SOUTHERN CALIFORNIA EDISON'S FALCON RIDGE SUBSTATION PROJECT

CPUC A.10-12-017
SCH NO. 2011041009

Draft Environmental Impact Report

Appendices

Prepared for
California Public Utilities Commission

January 2012

ESA

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APPENDIX A
Scoping Report

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FALCON RIDGE SUBSTATION PROJECT

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SCOPING REPORT

Falcon Ridge Substation Project

1. Introduction

Southern California Edison Company (SCE) has filed an application (A.10-12-017) with the California Public Utilities Commission (CPUC) for a Permit to Construct (PTC) the Falcon Ridge Substation Project (Project). Based on its review of the application and the Proponent's Environmental Assessment (PEA), the CPUC decided to prepare an Environmental Impact Report (EIR) for the Project. As contemplated in CEQA Guidelines Section 15060(d), no initial study was prepared. The CPUC formally began the process of determining the scope of issues and alternatives to be evaluated in the EIR (a process called "scoping") when it issued a Notice of Preparation (NOP) for the Project on March 30, 2011.

The NOP initiated agency consultation about the scope and content of information to be analyzed in the EIR and invited early public input about potential environmental concerns (Pub. Res. Code § 21080.4(a); CEQA Guidelines §§ 15082(b), 15083). CEQA Guidelines Section 15083 provides that a "Lead Agency may…consult directly with any person…it believes will be concerned with the environmental effects of the project." Scoping is the process of early consultation with the affected agencies and public prior to completion of a Draft EIR. Section 15083(a) states that scoping can be "helpful to agencies in identifying the range of actions, alternatives, mitigation measures, and significant effects to be analyzed in depth in an EIR and in eliminating from detailed study issues found not to be important." Scoping is an effective way to bring together and consider the concerns of affected State, regional, and local agencies, the project proponent, and other interested persons (CEQA Guidelines § 15083(b)).

This Scoping Report provides an overview and a summary of the written and oral comments provided by agencies and individuals during the scoping period, a 30-day period which closed on April 29, 2011. The CPUC will use this Scoping Report as a tool to ensure the preparation of a comprehensive EIR tailored to agency and community concerns. Pursuant to CEQA Guidelines Section 15082, all public comments will be considered[1] in the EIR process.

1 Comments not within the scope of CEQA will not be addressed through the CEQA process.

2. Description of the Project

2.1 Project Summary

The Project consists of the following primary elements:

- Construction of an unattended, automated 56 MVA 66/12 kilovolt (kV) low-profile substation (Falcon Ridge Substation) located on a 7.5-acre parcel in the City of Fontana;
- Installation of two 66 kV subtransmission source line segments to connect the Falcon Ridge Substation to the existing Alder 66/12 kV Substation and existing Etiwanda 220/66 kV Substation (upgrades would occur within each of these substations to accommodate the Project);
- Construction of three underground 12 kV distribution getaways; and
- Installation of telecommunications (fiber-optic) facilities at the proposed Falcon Ridge Substation, installation of fiber-optic cable on the proposed 66 kV subtransmission source lines, and modification of the existing telecommunications facilities at the existing Etiwanda and Alder Substations to connect the proposed substation to SCE's existing telecommunications network.

2.2 Project Location

The Project would be located in the cities of Rancho Cucamonga, Rialto, Fontana, and a portion of unincorporated San Bernardino County, California. The Falcon Ridge Substation would be south of Casa Grande Avenue, east of Sierra Avenue, north of Summit Avenue and adjacent to SCE's existing transmission right-of-way (ROW) in the City of Fontana. The proposed Adler Subtransmission Source Line would connect the existing Alder Substation to the proposed Falcon Ridge Substation. The new 66 kV subtransmission line would leave Alder Substation and parallel West Casmalia Street until it reaches Mango Avenue. The line then would traverse north along the future extension of Mango Avenue until it reaches the proposed Falcon Ridge Substation site. The Etiwanda Subtransmission Source Line would connect to the existing Etiwanda Substation. The new 66 kV subtransmission line would exit Etiwanda Substation and extend northeast within SCE's existing transmission ROW until it intersects with South Highland Avenue. The line then would parallel South Highland Avenue until its intersection with San Sevaine Road. The subtransmission line would then extend north paralleling San Sevaine Road spanning the 210 Freeway at right angles until San Sevaine Road intersects with SCE's existing transmission ROW. The 66 kV subtransmission facilities then would extend northeast within SCE's existing transmission ROW until it intersects Summit Avenue.

