Table 35 or Table 36

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Onsite						
None	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Offsite						
Foreman Truck	0.02	0.11	0.12	0.00	0.00	0.00
Lineman/Boom Truck	0.02	0.07	0.18	0.00	0.01	0.01
Flat Bed Truck/Trailer	0.02	0.07	0.18	0.00	0.01	0.01
Arrowhead Trailer	0.02	0.07	0.18	0.00	0.01	0.01
Worker Commute	0.11	1.04	0.10	0.00	0.02	0.01
Offsite Total	**0.18**	**1.36**	**0.77**	**0.00**	**0.05**	**0.04**
Total	**0.18**	**1.36**	**0.77**	**0.00**	**0.05**	**0.04**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Table 30
Distribution Relocation Emissions
Wood Pole Removal

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			
None	0.0	0.0	0.0
Onsite Total	**0.0**	**0.0**	**0.0**
Offsite			
Foreman Truck	0.6	0.0	0.6
Lineman/Boom Truck	0.9	0.0	0.9
Flat Bed Truck/Trailer	0.9	0.0	0.9
Arrowhead Trailer	0.9	0.0	0.9
Worker Commute	3.7	0.0	3.7
Offsite Total	**7.2**	**0.0**	**7.2**
Total	**7.2**	**0.0**	**7.2**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle[a]	PM10 Emission Factor (lb/mi)[b]	PM2.5 Emission Factor (lb/mi)[b]	PM10 Emissions (lb/day)[c]	PM2.5 Emissions (lb/day)[c]
Onsite							
None							
Onsite Total						**0.00**	**0.00**
Offsite							
Foreman Truck	1	Paved	7.7	0.001	0.000	0.01	0.00
Lineman/Boom Truck	1	Paved	7.7	0.001	0.000	0.01	0.00
Flat Bed Truck/Trailer	1	Paved	7.7	0.001	0.000	0.01	0.00
Arrowhead Trailer	1	Paved	7.7	0.001	0.000	0.01	0.00
Foreman Truck	1	Unpaved - private	1.9	1.052	0.105	2.00	0.20
Lineman/Boom Truck	1	Unpaved - private	1.9	1.052	0.105	2.00	0.20
Flat Bed Truck/Trailer	1	Unpaved - private	1.9	1.052	0.105	2.00	0.20
Arrowhead Trailer	1	Unpaved - private	1.9	1.052	0.105	2.00	0.20
Foreman Truck	1	Unpaved - public	2.4	1.052	0.105	2.53	0.25
Lineman/Boom Truck	1	Unpaved - public	2.4	1.052	0.105	2.53	0.25
Flat Bed Truck/Trailer	1	Unpaved - public	2.4	1.052	0.105	2.53	0.25
Arrowhead Trailer	1	Unpaved - public	2.4	1.052	0.105	2.53	0.25
Worker Commute	3	Paved	60	0.001	0.000	0.14	0.00
Offsite Total						**18.27**	**1.80**
Total						**18.27**	**1.80**

a For Segment 1 of the Proposed Project, 7.7 miles occur on paved roadways and 4.3 miles occur on unpaved roadways (2.4 miles are unpaved public roadways and 1.9 miles are unpaved private roadways). Daily VMT per vehicle assumes 1/2 total distance of Proposed Project x 2 trips per day. No additional wood pole removal work is required along the 3.4 miles associated with Segment 2 of the Proposed Project.

b From Table 37

[c] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Earthwork Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM10 Emission Factor[a]	PM2.5 Emission Factor[a]	PM10 (lb/day)[b]	PM2.5 (lb/day)[b]
Soil Handling	CY/day		1.67E-02	3.47E-03	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		5.837	1.214	0.00	0.00
Storage Pile Wind Erosion	acres		4.4	0.92	0.00	0.00
Total					**0.00**	**0.00**

a From Table 38

[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 31
Distribution Relocation Emissions
Install Distribution Underground Cable

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	1.83	10.68	10.57	0.03	0.33	0.31	28.4
Onsite Motor Vehicle Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.00	0.00	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
Onsite Total	**1.83**	**10.68**	**10.57**	**0.03**	**0.33**	**0.31**	**28.4**
Offsite Motor Vehicle Exhaust	0.38	3.04	1.32	0.01	0.09	0.07	7.0
Offsite Motor Vehicle Fugitive PM	--	--	--	--	32.05	3.16	
Offsite Total	**0.38**	**3.04**	**1.32**	**0.01**	**32.14**	**3.22**	**7.0**
Total	**2.21**	**13.72**	**11.89**	**0.04**	**32.47**	**3.53**	**35.4**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Reel Truck	300	1	20	8
Rodder Truck	35	1	20	8
Concrete Mixer Truck	350	1	20	8
Backhoe/Front Loader	125	1	20	8

Construction Equipment Exhaust Emission Factors

Equipment	Horse-power	VOC (lb/hr)[a]	CO (lb/hr)[a]	NOX (lb/hr)[a]	SOX (lb/hr)[a]	PM10 (lb/hr)[a]	PM2.5 (lb/hr)[b]	CO2 (lb/hr)[a]	CH4 (lb/hr)[a]	Category
Reel Truck	300	0.112	0.474	0.800	0.002	0.028	0.025	254.238	0.010	Other Construction Equipment
Rodder Truck	35	0.041	0.234	0.210	0.000	0.011	0.010	27.990	0.004	Other Construction Equipment
Concrete Mixer Truck	350	0.009	0.042	0.054	0.000	0.002	0.002	7.248	0.001	Concrete Mixers
Backhoe/Front Loader	125	0.067	0.584	0.257	0.001	0.001	0.001	101.387	0.006	Tractors/Loaders/Backhoes

a From Table 34

[b] Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5
and PM 2.5 Significance Thresholds, SCAQMD, October 2006,
http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

Construction Equipment Daily Criteria Pollutant Exhaust Emissions

Equipment	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Reel Truck	0.90	3.79	6.40	0.02	0.22	0.20
Rodder Truck	0.33	1.87	1.68	0.00	0.09	0.08
Concrete Mixer Truck	0.07	0.33	0.43	0.00	0.02	0.02
Backhoe/Front Loader	0.54	4.68	2.06	0.01	0.01	0.01
Total	**1.83**	**10.68**	**10.57**	**0.03**	**0.33**	**0.31**

[a] Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

Construction Equipment Total Greenhouse Gas Emissions

Equipment	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Reel Truck	18.5	0.0	18.5
Rodder Truck	2.0	0.0	2.0
Concrete Mixer Truck	0.5	0.0	0.5
Backhoe/Front Loader	7.4	0.0	7.4
Total	**28.4**	**0.0**	**28.4**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x
days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 34

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Usage

Vehicle	Number	Days Used	Hours Used/ Day	Miles/ Day/ Veh.[a]
Onsite				
None				
Offsite				
Crew Truck	1	20	8	12
Foreman Truck	1	20	8	12
Reel Truck	1	20	8	12
Rodder Truck	1	20	8	12
Concrete Mixer Truck	1	20	N/A	12
1-Ton Truck, 4x4	1	20	N/A	12
Lowboy Truck/Trailer	1	20	N/A	12
Worker Commute	7	20	N/A	60

[a] Offsite travel assumed to be 12 miles per day, equal to 1/2 total distance of Segment 1 of the Proposed Project x 2 trips/day; offsite worker commute based on estimated 60 mile roundtrip distance.

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Onsite									
None									
Offsite									
Crew Truck	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Foreman Truck	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Reel Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Rodder Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Concrete Mixer Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
1-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Lowboy Truck/Trailer	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Worker Commute	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

a From Table 35 or Table 36

Table 31
Distribution Relocation Emissions
Install Distribution Underground Cable

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Onsite						
None	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Offsite						
Crew Truck	0.02	0.11	0.12	0.00	0.00	0.00
Foreman Truck	0.02	0.11	0.12	0.00	0.00	0.00
Reel Truck	0.02	0.07	0.18	0.00	0.01	0.01
Rodder Truck	0.02	0.07	0.18	0.00	0.01	0.01
Concrete Mixer Truck	0.02	0.07	0.18	0.00	0.01	0.01
1-Ton Truck, 4x4	0.02	0.11	0.12	0.00	0.00	0.00
Lowboy Truck/Trailer	0.02	0.07	0.18	0.00	0.01	0.01
Worker Commute	0.27	2.42	0.23	0.00	0.04	0.03
Offsite Total	**0.38**	**3.04**	**1.32**	**0.01**	**0.09**	**0.07**
Total	**0.38**	**3.04**	**1.32**	**0.01**	**0.09**	**0.07**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			
None	0.0	0.0	0.0
Onsite Total	**0.0**	**0.0**	**0.0**
Offsite			
Crew Truck	0.3	0.0	0.3
Foreman Truck	0.3	0.0	0.3
Reel Truck	0.5	0.0	0.5
Rodder Truck	0.5	0.0	0.5
Concrete Mixer Truck	0.5	0.0	0.5
1-Ton Truck, 4x4	0.3	0.0	0.3
Lowboy Truck/Trailer	0.5	0.0	0.5
Worker Commute	4.2	0.0	4.2
Offsite Total	**7.0**	**0.0**	**7.0**
Total	**7.0**	**0.0**	**7.0**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle[a]	PM10 Emission Factor (lb/mi)[b]	PM2.5 Emission Factor (lb/mi)[b]	PM10 Emissions (lb/day)[c]	PM2.5 Emissions (lb/day)[c]
Onsite							
None							
Onsite Total						**0.00**	**0.00**
Offsite							
Crew Truck	1	Paved	7.7	0.001	0.000	0.01	0.00
Foreman Truck	1	Paved	7.7	0.001	0.000	0.01	0.00
Reel Truck	1	Paved	7.7	0.001	0.000	0.01	0.00
Rodder Truck	1	Paved	7.7	0.001	0.000	0.01	0.00
Concrete Mixer Truck	1	Paved	7.7	0.001	0.000	0.01	0.00
1-Ton Truck, 4x4	1	Paved	7.7	0.001	0.000	0.01	0.00
Lowboy Truck/Trailer	1	Paved	7.7	0.001	0.000	0.01	0.00
Crew Truck	1	Unpaved - private	1.9	1.052	0.105	2.00	0.20
Foreman Truck	1	Unpaved - private	1.9	1.052	0.105	2.00	0.20
Reel Truck	1	Unpaved - private	1.9	1.052	0.105	2.00	0.20
Rodder Truck	1	Unpaved - private	1.9	1.052	0.105	2.00	0.20
Concrete Mixer Truck	1	Unpaved - private	1.9	1.052	0.105	2.00	0.20
1-Ton Truck, 4x4	1	Unpaved - private	1.9	1.052	0.105	2.00	0.20
Lowboy Truck/Trailer	1	Unpaved - private	1.9	1.052	0.105	2.00	0.20
Crew Truck	1	Unpaved - public	2.4	1.052	0.105	2.53	0.25
Foreman Truck	1	Unpaved - public	2.4	1.052	0.105	2.53	0.25
Reel Truck	1	Unpaved - public	2.4	1.052	0.105	2.53	0.25
Rodder Truck	1	Unpaved - public	2.4	1.052	0.105	2.53	0.25
Concrete Mixer Truck	1	Unpaved - public	2.4	1.052	0.105	2.53	0.25
1-Ton Truck, 4x4	1	Unpaved - public	2.4	1.052	0.105	2.53	0.25
Lowboy Truck/Trailer	1	Unpaved - public	2.4	1.052	0.105	2.53	0.25
Worker Commute	7	Paved	60	0.001	0.000	0.34	0.00
Offsite Total						**32.05**	**3.16**
Total						**32.05**	**3.16**