3. Opportunities for Public Comment

3.1 Notification

On Wednesday, March 30, 2011, the CPUC published and distributed an NOP to solicit input from federal, State and local agencies on the scope and content of information to be considered in an EIR for the Project. A copy of the NOP was sent to the State Clearinghouse of the Office of Planning and Research, which assigned 2011041009 as the Project's unique State identification number. The NOP described the Project, included a map showing the location of proposed components of the Project and identified potential environmental impacts. A copy of the NOP is provided in Appendix A.

In addition to soliciting agency input, the CPUC invited public participation in a workshop and Scoping Meeting for the Project through newspaper legal advertisements and the CPUC's website. The CPUC published legal advertisements in the Fontana Herald News on April 8, 2011, and in the Inland Valley Daily Bulletin (formerly The Daily Report) on April 8, 2011 and April 11, 2011. Copies of the newspaper notices are provided in Appendix B. An electronic copy of the NOP also was posted on the CPUC's website established for the Project: http://www.cpuc.ca.gov/Environment/info/esa/falconridge/index.html.

3.2 Public Workshop and Scoping Meetings

The CPUC conducted a public workshop and Scoping Meeting on Thursday, April 14, 2011, at Summit High School, located at 15551 Summit Avenue, Fontana, California. The workshop was held from 6:30 p.m. to 7:00 p.m. and the Scoping Meeting was held immediately thereafter: from 7:00 p.m. until 8:30 p.m. Seven members of the public attended. John Boccio of the CPUC, Janna Scott and Julie Holst of Environmental Science Associates (ESA), consultant to the CPUC, and three representatives of SCE also attended. The sign-in sheet from the Scoping Meeting is provided in Appendix C.

Meeting attendees were provided with materials including presentation slides, written comment forms, and speaker cards. Copies of the NOP also were available upon request. During the workshop, explanations were provided concerning participants and their roles, the CPUC's decision and environmental review process, and what opportunities exist for public participation. During the Scoping Meeting, a Project overview was provided, alternatives identified by SCE were presented, ideas about other possible alternatives were solicited, next steps were outlined, and public comments were accepted. A court reporter's transcript of the public comments portion of the Scoping Meeting is included in Appendix E.

The CPUC conducted follow-up Scoping Meetings on May 11, 2011, with the cities of Fontana and Rialto at the request of these cities. During these meetings, the cities provided additional oral comments on the scope of the analysis and alternatives to be considered in the Project EIR (see Appendix G).

4. Summary of Scoping Comments

Five members of the public provided comments on the Project during the April 14, 2011, public Scoping Meeting (see Appendix E). The CPUC received additional comments in writing during the comment period. Copies of the written comments are provided in Appendix F. In addition to the Scoping Meeting oral comments, the City of Fontana and the City of Rialto provided oral comments at the May 11, 2011 follow-up Scoping Meetings. Commenting parties and summaries of the comments received are provided below.

TABLE 1
PARTIES SUBMITTING COMMENTS DURING
THE FALCON RIDGE SUBSTATION PROJECT EIR SCOPING PROCESS

Name	Organization/Affiliation	Date/Received Date
Written Comments		
Robert Copeland	Fontana Unified School District	April 4, 2011
Jeffrey L. Pierson	Unitex Management Corporation	April 4, 2011
Katy Sanchez	Native American Heritage Commission	April 7, 2011
Gina Gibson	City of Rialto	April 14, 2011
Don Williams	City of Fontana	April 14, 2011
Michael Daudt	J.W. Mitchell Land Company, LLC	April 29, 2011
Jeff Brandt	Department of Fish and Game	April 29, 2011
Oral Comments		
Charles Fahie	City of Fontana	April 14, 2011
Ray Allard	Allard Engineering	April 14, 2011
Donna Horowitz	Homeowner	April 14, 2011
Gina Gibson	City of Rialto	April 14, 2011
Al Terrelson	City of Rialto	April 14, 2011
Charles Fahie and Don Williams	City of Fontana	May 11, 2011
Gina Gibson and Walter Allison	City of Rialto	May 11, 2011

4.1 Comments Received During the Scoping Process

The following discussion summarizes both the oral and written comments received during the scoping period. To see the exact comments, please refer to Appendix E, which contains the April 14, 2011, Scoping Meeting transcript, and Appendix F, which contains copies of the written comments received on the Project.

Specific comments are categorized by topical areas for the convenience of reviewers and responders.

4.2 Issues to Be Considered under CEQA

Project Description

- The City of Fontana noticed that the Project Description in the original application was incorrect. The Project Description stated that the proposed subtransmission source lines would stay within existing SCE corridor with the exception of those on San Sevaine Avenue and south Highland Avenue. However, a portion of the Project that would be across Sierra Avenue would not be within the existing corridor (Oral - Fahie).

- The Project Description is incorrect because it states that the Project would be within the existing corridor when actually it would be outside of the existing corridor. The commenter wonders when the Project Description will be amended to make the environmental analysis more accurate (Oral - Fahie).

- The City of Rialto wants to know the side of the street on which transmission lines would be installed (Oral - City of Rialto).

Aesthetics

- Proposed 66 kV transmission lines may result in potentially significant impacts without Applicant Proposed Measures to reduce impacts to designated scenic viewsheds/scenic corridors (designated in the Community Design Element, Goal No.1, of the City of Fontana General Plan) north of Summit Avenue, north along Sierra Avenue, north along Citrus Avenue and Cypress Avenue and west along Baseline Avenue unless they are underground. This is contrary to the No Impact findings in the PEA Page 4.1-21, third paragraph (Written - City of Fontana).

- Visual impacts of the Falcon Ridge Substation cannot be determined or deemed to be "less than significant" without a detail of the landscaping and screening that would be provided; this detail should have been included in the PEA (Written - City of Fontana).

- The proposed 66 kV subtransmission source lines should be installed underground at existing parks, adjacent to existing residential dwelling units and approved residential projects (primarily north of Summit Avenue) at scenic crossings such as Sierra Avenue, Baseline Avenue, and Citrus Avenue, and along any new ROW (along South Highland Avenue and San Sevaine Avenue) (Written - City of Fontana).

- A detailed landscaping plan should be provided for the Falcon Ridge Substation with visual simulations to ensure less than significant visual impacts (Written - City of Fontana).

- The City of Fontana is concerned with the aesthetic impacts of the proposed subtransmission source lines. The visual simulations that were submitted with the application did not depict the impacts near residential development or scenic corridors as designated by the General Plan. Scenic corridors were ignored in SCE's PEA and the City of Fontana would like impacts on them to be reevaluated (Oral - Fahie).

- The City of Fontana would like underground installation of the transmission source lines to be considered in some locations to reduce impacts to aesthetics. The existing transmission lines in the corridors are far apart and the lines are fairly high. However, the new lines would fit within a view corridor below and in between the existing lines that is not currently affected. The City of Fontana believes that related impacts should be evaluated and addressed in the environmental document (Oral - Fahie).

- The City of Fontana is concerned about the location proposed for the Falcon Ridge Substation. Details on landscaping or screening of the Falcon Ridge Substation were not provided in the PEA. The City would like to give input on landscaping and screening early in the CEQA process to ensure that the Falcon Ridge Substation is going to be screened adequately from residents and travelers on Sierra Avenue (Oral - Fahie).

- A member of the public is concerned about obstruction of views of the foothills (Oral - Horowitz).

- A member of the public is concerned that the towers would be ugly (Oral - Horowitz).

- The City of Rialto believes that the Project would have an impact on aesthetics (Oral - Gibson).

- The EIR must not simply conclude that the Project would not result in significant visual and aesthetic impacts merely because the proposed subtransmission source line route already features existing 500 kV steel towers and associated overhead lines. Instead the EIR must give due consideration to whether the construction of additional towers and overhead lines – which would move SCE infrastructure significantly closer to planned residential uses and thereby reduce the usability of the land – would substantially degrade the visual character of the Project area (Written – J.W. Mitchell Land Company, LLC).

Biological Resources

- Implementation of the Project may impact chaparral or Riversidean sage scrub habitat. Species that may be found in the area include: San Bernardino kangaroo rat and coastal California gnatcatcher (federally listed), Pacific pocket mouse, Northwestern San Diego pocket mouse, burrowing owl, San Diego horned lizard, Cooper's hawk, red-tailed hawk, San Diego black-tailed jackrabbit, Belding's orange-throated whiptail, and assorted raptors. Many of these animals are State Species of Special Concern (Written – California Department of Fish and Game [CDFG]).