a For Segment 1 of the Proposed Project, 7.7 miles occur on paved roadways and 4.3 miles occur on unpaved roadways (2.4 miles are unpaved public roadways and 1.9 miles are unpaved private roadways). Daily VMT per vehicle assumes 1/2 total distance of Proposed Project x 2 trips per day. No additional UG cable is required along the 3.4 miles associated with Segment 2 of the Proposed Project.
b From Table 37
[c] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Earthwork Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM10 Emission Factor[a]	PM2.5 Emission Factor[a]	PM10 (lb/day)[b]	PM2.5 (lb/day)[b]
Soil Handling	CY/day		1.67E-02	3.47E-03	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		5.837	1.214	0.00	0.00
Storage Pile Wind Erosion	acres		4.4	0.92	0.00	0.00
Total					**0.00**	**0.00**

a From Table 38
[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 32
Telecommunications Construction
Control Building Communications Room

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	1.68	9.30	11.55	0.02	0.57	0.00	3.9
Onsite Motor Vehicle Exhaust	0.09	0.48	0.81	0.00	0.04	0.03	0.4
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.01	0.00	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
Onsite Total	**1.77**	**9.78**	**12.36**	**0.03**	**0.62**	**0.03**	**4.3**
Offsite Motor Vehicle Exhaust	0.33	2.81	0.73	0.01	0.06	0.05	1.1
Offsite Motor Vehicle Fugitive PM	--	--	--	--	0.38	0.00	
Offsite Total	**0.33**	**2.81**	**0.73**	**0.01**	**0.45**	**0.05**	**1.1**
Total	**2.10**	**12.60**	**13.09**	**0.03**	**1.07**	**0.08**	**5.4**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Bucket Truck	300	2	4	8

Construction Equipment Exhaust Emission Factors

Equipment	Horse-power	VOC (lb/hr)[a]	CO (lb/hr)[a]	NOX (lb/hr)[a]	SOX (lb/hr)[a]	PM10 (lb/hr)[a]	PM2.5 (lb/hr)[b]	CO2 (lb/hr)[a]	CH4 (lb/hr)[a]	Category
Bucket Truck	300	0.105	0.581	0.722	0.001	0.035	0.000	132.743	0.009	Manlifts

a From Table 34

[b] Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006, http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

Construction Equipment Daily Criteria Pollutant Exhaust Emissions

Equipment	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Bucket Truck	1.68	9.30	11.55	0.02	0.57	0.00
Total	**1.68**	**9.30**	**11.55**	**0.02**	**0.57**	**0.00**

[a] Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

Construction Equipment Total Greenhouse Gas Emissions

Equipment	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Bucket Truck	3.9	0.0	3.9
Total	**3.9**	**0.0**	**3.9**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 34

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Usage

Vehicle	Number	Days Used	Hours Used/ Day	Miles/ Day/ Veh.[a]
Onsite				
Bucket Truck	2	4	8	20
Crew Truck	1	4	8	20
Van	2	2	2	5
Offsite				
Bucket Truck	2	4	8	12
Crew Truck	1	4	8	12
Van	2	2	6	12
Worker Commute	7	4	N/A	60

[a] Onsite travel based hours of operation x 10 mph x 25% usage factor.

[a] Offsite travel assumed to be 12 miles per day, equal to 1/2 total distance of Segment 1 of the Proposed Project x 2 trips/day; offsite worker commute based on estimated 60 mile roundtrip distance.

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Onsite									
Bucket Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Crew Truck	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Van	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05
Offsite									
Bucket Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Crew Truck	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Van	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05
Worker Commute	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

a From Table 35 or Table 36

Table 32
Telecommunications Construction
Control Building Communications Room

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Onsite						
Bucket Truck	0.05	0.24	0.61	0.00	0.03	0.02
Crew Truck	0.03	0.18	0.20	0.00	0.01	0.01
Van	0.01	0.06	0.01	0.00	0.00	0.00
Onsite Total	**0.09**	**0.48**	**0.81**	**0.00**	**0.04**	**0.03**
Offsite						
Bucket Truck	0.03	0.15	0.37	0.00	0.02	0.01
Crew Truck	0.02	0.11	0.12	0.00	0.00	0.00
Van	0.02	0.14	0.01	0.00	0.00	0.00
Worker Commute	0.27	2.42	0.23	0.00	0.04	0.03
Offsite Total	**0.33**	**2.81**	**0.73**	**0.01**	**0.06**	**0.05**
Total	**0.42**	**3.30**	**1.54**	**0.01**	**0.10**	**0.08**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			
Bucket Truck	0.3	0.0	0.3
Crew Truck	0.1	0.0	0.1
Van	0.0	0.0	0.0
Onsite Total	**0.4**	**0.0**	**0.4**
Offsite			
Bucket Truck	0.2	0.0	0.2
Crew Truck	0.1	0.0	0.1
Van	0.0	0.0	0.0
Worker Commute	0.8	0.0	0.8
Offsite Total	**1.1**	**0.0**	**1.1**
Total	**1.5**	**0.0**	**1.5**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle	PM10 Emission Factor (lb/mi)[a]	PM2.5 Emission Factor (lb/mi)[a]	PM10 Emissions (lb/day)[b]	PM2.5 Emissions (lb/day)[b]
Onsite							
Bucket Truck	2	Paved	20	0.001	0.000	0.03	0.00
Crew Truck	1	Paved	20	0.001	0.000	0.02	0.00
Van	2	Paved	5	0.001	0.000	0.01	0.00
Onsite Total						**0.01**	**0.00**
Offsite							
Bucket Truck	2	Paved	12	0.001	0.000	0.02	0.00
Crew Truck	1	Paved	12	0.001	0.000	0.01	0.00
Van	2	Paved	12	0.001	0.000	0.02	0.00
Worker Commute	7	Paved	60	0.001	0.000	0.34	0.00
Offsite Total						**0.38**	**0.00**
Total						**0.39**	**0.00**

a From Table 37

[b] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Earthwork Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM10 Emission Factor[a]	PM2.5 Emission Factor[a]	PM10 (lb/day)[b]	PM2.5 (lb/day)[b]
Soil Handling	CY/day		1.67E-02	3.47E-03	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		5.837	1.214	0.00	0.00
Storage Pile Wind Erosion	acres		4.4	0.92	0.00	0.00
Total					**0.00**	**0.00**

a From Table 38

[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 33
Operational Emissions

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT/yr)
Motor Vehicle Exhaust	0.04	0.35	0.03	0.00	0.01	0.00	0
Motor Vehicle Fugitive PM	--	--	--	--	15.82	1.57	--
SF6 Leakage	--	--	--	--	--	--	9
Total	**0.04**	**0.35**	**0.03**	**0.00**	**15.82**	**1.58**	**10**
SCAQMD CEQA Thresholds	55	550	55	150	150	55	
Would the Proposed Project Exceed the Thresholds (Y/N)?	N	N	N	N	N	N	

Motor Vehicle Usage

Vehicle	Number	Days Used/ Year	Miles/ Day/ Veh.
Subtransmission Line Inspection	1	2	60

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Subtransmission Line Inspection	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

a From Table 35 or Table 36

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Subtransmission Line Inspection	0.04	0.35	0.03	0.00	0.01	0.00
Total	**0.04**	**0.35**	**0.03**	**0.00**	**0.01**	**0.00**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Motor Vehicle Annual Greenhouse Gas Emissions

Vehicle	CO2 (MT/yr)[a]	CH4 (MT/yr)[a]	CO2e (MT/yr)[b]
Subtransmission Line Inspection	0.1	0.0	0.1
Total	**0.1**	**0.0**	**0.1**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle	PM10 Emission Factor (lb/mi)[a]	PM2.5 Emission Factor (lb/mi)[a]	PM10 Emissions (lb/day)[b]	PM2.5 Emissions (lb/day)[b]
Subtransmission Line Inspection	1	Paved	45	0.001	0.000	0.04	0.00
Subtransmission Line Inspection	1	Unpaved - publ	15	1.052	0.105	15.78	1.57
Total						**15.82**	**1.57**

a From Table 37

[b] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

SF6 Leakage Greenhouse Gas Emissions

Item	Value	Units
Total SF6	180	pounds
SF6 Leakage Rate	0.5	%/year
SF6 Emissions	0.9	pounds
SF6 Global Warming Potential[a]	23,200	
CO2e Emissions[b]	**9**	**MT/yr**

[a] Based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008.
http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

[b] CO_2e emissions [metric tons] = SF_6 emissions [lb] x Global warming potential [lb CO_2e/lb SF_6] x 453.6 [g/lb] / 1,000,000 [g/MT]

Table 34
SCAB Emission Factors (Diesel) - Model Year 2014

CY 2018

Air Basin	SC

Equipment	MaxHP	ROG (lb/hr)	CO (lb/hr)	NOX (lb/hr)	SOX (lb/hr)	PM (lb/hr)	CO2 (lb/hr)	CH4 (lb/hr)
Aerial Lifts	15	0.0101	0.0528	0.0631	0.0001	0.0025	8.7	0.0009
	25	0.0143	0.0468	0.0865	0.0001	0.0039	11.0	0.0013
	50	0.0336	0.1506	0.1525	0.0003	0.0093	19.6	0.0030
	120	0.0327	0.2319	0.2565	0.0004	0.0170	38.1	0.0029
	500	0.0840	0.3899	0.8852	0.0021	0.0270	213	0.0076
	750	0.1545	0.7049	1.6423	0.0039	0.0494	385	0.0139
Aerial Lifts Composite		0.0322	0.1740	0.2152	0.0004	0.0119	34.7	0.0029
Air Compressors	15	0.0098	0.0456	0.0608	0.0001	0.0033	7.2	0.0009
	25	0.0207	0.0645	0.1187	0.0002	0.0060	14.4	0.0019
	50	0.0518	0.2142	0.1848	0.0003	0.0131	22.3	0.0047
	120	0.0504	0.3097	0.3370	0.0006	0.0255	47.0	0.0045
	175	0.0685	0.4994	0.5069	0.0010	0.0268	88.5	0.0062
	250	0.0747	0.2653	0.6529	0.0015	0.0206	131	0.0067
	500	0.1262	0.4504	1.0161	0.0023	0.0345	232	0.0114
	750	0.1960	0.6961	1.6134	0.0036	0.0540	358	0.0177
	1000	0.2958	1.0416	3.7257	0.0049	0.0965	486	0.0267
Air Compressors Composite		0.0582	0.3130	0.3935	0.0007	0.0246	63.6	0.0052
Bore/Drill Rigs	15	0.0120	0.0632	0.0754	0.0002	0.0029	10.3	0.0011
	25	0.0193	0.0658	0.1219	0.0002	0.0046	16.0	0.0017
	50	0.0204	0.2211	0.1290	0.0004	0.0005	31.0	0.0018
	120	0.0308	0.4665	0.2248	0.0009	0.0010	77.1	0.0028
	175	0.0475	0.7542	0.4886	0.0016	0.0021	141	0.0043
	250	0.0538	0.3426	0.0595	0.0021	0.0021	188	0.0049
	500	0.0887	0.5512	0.0933	0.0031	0.0033	311	0.0080
	750	0.1755	1.0891	0.1865	0.0062	0.0066	615	0.0158
	1000	0.2789	1.6441	2.3704	0.0093	0.0585	928	0.0252
Bore/Drill Rigs Composite		0.0539	0.5011	0.4175	0.0017	0.0099	165	0.0049
Cement and Mortar Mixers	15	0.0074	0.0386	0.0461	0.0001	0.0018	6.3	0.0007
	25	0.0232	0.0754	0.1391	0.0002	0.0064	17.6	0.0021
Cement and Mortar Mixers Composite		0.0087	0.0416	0.0538	0.0001	0.0022	7.2	0.0008
Concrete/Industrial Saws	25	0.0199	0.0678	0.1256	0.0002	0.0047	16.5	0.0018
	50	0.0549	0.2534	0.2388	0.0004	0.0148	30.2	0.0050
	120	0.0650	0.4661	0.4898	0.0009	0.0335	74.1	0.0059
	175	0.1012	0.8661	0.8304	0.0018	0.0410	160	0.0091
Concrete/Industrial Saws Composite		0.0605	0.3850	0.3959	0.0007	0.0261	58.5	0.0055
Cranes	50	0.0646	0.2527	0.0698	0.0003	0.0003	23.2	0.0058
	120	0.0639	0.3486	0.4822	0.0006	0.0021	50.1	0.0058
	175	0.0752	0.4766	0.4109	0.0009	0.0018	80.3	0.0068
	250	0.0787	0.2521	0.0826	0.0013	0.0029	112	0.0071
	500	0.1202	0.4085	0.0696	0.0018	0.0024	180	0.0108
	750	0.2034	0.6869	0.1182	0.0030	0.0042	303	0.0184
	9999	0.7422	2.3933	7.8338	0.0098	0.2146	971	0.0670
Cranes Composite		0.1012	0.4060	0.7908	0.0014	0.0318	129	0.0091
Crawler Tractors	50	0.0813	0.2884	0.0978	0.0003	0.0004	24.9	0.0073
	120	0.0945	0.4679	0.2721	0.0008	0.0012	65.8	0.0085
	175	0.1270	0.7327	0.4537	0.0014	0.0020	121	0.0115
	250	0.1333	0.4179	0.0863	0.0019	0.0031	166	0.0120
	500	0.1959	0.7202	0.1375	0.0025	0.0049	259	0.0177
	750	0.3529	1.2889	0.1864	0.0047	0.0066	465	0.0318
	1000	0.5380	2.0171	5.7362	0.0066	0.1663	658	0.0485
Crawler Tractors Composite		0.1185	0.5387	0.7960	0.0013	0.0457	114	0.0107
Crushing/Proc. Equipment	50	0.0949	0.4230	0.3607	0.0006	0.0241	44.0	0.0086
	120	0.0849	0.5506	0.5679	0.0010	0.0416	83.1	0.0077
	175	0.1258	0.9520	0.8975	0.0019	0.0475	167	0.0113
	250	0.1386	0.4932	1.1284	0.0028	0.0359	245	0.0125

Table 34
SCAB Emission Factors (Diesel) - Model Year 2014

CY 2018

Air Basin	SC

Equipment	MaxHP	ROG (lb/hr)	CO (lb/hr)	NOX (lb/hr)	SOX (lb/hr)	PM (lb/hr)	CO2 (lb/hr)	CH4 (lb/hr)
	500	0.2037	0.7231	1.5205	0.0037	0.0524	374	0.0184
	750	0.3193	1.1368	2.4441	0.0059	0.0824	589	0.0288
	9999	0.8312	2.7569	9.5902	0.0131	0.2467	1,308	0.0750
Crushing/Proc. Equipment Composite		0.1109	0.6328	0.7330	0.0015	0.0412	132	0.0100
Dumpers/Tenders	25	0.0092	0.0314	0.0584	0.0001	0.0023	7.6	0.0008
Dumpers/Tenders Composite		0.0092	0.0314	0.0584	0.0001	0.0023	7.6	0.0008
Excavators	25	0.0198	0.0677	0.1253	0.0002	0.0047	16.4	0.0018
	50	0.0468	0.2521	0.0877	0.0003	0.0004	25.0	0.0042
	120	0.0693	0.5017	0.1820	0.0009	0.0008	73.6	0.0063
	175	0.0824	0.6641	0.2683	0.0013	0.0012	112	0.0074
	250	0.0933	0.3323	0.0472	0.0018	0.0017	159	0.0084
	500	0.1339	0.4689	0.0715	0.0023	0.0026	234	0.0121
	750	0.2224	0.7769	0.1711	0.0039	0.0062	387	0.0201
Excavators Composite		0.0848	0.5160	0.5181	0.0013	0.0249	120	0.0077
Forklifts	50	0.0229	0.1440	0.1180	0.0002	0.0058	14.7	0.0021
	120	0.0265	0.2118	0.1745	0.0004	0.0108	31.2	0.0024
	175	0.0394	0.3322	0.2328	0.0006	0.0125	56.1	0.0036
	250	0.0440	0.1559	0.2594	0.0009	0.0089	77.1	0.0040
	500	0.0623	0.2131	0.3432	0.0011	0.0125	111	0.0056
Forklifts Composite		0.0372	0.2173	0.2186	0.0006	0.0101	54.4	0.0034
Generator Sets	15	0.0123	0.0644	0.0852	0.0002	0.0043	10.2	0.0011
	25	0.0231	0.0788	0.1449	0.0002	0.0070	17.6	0.0021
	50	0.0491	0.2265	0.2357	0.0004	0.0138	30.6	0.0044
	120	0.0642	0.4694	0.5181	0.0009	0.0333	77.9	0.0058
	175	0.0808	0.7324	0.7528	0.0016	0.0337	142	0.0073
	250	0.0857	0.3931	0.9756	0.0024	0.0274	213	0.0077
	500	0.1264	0.6113	1.3836	0.0033	0.0415	337	0.0114
	750	0.2080	0.9868	2.2918	0.0055	0.0679	544	0.0188
	9999	0.5230	2.0948	7.5356	0.0105	0.1778	1,049	0.0472
Generator Sets Composite		0.0477	0.2786	0.3759	0.0007	0.0192	61.0	0.0043
Graders	50	0.0676	0.2868	0.2305	0.0004	0.0157	27.5	0.0061
	120	0.0860	0.5138	2.0964	0.0009	0.0103	75.0	0.0078
	175	0.1059	0.7294	0.7022	0.0014	0.0032	124	0.0096
	250	0.1115	0.3778	0.1019	0.0019	0.0037	172	0.0101
	500	0.1420	0.5194	0.0550	0.0023	0.0020	229	0.0128
	750	0.3024	1.0988	2.1820	0.0049	0.0774	486	0.0273
Graders Composite		0.1049	0.5812	0.7217	0.0015	0.0355	133	0.0095
Off-Highway Tractors	120	0.1622	0.6879	0.2084	0.0011	0.0010	93.7	0.0146
	175	0.1614	0.8085	0.3365	0.0015	0.0015	130	0.0146
	250	0.1275	0.3861	0.2085	0.0015	0.0075	130	0.0115
	750	0.5173	2.0914	0.0901	0.0057	0.0032	568	0.0467
	1000	0.7842	3.2770	8.0820	0.0082	0.2526	814	0.0708
Off-Highway Tractors Composite		0.1631	0.6762	1.2293	0.0017	0.0579	151	0.0147
Off-Highway Trucks	175	0.0983	0.7542	0.5947	0.0014	0.0314	125	0.0089
	250	0.1042	0.3572	0.6660	0.0019	0.0225	167	0.0094
	500	0.1656	0.5578	0.9706	0.0027	0.0351	272	0.0149
	750	0.2693	0.9044	1.6152	0.0044	0.0577	442	0.0243
	1000	0.4058	1.3339	4.3394	0.0063	0.1110	625	0.0366
Off-Highway Trucks Composite		0.1613	0.5634	1.0525	0.0027	0.0360	260	0.0146
Other Construction Equipment	15	0.0118	0.0617	0.0737	0.0002	0.0029	10.1	0.0011
	25	0.0159	0.0544	0.1008	0.0002	0.0038	13.2	0.0014
	50	0.0412	0.2342	0.2102	0.0004	0.0108	28.0	0.0037
	120	0.0604	0.5116	0.4573	0.0009	0.0279	80.9	0.0054
	175	0.0608	0.5859	0.4478	0.0012	0.0218	107	0.0055
	500	0.1122	0.4743	0.8004	0.0025	0.0275	254	0.0101