- "Species of Special Concern" status applies to animals not listed under the federal Endangered Species Act (FESA) or the California Endangered Species Act (CESA), but which (1) are declining at a rate that could result in listing, or (2) historically occurred in low numbers and known threats to their persistence currently exist. This designation is intended to result in special consideration for these animals by the Department of Fish and Game, land managers, consulting biologists, and others, and is intended to focus attention on the species to help avert the need for costly listing under federal and State endangered species laws. For these reasons, the Department of Fish and Game recommends that mitigation be provided for impacts to these species (Written - CDFG).

- CDFG advises that any biological habitat assessments or walkovers be conducted within a year of distribution of the CEQA document. Habitat assessments that identify the possibility of listed threatened or endangered plants should also provide the results of any focus surveys in the CEQA document. CEQA documents that rely on future surveys or regulatory compliance (with the exception of pre construction surveys for burrowing owls or bird nests) as mitigation may not satisfy CDFG's obligations under CEQA and may require future supplemental documents processed via CEQA (Written - CDFG).

- The existing condition of a project site as "ruderal," "degraded," or "agriculture use" by the lead agency does not preclude the presence of native species, such as grassland species, the burrowing owl, foraging raptors, or riparian species. A basic biological resources survey should still be conducted at these sites and the result included in the CEQA document (Written - CDFG).

- CDFG is concerned about the continuing loss of jurisdictional waters of the State and the encroachment of development into areas with native habitat values. The EIR should contain sufficient, specific, and current biological information on the existing habitat and species at the project site; measures to minimize and avoid sensitive biological resources; and mitigation measures to offset the loss of native flora and fauna and State waters. If the project site contains Federally- or State-listed species, the EIR should include measures to compensate for the loss of biological resources. The EIR should not defer impact analysis and mitigation measures to future regulatory discretionary actions, such as a Lake or Streambed Alteration Agreement, CESA permit, or FESA permit (Written - CDFG).

- This particular project has the potential to have significant environmental impacts on sensitive flora and fauna resources, including Federally- and State-listed endangered species. Therefore, the EIR should include an alternatives analysis that focuses on environmental resources and ways to avoid or minimize impacts to those resources (Written - CDFG).

- The following information should be included in any focused biological report or supplemental environmental report:

    1. A complete assessment of the flora and fauna within and adjacent to the project area, with particular emphasis upon identifying endangered, threatened, and locally unique species and sensitive habitats.

        a. A thorough assessment of rare plants and rare natural communities, following CDFG's November 2009 guidance for Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities. The guidance documents can be found at the following link: http://www.dfg.ca.gov/biogeodata/cnddb/pdfs/Protocols_for_Surveying_and_Evaluating_Impacts.pdf

        b. A complete assessment of sensitive fish, wildlife, reptile, and amphibian species. Seasonal variations in use of the project area should also be considered. Focused species-specific surveys, conducted at the appropriate time of year and time of day when the sensitive species are active or otherwise identifiable, are required. Acceptable species-specific survey procedures should be developed in consultation with the CDFG and the U.S. Fish and Wildlife Service.

        c. Rare, threatened, and endangered species to be addressed should include all those which meet the CEQA definition (See CEQA Guidelines 15380)

        d. CDFG's California Natural Diversity Database in Sacramento should be contacted at (916) 327-5960 to obtain current information on any previously reported sensitive species and habitat, including Significant Natural Areas identified under Chapter 12 of the California Fish and Game Code.

    2. A thorough discussion of the direct, indirect, and cumulative impacts expected to adversely affect biological resources, with specific measures to offset such impacts.

a. CEQA Guidelines Section 15125(a) directs that knowledge of the regional setting is critical to an assessment of environmental impacts and that species emphasis should be placed on resources that are rare or unique to the region.

b. Project impacts should be analyzed relative to their affects on off-site habitats. Specifically, this should encompass adjacent public lands, open space, adjacent natural habitats, and riparian ecosystems. In addition, impacts to and maintenance of wildlife corridor/movement areas, including access to undisturbed habitat in adjacent areas, should be fully evaluated and provided.

c. The zoning of areas for development projects or other uses that are nearby or adjacent to natural areas may inadvertently contribute to wildlife-human interactions. A discussion of possible conflicts and mitigation measures to reduce these conflicts should be included in the environmental document.

d. A cumulative effects analysis should be developed as described under CEQA Guidelines Section 15130. General and specific plans, as well as past, present, and anticipated future projects, should be analyzed relative to their impacts on similar plant communities and wildlife habitats.

e. The document should include an analysis of the effect that the project may have on regional and/or subregional conversation programs or Habitat Conservation Plans. Under Sections 2800-2835 of the California Fish and Game Code, the CDFG, through the Natural Communities Conservation Planning (NCCP) program is coordinating with local jurisdictions, landowners, and the Federal Government to preserve local and regional biological diversity.

3. A range of alternatives should be analyzed to ensure that alternatives to the Project are fully considered and evaluated (CEQA Guidelines Section 15126.6). A range of alternatives, which avoid or otherwise minimize impacts to sensitive biological resources, should be included. Specific alternative locations should also be evaluated in areas with lower resource sensitivity where appropriate.

a. Mitigation measures for project impacts to sensitive plants, animals, and habitats should emphasize evaluation and selection of alternatives that avoid and/or otherwise minimize project impacts. Off-site compensation for unavoidable impacts through acquisition and protection of high-quality habitat should be addressed.

b. CDFG considers Rare Natural Communities as threatened habitats having both local and regional significance. Thus, these communities should be fully avoided and otherwise protected from project-related impacts. These habitats include, but are not limited to Riversidean alluvial fan sage scrub, coastal sage and riparian habitat.

c. CDFG generally does not support the use of relocation salvage, and/or transplantation as mitigation for impacts to rare, threatened, or endangered species. CDFG studies have shown that these efforts are experimental in nature and largely unsuccessful.

4. A CESA permit must be obtained, if the Project has the potential to result in “take” of species of plants or animals listed under CESA, wither during construction or over the life of the project. CESA permits are issued to conserve, protect, enhance, and

restore State-listed threatened or endangered species and their habitats. Early consultation is encouraged, as significant modification to the Project and mitigation measures may be required in order to obtain a CESA permit. Revisions to the California Fish and Game Code, effective January 1998, require that CDFG issue a separate CEQA document for the issuance of a CESA permit unless the project CEQA document addresses all project impacts to listed species and specifies a mitigation monitoring and reporting program that would meet the requirements of a CESA permit. For these reasons, the following information is requested:

a. Biological mitigation, monitoring, and reporting proposals should be of sufficient detail and resolution to satisfy the requirements for a CESA permit.

b. A CDFG-approved Mitigation Agreement and Mitigation Plan is required for plants listed as rare under the Native Plant Protection Act.

5. CDFG opposes the elimination of watercourses and/or their channelization or conservation to subsurface drains. All wetlands and watercourses, whether intermittent or perennial, must be retained and provided with substantial setbacks which preserve the riparian and aquatic values and maintain their value to on-site and off-site wildlife populations.

a. Under Section 1600 et seq. of the California Fish and Game Code, CDFG required SCE to notify CDFG of any activity that would divert, obstruct, or change the natural flow or the bed, channel or bank (which includes associated riparian resources) of a river, stream or lake, or use material from a streambed prior to SCE’s commencement of the activity. Steams include, but are not limited to, intermittent and ephemeral streams, rivers, creeks, dry washes, sloughs, blue-line streams, and watercourses with subsurface flow. CDFG’s issuance of a Lake and Streambed Alteration Agreement for a project this is subject to CEQA would require CEQA compliance actions by CDFG as a responsible agency. CDFG, as a responsible agency under CEQA, may consider the Lead Agency’s EIR for the project. However, if the CEQA document does not fully identify potential impacts to lakes, streams, and associated resources (including, but not limited to riparian and alluvial fan sage scrub habitat) and provide adequate avoidance, mitigation, monitoring, and reporting commitments, additional CEQA documentation would be required prior to execution (signing) of the Streambed Alteration Agreement. In order to avoid delays or repetition of the CEQA process, potential impacts to a lake or stream, as well as avoidance and mitigation measures need to be discussed within this CEQA document. CDFG recommends the following measures to avoid subsequent CEQA documentation and project delays:

i. Incorporate all information regarding impacts to lakes, streams and associated habitat within the EIR. Information that should be included within this document includes: (a) a delineation of lakes, streams, and associated habitat that would be directly or indirectly impacted by the Project; (b) details on the biological resources (flora and fauna) associated with the lakes and/or streams; (c) identification of the presence or absence of sensitive plants, animals, or natural communities; (d) a discussion of environmental alternatives; (e) a discussion of avoidance measures to reduce project impacts, (f) a discussion of potential mitigation measures required to reduce the project impacts to a level of insignificance; and (g) an analysis of impacts to habitat caused by a lead agency should keep in mind that the State also has a policy of no net loss of wetlands.