Table 34
SCAB Emission Factors (Diesel) - Model Year 2014

CY 2018

Air Basin	SC

Equipment	MaxHP	ROG (lb/hr)	CO (lb/hr)	NOX (lb/hr)	SOX (lb/hr)	PM (lb/hr)	CO2 (lb/hr)	CH4 (lb/hr)
Other Construction Equipment Composite		0.0633	0.3542	0.4478	0.0013	0.0181	123	0.0057
Other General Industrial Equipmen	15	0.0066	0.0391	0.0466	0.0001	0.0018	6.4	0.0006
	25	0.0185	0.0632	0.1170	0.0002	0.0044	15.3	0.0017
	50	0.0548	0.2314	0.1869	0.0003	0.0134	21.7	0.0049
	120	0.0732	0.4277	0.4544	0.0007	0.0350	62.0	0.0066
	175	0.0835	0.5664	0.5608	0.0011	0.0307	95.9	0.0075
	250	0.0884	0.2862	0.6866	0.0015	0.0221	136	0.0080
	500	0.1664	0.5336	1.1846	0.0026	0.0412	265	0.0150
	750	0.2755	0.8795	2.0057	0.0044	0.0689	437	0.0249
	1000	0.3866	1.2370	4.3716	0.0056	0.1169	560	0.0349
Other General Industrial Equipmen Composite		0.1113	0.4591	0.8242	0.0016	0.0336	152	0.0100
Other Material Handling Equipment	50	0.0758	0.3192	0.2598	0.0004	0.0186	30.3	0.0068
	120	0.0709	0.4162	0.4437	0.0007	0.0341	60.7	0.0064
	175	0.1050	0.7171	0.7125	0.0014	0.0389	122	0.0095
	250	0.0934	0.3046	0.7336	0.0016	0.0237	145	0.0084
	500	0.1186	0.3838	0.8543	0.0019	0.0297	192	0.0107
	9999	0.5386	1.6331	5.7822	0.0073	0.1543	741	0.0486
Other Material Handling Equipment Composite		0.1050	0.4495	0.8053	0.0015	0.0324	141	0.0095
Pavers	25	0.0226	0.0769	0.1434	0.0002	0.0057	18.7	0.0020
	50	0.0968	0.3188	0.2539	0.0004	0.0217	28.0	0.0087
	120	0.1030	0.4862	0.6205	0.0008	0.0506	69.2	0.0093
	175	0.1365	0.7632	0.9644	0.0014	0.0539	128	0.0123
	250	0.1574	0.5000	1.3162	0.0022	0.0490	194	0.0142
	500	0.1765	0.6885	1.4189	0.0023	0.0539	233	0.0159
Pavers Composite		0.1121	0.5017	0.6241	0.0009	0.0419	77.9	0.0101
Paving Equipment	25	0.0152	0.0520	0.0963	0.0002	0.0036	12.6	0.0014
	50	0.0821	0.2696	0.2165	0.0003	0.0185	23.9	0.0074
	120	0.0805	0.3809	0.4869	0.0006	0.0400	54.5	0.0073
	175	0.1062	0.5971	0.7567	0.0011	0.0424	101	0.0096
	250	0.0962	0.3068	0.8236	0.0014	0.0300	122	0.0087
Paving Equipment Composite		0.0857	0.4136	0.5558	0.0008	0.0374	68.9	0.0077
Plate Compactors	15	0.0050	0.0263	0.0314	0.0001	0.0012	4.3	0.0005
Plate Compactors Composite		0.0050	0.0263	0.0314	0.0001	0.0012	4.3	0.0005
Pressure Washers	15	0.0059	0.0308	0.0408	0.0001	0.0021	4.9	0.0005
	25	0.0094	0.0319	0.0587	0.0001	0.0028	7.1	0.0008
	50	0.0170	0.0895	0.1059	0.0002	0.0054	14.3	0.0015
	120	0.0167	0.1383	0.1528	0.0003	0.0087	24.1	0.0015
Pressure Washers Composite		0.0101	0.0562	0.0703	0.0001	0.0036	9.4	0.0009
Pumps	15	0.0101	0.0468	0.0625	0.0001	0.0034	7.4	0.0009
	25	0.0279	0.0871	0.1601	0.0002	0.0080	19.5	0.0025
	50	0.0599	0.2670	0.2677	0.0004	0.0164	34.3	0.0054
	120	0.0676	0.4767	0.5260	0.0009	0.0350	77.9	0.0061
	175	0.0845	0.7338	0.7548	0.0016	0.0350	140	0.0076
	250	0.0866	0.3786	0.9399	0.0023	0.0271	201	0.0078
	500	0.1387	0.6343	1.4367	0.0034	0.0442	345	0.0125
	750	0.2330	1.0487	2.4376	0.0057	0.0741	571	0.0210
	9999	0.7050	2.7434	9.8509	0.0136	0.2358	1,355	0.0636
Pumps Composite		0.0458	0.2722	0.3306	0.0006	0.0189	49.6	0.0041
Rollers	15	0.0074	0.0386	0.0461	0.0001	0.0018	6.3	0.0007
	25	0.0161	0.0549	0.1017	0.0002	0.0038	13.3	0.0015
	50	0.0662	0.2547	0.2171	0.0003	0.0158	26.0	0.0060
	120	0.0680	0.3919	0.4411	0.0007	0.0341	59.0	0.0061
	175	0.0897	0.6130	0.6569	0.0012	0.0356	108	0.0081
	250	0.0934	0.3306	0.8164	0.0017	0.0274	153	0.0084
	500	0.1262	0.4902	1.0345	0.0022	0.0365	219	0.0114

Table 34
SCAB Emission Factors (Diesel) - Model Year 2014

CY 2018

Air Basin	SC

Equipment	MaxHP	ROG (lb/hr)	CO (lb/hr)	NOX (lb/hr)	SOX (lb/hr)	PM (lb/hr)	CO2 (lb/hr)	CH4 (lb/hr)
Rollers Composite		0.0683	0.3885	0.4485	0.0008	0.0291	67.0	0.0062
Rough Terrain Forklifts	50	0.0655	0.3294	0.2744	0.0004	0.0166	33.9	0.0059
	120	0.0596	0.4179	0.3967	0.0007	0.0273	62.4	0.0054
	175	0.0911	0.7231	0.6072	0.0014	0.0322	125	0.0082
	250	0.0988	0.3504	0.7075	0.0019	0.0237	171	0.0089
	500	0.1441	0.5029	0.9468	0.0025	0.0341	257	0.0130
Rough Terrain Forklifts Composite		0.0638	0.4499	0.4219	0.0008	0.0277	70.3	0.0058
Rubber Tired Dozers	175	0.1676	0.8191	1.1443	0.0015	0.0646	129	0.0151
	250	0.1890	0.5640	1.4879	0.0021	0.0605	183	0.0171
	500	0.2531	1.0338	1.9476	0.0026	0.0787	265	0.0228
	750	0.3821	1.5520	2.9917	0.0040	0.1195	399	0.0345
	1000	0.5986	2.5082	6.0072	0.0060	0.1906	592	0.0540
Rubber Tired Dozers Composite		0.2343	0.8819	1.8194	0.0025	0.0737	239	0.0211
Rubber Tired Loaders	25	0.0204	0.0697	0.1291	0.0002	0.0048	16.9	0.0018
	50	0.0742	0.3198	0.2591	0.0004	0.0174	31.1	0.0067
	120	0.0660	0.4016	0.4121	0.0007	0.0307	58.9	0.0060
	175	0.0888	0.6227	0.5902	0.0012	0.0323	106	0.0080
	250	0.0946	0.3237	0.7142	0.0017	0.0244	149	0.0085
	500	0.1440	0.5256	1.0103	0.0023	0.0363	237	0.0130
	750	0.2966	1.0762	2.1374	0.0049	0.0758	486	0.0268
	1000	0.3912	1.4170	4.4558	0.0060	0.1188	594	0.0353
Rubber Tired Loaders Composite		0.0861	0.4470	0.5831	0.0012	0.0300	109	0.0078
Scrapers	120	0.1382	0.6686	0.8165	0.0011	0.0661	93.9	0.0125
	175	0.1579	0.8954	1.0712	0.0017	0.0603	148	0.0142
	250	0.1704	0.5324	1.3558	0.0024	0.0501	209	0.0154
	500	0.2458	0.9165	1.8678	0.0032	0.0707	321	0.0222
	750	0.4267	1.5807	3.3123	0.0056	0.1238	555	0.0385
Scrapers Composite		0.2135	0.8418	1.6042	0.0027	0.0653	262	0.0193
Signal Boards	15	0.0072	0.0377	0.0450	0.0001	0.0018	6.2	0.0006
	50	0.0649	0.2966	0.2820	0.0005	0.0172	36.2	0.0059
	120	0.0695	0.4999	0.5256	0.0009	0.0356	80.2	0.0063
	175	0.0955	0.8276	0.7968	0.0017	0.0385	155	0.0086
	250	0.1151	0.4857	1.1305	0.0029	0.0337	255	0.0104
Signal Boards Composite		0.0143	0.0916	0.1029	0.0002	0.0050	16.7	0.0013
Skid Steer Loaders	25	0.0176	0.0582	0.1081	0.0002	0.0048	13.8	0.0016
	50	0.0263	0.2035	0.1787	0.0003	0.0065	25.5	0.0024
	120	0.0248	0.2680	0.1970	0.0005	0.0095	42.8	0.0022
Skid Steer Loaders Composite		0.0253	0.2146	0.1799	0.0004	0.0074	30.3	0.0023
Surfacing Equipment	50	0.0317	0.1242	0.1139	0.0002	0.0077	14.1	0.0029
	120	0.0668	0.4072	0.4651	0.0007	0.0334	63.8	0.0060
	175	0.0637	0.4677	0.5082	0.0010	0.0257	85.8	0.0058
	250	0.0733	0.2858	0.7013	0.0015	0.0230	135	0.0066
	500	0.1120	0.5047	1.0316	0.0022	0.0350	221	0.0101
	750	0.1782	0.7911	1.6685	0.0035	0.0558	347	0.0161
Surfacing Equipment Composite		0.0923	0.4187	0.8043	0.0017	0.0291	166	0.0083
Sweepers/Scrubbers	15	0.0124	0.0729	0.0870	0.0002	0.0034	11.9	0.0011
	25	0.0237	0.0808	0.1495	0.0002	0.0056	19.6	0.0021
	50	0.0522	0.2974	0.2539	0.0004	0.0137	31.6	0.0047
	120	0.0647	0.4983	0.4442	0.0009	0.0291	75.0	0.0058
	175	0.0966	0.8030	0.6280	0.0016	0.0337	139	0.0087
	250	0.0894	0.3218	0.6073	0.0018	0.0204	162	0.0081
Sweepers/Scrubbers Composite		0.0681	0.4946	0.4308	0.0009	0.0251	78.5	0.0061
Tractors/Loaders/Backhoes	25	0.0191	0.0653	0.1211	0.0002	0.0046	15.9	0.0017
	50	0.0497	0.2839	0.0918	0.0004	0.0004	30.3	0.0045
	120	0.0435	0.3426	0.1680	0.0006	0.0008	51.7	0.0039