ii. CDFG recommends that SCE and/or the CPUC consult with CDFG to discuss potential project impacts and avoidance and mitigation measures. Early consultation with CDFG is recommended since modification of the Project may be required to avoid or reduce impacts to fish and wildlife resources. A Streambed Alteration Agreement Notification package is available on CDFG's website: http://www.dfg.ca.gov/habcon/1600 (Written - CDFG).

Cultural Resources

- The Native American Heritage Commission (NAHC) recommends contacting the appropriate regional archeological Information Center for a record search. The record search will determine: if a part or all of the area of project effect (APE) has been previously surveyed for cultural resources; if any known cultural resources have already been recorded on or adjacent to the APE; if the probability is low, moderate, or high that cultural resources are located in the APE; and if a survey is required to determine whether previously unrecorded cultural resources are present (Written - NAHC).

- If an archeological inventory survey is required, the final stage is the preparation of a professional report detailing the findings and recommendations of the records search and field survey. The final report containing site forms, site significance, and mitigation measures should be submitted immediately to the planning department. All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum, and not be made available for public disclosure. The final written report should be submitted within three months after work has been completed to the appropriate regional archeological Information Center (Written - NAHC).

- Contact the NAHC for: a Sacred Lands File Check (USGS 7.5 minute quadrangle name, township, range and section required) and a list of appropriate Native American contacts for consultation concerning the project site and to assist in the mitigation measures (Written - NAHC).

- Lack of subsurface evidence of archeological resources does not preclude their subsurface existence. Lead agencies should include in their mitigation plan provisions for the identification and evaluation of accidentally discovered archeological resources, per CEQA Guidelines Section 15064.5(f). In areas of identified archeological sensitivity, a certified archeologist and a culturally affiliated Native American, with knowledge in cultural resources, should monitor all ground-disturbing activities. Lead agencies should include in their mitigation plan provisions for the disposition of recovered artifacts, in consultation with culturally affiliated Native Americans. Lead agencies should include provisions for discovery of Native American human remains in their mitigation plan. Health and Safety Code Section 7050.5, CEQA Guidelines Section 15064.5(e), and Public Resources Code Section 5097.98 mandate the process to be followed in the event of an accidental discovery of any human remains in a location other than a dedicated cemetery (Written - NAHC).

Land Use and Planning

- Proposed new ROW for the 66 kV subtransmission lines and access roads would significantly impact existing and approved residential development site plans resulting in potential significant impacts to existing/approved Land Uses without Applicant Proposed Measures to reduce impacts (Written - City of Fontana).

- The 30 foot ROW easement proposed in the Summit at Rosena Specific Plan area should be eliminated, or a discussion should be included in the EIR of the need for the easement and an environmental review satisfactory to address the possible use of eminent domain authority to require the easement as expressed to City staff by SCE team leaders (Written - City of Fontana).

- The ROW proposed for the 66 kV subtransmission lines on the west side of the landfill along the alignment of Mango Avenue should extend south in a straight line along the landfill until the ROW intersects Sierra Lakes Parkway (Written - City of Fontana).

- The City of Fontana has questions pertaining to impacts on Land Use. The PEA stated that the Project would result in no land use impacts in the Project Area (not even less than significant impacts were indicated). The City of Fontana believes this to be incorrect (Oral - Fahie).

- The commenter would like the document to discuss what land uses would be allowed within the utility corridor, below the transmission lines. The commenter wonders if building a road, creating a parking lot, landscaping, or maintaining a trail would be possible underneath the lines. The commenter is curious about what these options would look like. Many land uses are planned in and around utility corridors. The commenter wonders how the Project would tie in with parks in Fontana (Oral - Allard).

- There is mixing of residential and industrial land uses in Fontana. Fontana is a nice community. Lewis built a really nice shopping area, a sports center, and parks. It seems like the builders have done a nice job in Fontana, but there is no clear definition between residential areas and industrial areas (Oral - Horowitz).

- The City of Rialto believes that the Project would have an impact on land use (Oral - Gibson).

- The environmental document should contain a land use map and a zoning map to indicate different zoning designations in the respective communities for the City of Rialto, the City of Fontana, and the City of Rancho Cucamonga. The environmental document should include land use and zoning, and should consider Specific Plan designations (Oral - Gibson).

- The commenter would like more information on the projected service areas and the land uses in that service area. Then impacts on existing land uses and residents could be analyzed (Oral - Terrelson).

- This Project would have an impact on current planning of streets, utilities, and landscape amenities (Written – Unitex).

- SCE would need to obtain approximately 1 acre of new easement rights for a 30 foot wide ROW to accommodate the new subtransmission source lines (“additional ROW”). The additional ROW would pass through several specific plan areas – including the Summit at Rosena Specific Plan – and as a consequence would necessitate major modifications to existing entitlements and land use approvals. Accordingly, the EIR should evaluate potentially significant impacts related to conflicts with existing zoning designations and planned development (Written – J.W. Mitchell Land Company, LLC).

- The City of Rialto suggested researching a development called Golden Bear (Oral – City of Rialto).

Noise

- The commenter lives off Cypress Road and Summit Avenue and can hear humming from existing transmission lines. She is concerned about increased humming that would be caused by the Project (Oral - Horowitz).

- There is a high school not far from Sierra Avenue where the Falcon Ridge Substation would be. The commenter is concerned about how the noise would affect students (Oral - Horowitz).

Public Health and Safety

- The commenter states that the Project may not be safe in strong wind (Oral - Horowitz).

- Fontana has strong winds. The commenter believes that the wind load design load in Fontana is up there is 110 miles per hour, and could be more in the faults in the foothills (Oral - Allard).

- The wind load design load in Rialto is 120 miles per hour (Oral - Terrelson).

Public Services

- Title 5 of the California Code of Regulations (article 2, section 14010) provides, in part:

  The property line of the site… shall be at least the following distance from the edge of respective power line easements:

  1. 100 feet for 50-133 kV line.
  2. 150 feet for 220-230 kV line.
  3. 350 feet for 500-550 kV line.

  The current location of the future Fontana Unified School District (FUSD) Elementary School #34 site is approximately 450 feet from the Project (FUSD enclosed a map with its comments, see Appendix F). Any future changes or additions to the Project would need to maintain these minimum distances (Written - FUSD).

Transportation

- Some of the corridors are along planned streets or future roads which are impacted by land fill. Many such issues have been discussed with emergency access and primary access, but circulation should be included in the CEQA document (Oral - Terrelson).

Utilities and Service Systems

- The EIR should assess Project compatibility with relevant Fontana General Plan policies including Land Use Policy 2.2 (requiring sensitive integration of utility corridors into the community) and Public Facilities, Services, and Infrastructure Policy 9.3 (requiring collaboration with utility companies to achieve the maximum undergrounding of utility lines) (Written – J.W. Mitchell Land Company, LLC).

Alternatives

- The City of Rialto has proposed an alternative route for overhead lines; or, if the proposed route is approved, the City requests that the lines be placed underground to minimize negative impacts to Aesthetics and Land Use (Written - City of Rialto).

- The City of Fontana asks that in some locations underground installation of the transmission source lines be considered (Oral - Fahie).

- There are already many 66 kV subtransmission lines in Fontana on Walnut Avenue, Sierra Avenue, and other places. The commenter is wondering if existing poles holding these lines could also hold the proposed subtransmission source lines (Oral - Allard).

- The analysis describes a large corridor with the proposed poles on the north side of the corridor at times and on the south side of the corridor at other times. The commenter is wondering if an alternatives analysis considers and compares land use impacts on the north side versus the south side of the corridor. On one side of the corridor, many houses would be directly impacted by the Project. On the other side of the corridor, there are institutional facilities which could be impacted by the Project (Oral - Allard).

- The commenter wonders why the proposed subtransmission source lines would not be placed underground like they are in other cities. She wonders why the City of Claremont, the City of Upland, and the City of Rancho ensure that new transmission lines are placed underground, but would be overhead in the City of Fontana. The commenter wonders why residents in Fontana would have to look at 150 poles, rather than have the lines be placed underground. The commenter wonders why SCE does not have agreement with the State of California requiring transmission lines to run along non-residential areas (Oral - Horowitz).