Table 34
SCAB Emission Factors (Diesel) - Model Year 2014

CY 2018

Air Basin	SC

Equipment	MaxHP	ROG (lb/hr)	CO (lb/hr)	NOX (lb/hr)	SOX (lb/hr)	PM (lb/hr)	CO2 (lb/hr)	CH4 (lb/hr)
	175	0.0669	0.5845	0.2571	0.0011	0.0012	101	0.0060
	250	0.0914	0.3483	0.0433	0.0019	0.0016	172	0.0082
	500	0.1788	0.6771	0.0555	0.0039	0.0020	345	0.0161
	750	0.2691	1.0154	1.6525	0.0058	0.0585	517	0.0243
Tractors/Loaders/Backhoes Composite		0.0513	0.3647	0.3331	0.0008	0.0189	66.8	0.0046
Trenchers	15	0.0099	0.0517	0.0617	0.0001	0.0024	8.5	0.0009
	25	0.0397	0.1355	0.2509	0.0004	0.0094	32.9	0.0036
	50	0.1142	0.3647	0.2965	0.0004	0.0255	32.9	0.0103
	120	0.0959	0.4498	0.5899	0.0008	0.0477	64.9	0.0087
	175	0.1505	0.8436	1.1021	0.0016	0.0607	144	0.0136
	250	0.1783	0.5823	1.5446	0.0025	0.0582	223	0.0161
	500	0.2312	0.9564	1.9434	0.0031	0.0740	311	0.0209
	750	0.4382	1.7994	3.7533	0.0059	0.1413	587	0.0395
Trenchers Composite		0.1061	0.4368	0.5117	0.0007	0.0393	58.7	0.0096
Welders	15	0.0084	0.0392	0.0522	0.0001	0.0028	6.2	0.0008
	25	0.0161	0.0504	0.0927	0.0001	0.0047	11.3	0.0015
	50	0.0563	0.2339	0.2108	0.0003	0.0144	26.0	0.0051
	120	0.0398	0.2540	0.2787	0.0005	0.0205	39.5	0.0036
	175	0.0703	0.5400	0.5536	0.0011	0.0283	98.2	0.0063
	250	0.0617	0.2348	0.5828	0.0013	0.0179	119	0.0056
	500	0.0825	0.3196	0.7244	0.0016	0.0239	168	0.0074
Welders Composite		0.0388	0.1876	0.1941	0.0003	0.0133	25.6	0.0035

Source: File offroadEF07_25.xls, downloaded from http://www.aqmd.gov/ceqa/handbook/offroad/offroad.html

Table 34 OFFROAD Output

CalendarY	AirBasin	Equipment	Equipment	Equipment Type	ModelYear	Horsepowe	NOx (lb/hr)	PM (lb/hr)
2018	SC	Constructic	11	Bore/Drill Rigs	2014	50	0.13	5.07E-04
2018	SC	Constructic	11	Bore/Drill Rigs	2014	120	0.23	1.02E-03
2018	SC	Constructic	11	Bore/Drill Rigs	2014	175	0.35	1.55E-03
2018	SC	Constructic	11	Bore/Drill Rigs	2014	250	0.06	2.19E-03
2018	SC	Constructic	11	Bore/Drill Rigs	2014	500	0.10	3.39E-03
2018	SC	Constructic	11	Bore/Drill Rigs	2014	750	0.19	6.61E-03
2018	SC	Constructic	11	Bore/Drill Rigs	2014	1000	2.37	5.85E-02
2018	SC	Constructic	12	Cranes	2014	50	0.07	2.67E-04
2018	SC	Constructic	12	Cranes	2014	120	0.15	6.70E-04
2018	SC	Constructic	12	Cranes	2014	175	0.21	9.15E-04
2018	SC	Constructic	12	Cranes	2014	250	0.04	1.24E-03
2018	SC	Constructic	12	Cranes	2014	500	0.06	1.94E-03
2018	SC	Constructic	12	Cranes	2014	750	0.09	3.21E-03
2018	SC	Constructic	13	Crawler Tractors	2014	50	0.14	5.42E-04
2018	SC	Constructic	13	Crawler Tractors	2014	120	0.21	9.62E-04
2018	SC	Constructic	13	Crawler Tractors	2014	175	0.31	1.35E-03
2018	SC	Constructic	13	Crawler Tractors	2014	250	0.05	1.85E-03
2018	SC	Constructic	13	Crawler Tractors	2014	500	0.09	3.19E-03
2018	SC	Constructic	13	Crawler Tractors	2014	750	0.14	4.97E-03
2018	SC	Constructic	14	Excavators	2014	50	0.09	3.66E-04
2018	SC	Constructic	14	Excavators	2014	120	0.18	8.28E-04
2018	SC	Constructic	14	Excavators	2014	175	0.27	1.22E-03
2018	SC	Constructic	14	Excavators	2014	250	0.05	1.80E-03
2018	SC	Constructic	14	Excavators	2014	500	0.07	2.69E-03
2018	SC	Constructic	14	Excavators	2014	750	0.14	4.97E-03
2018	SC	Constructic	14	Excavators	2014	1000	#DIV/0!	#DIV/0!
2018	SC	Constructic	15	Graders	2014	50	0.11	4.75E-04
2018	SC	Constructic	15	Graders	2014	120	0.16	7.87E-04
2018	SC	Constructic	15	Graders	2014	175	0.29	1.33E-03
2018	SC	Constructic	15	Graders	2014	250	0.05	1.80E-03
2018	SC	Constructic	15	Graders	2014	500	0.07	2.52E-03
2018	SC	Constructic	16	Off-Highway Tract	2014	50	0.11	4.74E-04
2018	SC	Constructic	16	Off-Highway Tract	2014	120	0.17	7.80E-04
2018	SC	Constructic	16	Off-Highway Tract	2014	175	0.34	1.50E-03
2018	SC	Constructic	16	Off-Highway Tract	2014	250	0.05	1.91E-03
2018	SC	Constructic	16	Off-Highway Tract	2014	500	0.09	3.21E-03
2018	SC	Constructic	17	Off-Highway Truck	2014	50	0.07	3.57E-04
2018	SC	Constructic	17	Off-Highway Truck	2014	120	0.25	1.47E-03
2018	SC	Constructic	17	Off-Highway Truck	2014	175	0.31	1.56E-03
2018	SC	Constructic	17	Off-Highway Truck	2014	250	0.05	1.89E-03
2018	SC	Constructic	17	Off-Highway Truck	2014	500	0.09	3.63E-03
2018	SC	Constructic	17	Off-Highway Truck	2014	750	0.15	5.74E-03
2018	SC	Constructic	17	Off-Highway Truck	2014	1000	1.74	4.84E-02
2018	SC	Constructic	17	Off-Highway Truck	2014	9999	3.88	1.08E-01
2018	SC	Constructic	18	Other Constructior	2014	50	0.10	3.93E-04
2018	SC	Constructic	18	Other Constructior	2014	120	0.21	9.26E-04
2018	SC	Constructic	18	Other Constructior	2014	175	0.31	1.35E-03
2018	SC	Constructic	18	Other Constructior	2014	250	0.05	1.91E-03

Table 34 OFFROAD Output

2018	SC	Constructic	18	Other Constructior	2014	500	0.09	3.07E-03
2018	SC	Constructic	18	Other Constructior	2014	750	0.15	5.31E-03
2018	SC	Constructic	18	Other Constructior	2014	1000	1.85	4.55E-02
2018	SC	Constructic	19	Pavers	2014	50	0.08	3.07E-04
2018	SC	Constructic	19	Pavers	2014	120	0.19	8.16E-04
2018	SC	Constructic	19	Pavers	2014	175	0.33	1.41E-03
2018	SC	Constructic	19	Pavers	2014	250	0.05	1.75E-03
2018	SC	Constructic	19	Pavers	2014	500	0.07	2.53E-03
2018	SC	Constructic	20	Paving Equipment	2014	50	0.09	3.45E-04
2018	SC	Constructic	20	Paving Equipment	2014	120	0.18	7.82E-04
2018	SC	Constructic	20	Paving Equipment	2014	175	0.24	1.05E-03
2018	SC	Constructic	20	Paving Equipment	2014	250	0.05	1.67E-03
2018	SC	Constructic	20	Paving Equipment	2014	500	#DIV/0!	#DIV/0!
2018	SC	Constructic	21	Rollers	2014	50	0.08	3.08E-04
2018	SC	Constructic	21	Rollers	2014	120	0.18	7.33E-04
2018	SC	Constructic	21	Rollers	2014	175	0.27	1.12E-03
2018	SC	Constructic	21	Rollers	2014	250	0.05	1.60E-03
2018	SC	Constructic	21	Rollers	2014	500	0.07	2.27E-03
2018	SC	Constructic	21	Rollers	2014	750	0.11	3.95E-03
2018	SC	Constructic	22	Rough Terrain For	2014	50	0.12	4.15E-04
2018	SC	Constructic	22	Rough Terrain For	2014	120	0.21	8.22E-04
2018	SC	Constructic	22	Rough Terrain For	2014	175	0.25	1.03E-03
2018	SC	Constructic	22	Rough Terrain For	2014	250	0.05	1.67E-03
2018	SC	Constructic	22	Rough Terrain For	2014	500	0.06	2.18E-03
2018	SC	Constructic	23	Rubber Tired Doze	2014	120	0.23	1.17E-03
2018	SC	Constructic	23	Rubber Tired Doze	2014	175	0.33	1.57E-03
2018	SC	Constructic	23	Rubber Tired Doze	2014	250	0.05	2.00E-03
2018	SC	Constructic	23	Rubber Tired Doze	2014	500	0.10	3.71E-03
2018	SC	Constructic	24	Rubber Tired Loac	2014	50	0.11	5.14E-04
2018	SC	Constructic	24	Rubber Tired Loac	2014	120	0.17	9.35E-04
2018	SC	Constructic	24	Rubber Tired Loac	2014	175	0.28	1.33E-03
2018	SC	Constructic	24	Rubber Tired Loac	2014	250	0.05	1.70E-03
2018	SC	Constructic	24	Rubber Tired Loac	2014	500	0.07	2.64E-03
2018	SC	Constructic	24	Rubber Tired Loac	2014	750	0.15	5.50E-03
2018	SC	Constructic	25	Scrapers	2014	175	0.40	1.78E-03
2018	SC	Constructic	25	Scrapers	2014	250	0.06	2.31E-03
2018	SC	Constructic	25	Scrapers	2014	500	0.11	3.80E-03
2018	SC	Constructic	25	Scrapers	2014	750	0.16	5.71E-03
2018	SC	Constructic	26	Skid Steer Loaders	2014	50	0.10	3.77E-04
2018	SC	Constructic	26	Skid Steer Loaders	2014	120	0.14	5.88E-04
2018	SC	Constructic	26	Skid Steer Loaders	2014	175	0.22	9.49E-04
2018	SC	Constructic	26	Skid Steer Loaders	2014	250	0.04	1.41E-03
2018	SC	Constructic	27	Surfacing Equipme	2014	50	0.07	2.33E-04
2018	SC	Constructic	27	Surfacing Equipme	2014	120	0.16	6.27E-04
2018	SC	Constructic	27	Surfacing Equipme	2014	175	#DIV/0!	#DIV/0!
2018	SC	Constructic	27	Surfacing Equipme	2014	250	#DIV/0!	#DIV/0!
2018	SC	Constructic	27	Surfacing Equipme	2014	500	0.06	1.99E-03
2018	SC	Constructic	27	Surfacing Equipme	2014	9999	1.82	4.32E-02
2018	SC	Constructic	28	Tractors/Loaders/E	2014	50	0.10	4.07E-04
2018	SC	Constructic	28	Tractors/Loaders/E	2014	120	0.17	8.05E-04

Table 34 OFFROAD Output

2018	SC	Constructic	28	Tractors/Loaders/E	2014	175	0.26	1.19E-03
2018	SC	Constructic	28	Tractors/Loaders/E	2014	250	0.05	1.63E-03
2018	SC	Constructic	28	Tractors/Loaders/E	2014	500	0.07	2.42E-03
2018	SC	Constructic	28	Tractors/Loaders/E	2014	750	0.13	4.57E-03
2018	SC	Constructic	28	Tractors/Loaders/E	2014	9999	3.82	9.66E-02
2018	SC	Constructic	29	Trenchers	2014	50	0.14	5.05E-04
2018	SC	Constructic	29	Trenchers	2014	120	0.25	1.04E-03
2018	SC	Constructic	29	Trenchers	2014	175	0.40	1.71E-03
2018	SC	Constructic	29	Trenchers	2014	250	0.07	2.54E-03
2018	SC	Constructic	29	Trenchers	2014	500	0.08	2.95E-03
2018	SC	Constructic	36	Sweepers/Scrubbe	2014	50	0.11	4.55E-04
2018	SC	Constructic	36	Sweepers/Scrubbe	2014	120	0.19	8.51E-04
2018	SC	Constructic	36	Sweepers/Scrubbe	2014	175	0.38	1.69E-03
2018	SC	Industrial	30	Aerial Lifts	2014	50	0.09	3.06E-04
2018	SC	Industrial	30	Aerial Lifts	2014	120	0.13	4.97E-04
2018	SC	Industrial	30	Aerial Lifts	2014	175	0.21	8.52E-04
2018	SC	Industrial	31	Forklifts	2014	50	0.05	2.14E-04
2018	SC	Industrial	31	Forklifts	2014	120	0.09	4.22E-04
2018	SC	Industrial	31	Forklifts	2014	175	0.14	6.27E-04
2018	SC	Industrial	31	Forklifts	2014	250	0.03	9.15E-04
2018	SC	Industrial	31	Forklifts	2014	500	0.05	1.64E-03
2018	SC	Industrial	32	Other General Ind	2014	50	0.08	3.45E-04
2018	SC	Industrial	32	Other General Ind	2014	120	0.15	6.92E-04
2018	SC	Industrial	32	Other General Ind	2014	175	0.25	1.11E-03
2018	SC	Industrial	32	Other General Ind	2014	250	0.04	1.42E-03
2018	SC	Industrial	32	Other General Ind	2014	500	0.07	2.68E-03
2018	SC	Industrial	32	Other General Ind	2014	750	0.13	4.53E-03
2018	SC	Industrial	33	Other Material Hai	2014	120	0.19	9.00E-04
2018	SC	Industrial	33	Other Material Hai	2014	175	0.27	1.20E-03
2018	SC	Industrial	33	Other Material Hai	2014	250	0.05	1.77E-03
2018	SC	Industrial	33	Other Material Hai	2014	500	0.08	2.97E-03
2018	SC	Oil Drilling	34	Drill Rig (Mobile)	2014	120	0.24	1.43E-03
2018	SC	Oil Drilling	34	Drill Rig (Mobile)	2014	175	#DIV/0!	#DIV/0!
2018	SC	Oil Drilling	34	Drill Rig (Mobile)	2014	500	0.13	5.01E-03
2018	SC	Oil Drilling	35	Workover Rig (Mo	2014	250	0.06	2.37E-03
2018	SC	Oil Drilling	35	Workover Rig (Mo	2014	500	0.11	4.52E-03

*Emission factors represent fleetwide emissions during calender year 2018, with proposed regulation, for

Table 35

Highest (Most Conservative) EMFAC2007 (version 2.3) Emission Factors for On-Road Passenger Vehicles & Delivery Trucks

Projects in the SCAQMD (Scenario Years 2007 - 2026)

Derived from Peak Emissions Inventory (**Winter**, **Annual**, **Summer**)

Vehicle Class:

Passenger Vehicles (<8500 pounds) & Delivery Trucks (>8500 pounds)

The following emission factors were compiled by running the California Air Resources Board's EMFAC2007 (version 2.3) Burden Model, taking the weighted average of vehicle types and simplifying into two categories:

Passenger Vehicles & Delivery Trucks.

These emission factors can be used to calculate on-road mobile source emissions for the vehicle categories listed in the tables below, by use of the following equation:

Emissions (pounds per day) = N x TL x EF

where N = number of trips, TL = trip length (miles/day), and EF = emission factor (pounds per mile)

This methodology replaces the old EMFAC emission factors in Tables A-9-5-J-1 through A-9-5-L in Appendix A9 of the current SCAQMD CEQA Handbook. All the emission factors account for the emissions from start, running and idling exhaust. In addition, the ROG emission factors include diurnal, hot soak, running and resting emissions, and the PM10 & PM2.5 emission factors include tire and brake wear.

Scenario Year: **2018**

All model years in the range 1972 to 2016

Passenger Vehicles (pounds/mile)	
CO	0.00575800
NOx	0.00055658
ROG	0.00063254
SOx	0.00001071
PM10	0.00009392
PM2.5	0.00006131
CO2	1.10677664
CH4	0.00005623

Delivery Trucks (pounds/mile)	
CO	0.00923234
NOx	0.00979416
ROG	0.00139856
SOx	0.00002749
PM10	0.00040110
PM2.5	0.00031792
CO2	2.84646835
CH4	0.00006203

Source: File onroadEF07_26.xls, downloaded from http://www.aqmd.gov/ceqa/handbook/onroad/onroad.html

Table 36
Highest (Most Conservative) EMFAC2007 (version 2.3)
Emission Factors for On-Road Heavy-Heavy-Duty Diesel Trucks
Projects in the SCAQMD (Scenario Years 2007 - 2026)
Derived from Peak Emissions Inventory (**Winter**, **Annual**, **Summer**)

Vehicle Class:
Heavy-Heavy-Duty Diesel Trucks (33,001 to 60,000 pounds)

The following emission factors were compiled by running the California Air Resources Board's EMFAC2007 (version 2.3) Burden Model and extracting the **Heavy-Heavy-Duty Diesel Truck (HHDT)** Emission Factors.

These emission factors can be used to calculate on-road mobile source emissions for the vehicle/emission categories listed in the tables below, by use of the following equation:

Emissions (pounds per day) = N x TL x EF

where N = number of trips, TL = trip length (miles/day), and EF = emission factor (pounds per mile)

The **HHDT-DSL** vehicle/emission category accounts for all emissions from heavy-heavy-duty diesel trucks, including start, running and idling exhaust. In addition, ROG emission factors account for diurnal, hot soak, running and resting emissions, and the PM10 & PM2.5 emission factors account for tire and brake wear.

The **HHDT-DSL, Exh** vehicle/emission category includes only the exhaust portion of PM10 & PM2.5 emissions from heavy-heavy-duty diesel trucks.

Scenario Year: **2018**

All model years in the range 1972 to 2016

HHDT-DSL (pounds/mile)	
CO	**0.00604721**
NOx	**0.01526414**
ROG	**0.00131697**
SOx	**0.00003934**
PM10	**0.00076808**
PM2.5	**0.00062383**
CO2	**4.20756838**
CH4	**0.00006182**

HHDT-DSL, Exh (pounds/mile)	
PM10	**0.00062758**
PM2.5	**0.00057700**

Source: File onroadEFHHDT07_26.xls, downloaded from http://www.aqmd.gov/ceqa/handbook/onroad/onroad.html

Table 37
Motor Vehicle Entrained Road Dust Emission Factors

Vehicle Type	Surface	Silt Content (s, %)[a]	Average Weight (W) (tons)[b]	Un-controlled PM10 Emission Factor (lb/VMT)[c]	Un-controlled PM2.5 Emission Factor (lb/VMT)[c]	Control Efficiency (%)[d]	Controlled PM10 Emission Factor (lb/VMT)[e]	Controlled PM2.5 Emission Factor (lb/VMT)[e]
1/2-Ton Truck, 4x4	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
1/2-Ton Truck, 4x4	Unpaved - private	6.4	3.2	1.05E+00	1.05E-01	0%	1.05E+00	1.05E-01
1/2-Ton Truck, 4x4	Unpaved - public	6.4	3.2	1.05E+00	1.05E-01	0%	1.05E+00	1.05E-01
1-Ton Truck, 4x4	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
1-Ton Truck, 4x4	Unpaved - private	6.4	3.2	1.05E+00	1.05E-01	0%	1.05E+00	1.05E-01
1-Ton Truck, 4x4	Unpaved - public	6.4	3.2	1.05E+00	1.05E-01	0%	1.05E+00	1.05E-01
1-Ton Crew Cab, 4x4	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
1-Ton Crew Cab, 4x4	Unpaved - private	6.4	3.2	1.05E+00	1.05E-01	0%	1.05E+00	1.05E-01
1-Ton Crew Cab, 4x4	Unpaved - public	6.4	3.2	1.05E+00	1.05E-01	0%	1.05E+00	1.05E-01
3/4-Ton Truck, 4x4	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
3/4-Ton Truck, 4x4	Unpaved - private	6.4	3.2	1.05E+00	1.05E-01	0%	1.05E+00	1.05E-01
3/4-Ton Truck, 4x4	Unpaved - public	6.4	3.2	1.05E+00	1.05E-01	0%	1.05E+00	1.05E-01
Arrow Board Truck	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Arrow Board Truck	Unpaved - private	6.4	3.2	1.05E+00	1.05E-01	0%	1.05E+00	1.05E-01
Arrow Board Truck	Unpaved - public	6.4	3.2	1.05E+00	1.05E-01	0%	1.05E+00	1.05E-01
Arrowhead Trailer	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Arrowhead Trailer	Unpaved - private	6.4	3.2	1.05E+00	1.05E-01	0%	1.05E+00	1.05E-01
Arrowhead Trailer	Unpaved - public	6.4	3.2	1.05E+00	1.05E-01	0%	1.05E+00	1.05E-01
Auger Truck	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Auger Truck	Unpaved - private	6.4	3.2	1.05E+00	1.05E-01	0%	1.05E+00	1.05E-01
Auger Truck	Unpaved - public	6.4	3.2	1.05E+00	1.05E-01	0%	1.05E+00	1.05E-01
Boom Truck	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Boom Truck	Unpaved - private	6.4	3.2	1.05E+00	1.05E-01	0%	1.05E+00	1.05E-01
Boom Truck	Unpaved - public	6.4	3.2	1.05E+00	1.05E-01	0%	1.05E+00	1.05E-01
Boom/Crane Truck	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Boom/Crane Truck	Unpaved - private	6.4	3.2	1.05E+00	1.05E-01	0%	1.05E+00	1.05E-01
Boom/Crane Truck	Unpaved - public	6.4	3.2	1.05E+00	1.05E-01	0%	1.05E+00	1.05E-01
Bull Wheel Puller	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Bull Wheel Puller	Unpaved - private	6.4	3.2	1.05E+00	1.05E-01	0%	1.05E+00	1.05E-01
Bull Wheel Puller	Unpaved - public	6.4	3.2	1.05E+00	1.05E-01	0%	1.05E+00	1.05E-01
Bucket Truck	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Bucket Truck	Unpaved - private	6.4	3.2	1.05E+00	1.05E-01	0%	1.05E+00	1.05E-01
Bucket Truck	Unpaved - public	6.4	3.2	1.05E+00	1.05E-01	0%	1.05E+00	1.05E-01
Carry-all Truck	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Carry-all Truck	Unpaved - private	6.4	3.2	1.05E+00	1.05E-01	0%	1.05E+00	1.05E-01
Carry-all Truck	Unpaved - public	6.4	3.2	1.05E+00	1.05E-01	0%	1.05E+00	1.05E-01
Concrete Mixer Truck	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Concrete Mixer Truck	Unpaved - private	6.4	3.2	1.05E+00	1.05E-01	0%	1.05E+00	1.05E-01
Concrete Mixer Truck	Unpaved - public	6.4	3.2	1.05E+00	1.05E-01	0%	1.05E+00	1.05E-01
Crew Truck	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Crew Truck	Unpaved - private	6.4	3.2	1.05E+00	1.05E-01	0%	1.05E+00	1.05E-01
Crew Truck	Unpaved - public	6.4	3.2	1.05E+00	1.05E-01	0%	1.05E+00	1.05E-01
Crewcab Truck	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Crewcab Truck	Unpaved - private	6.4	3.2	1.05E+00	1.05E-01	0%	1.05E+00	1.05E-01
Crewcab Truck	Unpaved - public	6.4	3.2	1.05E+00	1.05E-01	0%	1.05E+00	1.05E-01
Crushed Rock Delivery Truck	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Crushed Rock Delivery Truck	Unpaved - private	6.4	3.2	1.05E+00	1.05E-01	0%	1.05E+00	1.05E-01
Crushed Rock Delivery Truck	Unpaved - public	6.4	3.2	1.05E+00	1.05E-01	0%	1.05E+00	1.05E-01
Dump Truck	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Dump Truck	Unpaved - private	6.4	3.2	1.05E+00	1.05E-01	0%	1.05E+00	1.05E-01
Dump Truck	Unpaved - public	6.4	3.2	1.05E+00	1.05E-01	0%	1.05E+00	1.05E-01
Delivery Truck	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Delivery Truck	Unpaved - private	6.4	3.2	1.05E+00	1.05E-01	0%	1.05E+00	1.05E-01
Delivery Truck	Unpaved - public	6.4	3.2	1.05E+00	1.05E-01	0%	1.05E+00	1.05E-01
Dump Truck (Trash)	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Dump Truck (Trash)	Unpaved - private	6.4	3.2	1.05E+00	1.05E-01	0%	1.05E+00	1.05E-01
Dump Truck (Trash)	Unpaved - public	6.4	3.2	1.05E+00	1.05E-01	0%	1.05E+00	1.05E-01
Extendable Flat Bed Pole Truck	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Extendable Flat Bed Pole Truck	Unpaved - private	6.4	3.2	1.05E+00	1.05E-01	0%	1.05E+00	1.05E-01
Extendable Flat Bed Pole Truck	Unpaved - public	6.4	3.2	1.05E+00	1.05E-01	0%	1.05E+00	1.05E-01
Truck, Semi-Tractor	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Truck, Semi-Tractor	Unpaved - private	6.4	3.2	1.05E+00	1.05E-01	0%	1.05E+00	1.05E-01
Truck, Semi-Tractor	Unpaved - public	6.4	3.2	1.05E+00	1.05E-01	0%	1.05E+00	1.05E-01
Flat Bed Truck	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Flat Bed Truck	Unpaved - private	6.4	3.2	1.05E+00	1.05E-01	0%	1.05E+00	1.05E-01
Flat Bed Truck	Unpaved - public	6.4	3.2	1.05E+00	1.05E-01	0%	1.05E+00	1.05E-01
Flat Bed Truck/Trailer	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Flat Bed Truck/Trailer	Unpaved - private	6.4	3.2	1.05E+00	1.05E-01	0%	1.05E+00	1.05E-01
Flat Bed Truck/Trailer	Unpaved - public	6.4	3.2	1.05E+00	1.05E-01	0%	1.05E+00	1.05E-01
Flat Bed Pole Truck	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Flat Bed Pole Truck	Unpaved - private	6.4	3.2	1.05E+00	1.05E-01	0%	1.05E+00	1.05E-01
Flat Bed Pole Truck	Unpaved - public	6.4	3.2	1.05E+00	1.05E-01	0%	1.05E+00	1.05E-01
Foreman Truck	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Foreman Truck	Unpaved - private	6.4	3.2	1.05E+00	1.05E-01	0%	1.05E+00	1.05E-01
Foreman Truck	Unpaved - public	6.4	3.2	1.05E+00	1.05E-01	0%	1.05E+00	1.05E-01
Lift Truck	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Lift Truck	Unpaved - private	6.4	3.2	1.05E+00	1.05E-01	0%	1.05E+00	1.05E-01
Lift Truck	Unpaved - public	6.4	3.2	1.05E+00	1.05E-01	0%	1.05E+00	1.05E-01
Lineman/Boom Truck	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Lineman/Boom Truck	Unpaved - private	6.4	3.2	1.05E+00	1.05E-01	0%	1.05E+00	1.05E-01

Table 37
Motor Vehicle Entrained Road Dust Emission Factors

Vehicle Type	Surface	Silt Content (s, %)[a]	Average Weight (W) (tons)[b]	Un-controlled PM10 Emission Factor (lb/VMT)[c]	Un-controlled PM2.5 Emission Factor (lb/VMT)[c]	Control Efficiency (%)[d]	Controlled PM10 Emission Factor (lb/VMT)[e]	Controlled PM2.5 Emission Factor (lb/VMT)[e]
Lineman/Boom Truck	Unpaved - public	6.4	3.2	1.05E+00	1.05E-01	0%	1.05E+00	1.05E-01
Low Bed Truck	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Low Bed Truck	Unpaved - private	6.4	3.2	1.05E+00	1.05E-01	0%	1.05E+00	1.05E-01
Low Bed Truck	Unpaved - public	6.4	3.2	1.05E+00	1.05E-01	0%	1.05E+00	1.05E-01
Lowboy Truck/Trailer	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Lowboy Truck/Trailer	Unpaved - private	6.4	3.2	1.05E+00	1.05E-01	0%	1.05E+00	1.05E-01
Lowboy Truck/Trailer	Unpaved - public	6.4	3.2	1.05E+00	1.05E-01	0%	1.05E+00	1.05E-01
Manlift/Bucket Truck	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Manlift/Bucket Truck	Unpaved - private	6.4	3.2	1.05E+00	1.05E-01	0%	1.05E+00	1.05E-01
Manlift/Bucket Truck	Unpaved - public	6.4	3.2	1.05E+00	1.05E-01	0%	1.05E+00	1.05E-01
Maintenance Truck	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Maintenance Truck	Unpaved - private	6.4	3.2	1.05E+00	1.05E-01	0%	1.05E+00	1.05E-01
Maintenance Truck	Unpaved - public	6.4	3.2	1.05E+00	1.05E-01	0%	1.05E+00	1.05E-01
Material Handling Truck	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Material Handling Truck	Unpaved - private	6.4	3.2	1.05E+00	1.05E-01	0%	1.05E+00	1.05E-01
Material Handling Truck	Unpaved - public	6.4	3.2	1.05E+00	1.05E-01	0%	1.05E+00	1.05E-01
Pipe Truck/Trailer	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Pipe Truck/Trailer	Unpaved - private	6.4	3.2	1.05E+00	1.05E-01	0%	1.05E+00	1.05E-01
Pipe Truck/Trailer	Unpaved - public	6.4	3.2	1.05E+00	1.05E-01	0%	1.05E+00	1.05E-01
Pulling Rig	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Pulling Rig	Unpaved - private	6.4	3.2	1.05E+00	1.05E-01	0%	1.05E+00	1.05E-01
Pulling Rig	Unpaved - public	6.4	3.2	1.05E+00	1.05E-01	0%	1.05E+00	1.05E-01
Pumper/Tanker Truck	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Pumper/Tanker Truck	Unpaved - private	6.4	3.2	1.05E+00	1.05E-01	0%	1.05E+00	1.05E-01
Pumper/Tanker Truck	Unpaved - public	6.4	3.2	1.05E+00	1.05E-01	0%	1.05E+00	1.05E-01
Reel Truck	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Reel Truck	Unpaved - private	6.4	3.2	1.05E+00	1.05E-01	0%	1.05E+00	1.05E-01
Reel Truck	Unpaved - public	6.4	3.2	1.05E+00	1.05E-01	0%	1.05E+00	1.05E-01
Rodder Truck	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Rodder Truck	Unpaved - private	6.4	3.2	1.05E+00	1.05E-01	0%	1.05E+00	1.05E-01
Rodder Truck	Unpaved - public	6.4	3.2	1.05E+00	1.05E-01	0%	1.05E+00	1.05E-01
Sock Line Puller	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Sock Line Puller	Unpaved - private	6.4	3.2	1.05E+00	1.05E-01	0%	1.05E+00	1.05E-01
Sock Line Puller	Unpaved - public	6.4	3.2	1.05E+00	1.05E-01	0%	1.05E+00	1.05E-01
Splice Lab Truck	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Splice Lab Truck	Unpaved - private	6.4	3.2	1.05E+00	1.05E-01	0%	1.05E+00	1.05E-01
Splice Lab Truck	Unpaved - public	6.4	3.2	1.05E+00	1.05E-01	0%	1.05E+00	1.05E-01
Splicing Lab	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Splicing Lab	Unpaved - private	6.4	3.2	1.05E+00	1.05E-01	0%	1.05E+00	1.05E-01
Splicing Lab	Unpaved - public	6.4	3.2	1.05E+00	1.05E-01	0%	1.05E+00	1.05E-01
Splicing Rig	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Splicing Rig	Unpaved - private	6.4	3.2	1.05E+00	1.05E-01	0%	1.05E+00	1.05E-01
Splicing Rig	Unpaved - public	6.4	3.2	1.05E+00	1.05E-01	0%	1.05E+00	1.05E-01
Static Truck/Tensioner	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Static Truck/Tensioner	Unpaved - private	6.4	3.2	1.05E+00	1.05E-01	0%	1.05E+00	1.05E-01
Static Truck/Tensioner	Unpaved - public	6.4	3.2	1.05E+00	1.05E-01	0%	1.05E+00	1.05E-01
Tool Trailer	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Tool Trailer	Unpaved - private	6.4	3.2	1.05E+00	1.05E-01	0%	1.05E+00	1.05E-01
Tool Trailer	Unpaved - public	6.4	3.2	1.05E+00	1.05E-01	0%	1.05E+00	1.05E-01
Troubleman Truck	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Troubleman Truck	Unpaved - private	6.4	3.2	1.05E+00	1.05E-01	0%	1.05E+00	1.05E-01
Troubleman Truck	Unpaved - public	6.4	3.2	1.05E+00	1.05E-01	0%	1.05E+00	1.05E-01
Truck, Semi Tractor	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Truck, Semi Tractor	Unpaved - private	6.4	3.2	1.05E+00	1.05E-01	0%	1.05E+00	1.05E-01
Truck, Semi Tractor	Unpaved - public	6.4	3.2	1.05E+00	1.05E-01	0%	1.05E+00	1.05E-01
Van	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Van	Unpaved - private	6.4	3.2	1.05E+00	1.05E-01	0%	1.05E+00	1.05E-01
Van	Unpaved - public	6.4	3.2	1.05E+00	1.05E-01	0%	1.05E+00	1.05E-01
Water Truck	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Water Truck	Unpaved - private	6.4	3.2	1.05E+00	1.05E-01	0%	1.05E+00	1.05E-01
Water Truck	Unpaved - public	6.4	3.2	1.05E+00	1.05E-01	0%	1.05E+00	1.05E-01
Wire Truck/Trailer	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Wire Truck/Trailer	Unpaved - private	6.4	3.2	1.05E+00	1.05E-01	0%	1.05E+00	1.05E-01
Wire Truck/Trailer	Unpaved - public	6.4	3.2	1.05E+00	1.05E-01	0%	1.05E+00	1.05E-01
Worker Commute	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Worker Commute	Unpaved - private	6.4	3.2	1.05E+00	1.05E-01	0%	1.05E+00	1.05E-01
Worker Commute	Unpaved - public	6.4	3.2	1.05E+00	1.05E-01	0%	1.05E+00	1.05E-01
Subtransmission Line Inspection	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Subtransmission Line Inspection	Unpaved - private	6.4	3.2	1.05E+00	1.05E-01	0%	1.05E+00	1.05E-01
Subtransmission Line Inspection	Unpaved - public	6.4	3.2	1.05E+00	1.05E-01	0%	1.05E+00	1.05E-01
Substation Site Visit	Paved	0.035	3.2	8.01E-04	0.00E+00	0%	8.01E-04	0.00E+00
Substation Site Visit	Unpaved - private	6.4	3.2	1.05E+00	1.05E-01	0%	1.05E+00	1.05E-01
Substation Site Visit	Unpaved - public	6.4	3.2	1.05E+00	1.05E-01	0%	1.05E+00	1.05E-01

[a] Paved road silt content from ARB Emission Inventory Methodology 7.9, Entrained Paved Road Dust (1997) for collector roads, http://www.arb.ca.gov/ei/areasrc/fullpdf/full7-9.pdf
Unpaved road moisture content obtained from the WRAP Handbook, (2006) Table 6.2 Typcial Silt Content Values of Surface Material of Public Unpaved Roads

[b] Average paved on-road vehicle weight in Riverside County from ARB Emission Inventory Methodology 7.9, Entrained Paved Road Dust (1997)
Unpaved worker commuting weight on access road assumed to be same as paved road weight
Unpaved weight for other trucks is based on upper limit of 33,000 lbs for medium heavy-duty trucks.

Table 37
Motor Vehicle Entrained Road Dust Emission Factors

Vehicle Type	Surface	Silt Content (s, %)[a]	Average Weight (W) (tons)[b]	Un-controlled PM10 Emission Factor (lb/VMT)[c]	Un-controlled PM2.5 Emission Factor (lb/VMT)[c]	Control Efficiency (%)[d]	Controlled PM10 Emission Factor (lb/VMT)[e]	Controlled PM2.5 Emission Factor (lb/VMT)[e]

[c] Equations:

EF(paved) = k_{α} $(sL/2)^{0.65}$ $(W/3)^{1.5}$ - C Ref: AP-42, Section 13.2.1, "Paved Roads," November 2006

EF (unpaved) = k $(s/12)^{a}$ $(S/30)^{d}$/$(M/0.5)^{c}$ - C Ref: AP-42, Section 13.2.2, "Unpaved Roads," November 2006

[d] No control efficiency applied.

Constants:

k_{α} =	0.016	(Particle size multiplier for PM10)
	0.0024	(Particle size multiplier for PM2.5)
C =	0.00047	(Exhaust, brake wear and tire wear adjustment, PM10)
	0.00036	(Exhaust, brake wear and tire wear adjustment, PM2.5)
k =	1.8	(Particle size multiplier for PM10)
	0.18	(Particle size multiplier for PM2.5)
S =	25	Vehicle Speed (mile per hour), public roads
	25	Vehicle Speed (mile per hour), private roads
a =	1	for PM10
	1	for PM2.5
^{c} =	0.2	for PM10
	0.2	for PM2.5
d =	0.5	for PM10
	0.5	for PM2.5

Table 38
Fugitive Dust Emission Factors
Soil Dropping During Excavation

Emission Factor [lb/cu. yd] = 0.0011 x (mean wind speed [mi/hr] / 5)$^{1.3}$ / (moisture [%] / 2)$^{1.4}$ x (number drops per ton) x (density [ton/cu. yd])
Reference: AP-42, Equation (1), Section 13.2.4, November 2006

Parameter	Value	Basis
Mean Wind Speed	12	SCAQMD CEQA Air Quality Handbook (1993), Table 9-9-G, default
Moisture	2	SCAQMD CEQA Air Quality Analysis Handbook, Table A9-9-F-2 for dry soil
Number Drops	4	Assumption
Soil Density	1.215	Table 2.46, Handbook of Solid Waste Management

Controlled PM10 Emission Factor 1.67E-02 lb/cu. yd
Controlled PM2.5 Emission Factor[a] 3.47E-03 lb/cu. yd

[a] PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction of PM10 in Construction Dust = 0.208 from Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006

Emissions [pounds per day] = Controlled emission factor [pounds per cubic yard] x Volume soil handled [cubic yards per day]

Storage Pile Wind Erosion

Emission Factor [lb/day-acre] = 0.85 x (silt content [%] / 1.5) x (365 / 235) x (percentage of time unobstructed wind exceeds 12 mph / 15)
Reference: SCAQMD CEQA Air Quality Handbook (1993), Table 9-9-E

Parameter	Value	Basis
Silt Content	7.5	SCAQMD CEQA Air Quality Analysis Handbook, Table A9-9-F-2 for overburden
Pct. time wind > 12 mph	100	Worst-case assumption

PM10 Emission Factor (Uncontrolled) 44.0 lb/day-acre
Reduction from watering 90% Control efficiency from watering storage pile by hand at a rate of 1.4 gallons/hour-yard^2, Table XI-B, Mitigation Measure Examples, Fugitive Dust from Materials Handling, http://www.aqmd.gov/ceqa/handbook/mitigation/fugitive/MM_fugitive.html
Controlled PM10 Emission Factor 4.4 lb/day-acre
Controlled PM2.5 Emission Factor[a] 0.9 lb/day-acre

[a] PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction of PM10 in Construction Dust = 0.208 from Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006

Emissions [pounds per day] = Controlled emission factor [pounds per acre-day] x Storage pile surface area [acres]

Bulldozing, Scraping and Grading

Emission Factor [lb/hr] = 0.75 x (silt content [%])$^{1.5}$ / (moisture)$^{1.4}$
Reference: AP-42, Table 11.9-1, July 1998

Parameter	Value	Basis
Silt Content	7.5	SCAQMD CEQA Air Quality Analysis Handbook, Table A9-9-F-2 for overburden
Moisture	2	SCAQMD CEQA Air Quality Analysis Handbook, Table A9-9-F-2 for dry soil

Controlled PM10 Emission Factor 5.837 lb/hr
Controlled PM2.5 Emission Factor[a] 1.214 lb/hr

[a] PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction of PM10 in Construction Dust = 0.208 from Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006

[b] Watering is assumed to be used to maintain moist conditions, so no further reduction from watering is included.

Emissions [pounds per day] = Controlled emission factor [pounds per hour] x Bulldozing, scraping or grading time [hours/day]