- The City of Rialto wishes the environmental document to explain why the Project is environmentally superior to the alternative. The City of Rialto is in favor of the alternative subtransmission line route if the proposed route could not be placed underground (Oral - Gibson).

- The commenter would like to know why the proposed subtransmission source lines would not be placed underground (Oral - Horowitz).

- The commenter understands that it would be extremely expensive to install the entire subtransmission source line route underground. The City of Rialto asks that consideration be given to installing underground the subtransmission source line route in residential areas and Specific Plans at a minimum, which would be much less expensive (Oral - Gibson).

- Proposed installation of the 66 kV subtransmission source lines along the new alignment of Mango Avenue as it intercepts Casmalia Avenue (Sierra Lakes Parkway) should be considered for revisions to follow a straight line to Casmalia Avenue (Sierra Lakes Parkway) along the landfill's western boundary to reduce the Aesthetic and Land Use impacts to the existing commercial uses and future development at the Casmalia Avenue (Sierra Lakes Parkway) and Mango Avenue intersection (Written - City of Fontana).

- The commenter proposes a change in alignment of South Highland Avenue from San Sevaine Road to Cherry Avenue, and would appreciate further detail on the specific alignment of the line as it detours from the Corridor. In addition, the commenter would appreciate understanding and reviewing the rational for this detour and the whether these lines would be buried or above grade (Written - Unitex).

- Included in the reasonable range of alternatives mandated by CEQA, the EIR should consider installing underground portions of the 66 kV subtransmission source line route where appropriate to avoid impacts to existing and planned residential development (Written – J.W. Mitchell Land Company, LLC).

- The City of Rialto wishes that the preferred route be installed underground because West Casmalia is a corridor to a new Specific Plan development (Oral – City of Rialto).

- The City of Rialto wishes either that the proposed route to Alder Substation be installed underground or the alternative route to Alder Substation be approved with a slight modification. This modification entails the alternative route following Lowell Street west rather than West Casa Grande. The City prefers this modification to the alternative because of a high-end residential area and Ferguson Park, which are north of West Casa Grande. Lowell Road is surrounded by industrial area owned by UPS, and would be a better road for a transmission line. The City of Rialto never heard a response about this possible alternative from SCE (Oral - City of Rialto).

4.3 Issues Not Analyzed under CEQA

The EIR will be used to guide decision-making by the CPUC by providing an assessment of the potential environmental impacts that would result from the Project. The weighing of Project benefits (environmental, economic, or otherwise) against adverse environmental effects is outside the scope of the EIR. When the CPUC considers whether to approve SCE's application for the Project, it will consider the EIR along with economic and other considerations.

The EIR will not consider electric and magnetic fields (EMF) in the context of the CEQA analysis of potential environmental impacts because [1] there is no agreement among scientists that EMF creates a potential health risk, and [2] there are no defined or adopted CEQA standards for defining health risk from EMF. Presently, there are no applicable federal, State or local regulations related to EMF levels from power lines or related facilities, such as substations. However, CPUC policies and procedures (as reflected in decision D.06-01-042) require utilities to incorporate "low-cost" or "no-cost" measures for managing EMF from power lines up to approximately 4 percent of the total project cost.

The EIR will not consider comments related to whether or not SCE has the proper easements or ROWs for construction, operation, or maintenance of the Project. Negotiations of ROWs or easements occur between SCE and affected property owner(s) and generally do not require discretionary approval from a State or local agency. Consequently, such agreements would be outside the scope of CEQA. Any physical impacts that would occur within newly-acquired ROW as part of the Project would be assessed in the EIR.

The EIR also will not consider comments that pertain to SCE's determination of project need. The CEQA process does not require the EIR to assess Project need as established by the project applicant. In addition, CPUC General Order 131-D establishes a distinction in the review levels a project receives based on the voltage level proposed. The Project does not meet the threshold of 200 kV to qualify for a project needs assessment. Furthermore, SCE submitted an application for a PTC, which does not require an electrical needs assessment.

Economics-Related Comments Received

- The commenter wonders if there was consideration to land value degradation in light of the fact that the proposed line was not disclosed at some of real estate sales. Homeowners expected two large towers in the utility corridor, but smaller poles placed 20 feet from one of the edges is a big concern to many people (Oral - Allard).

- Had the commenter known the Project might take place, she would not have bought her home. She wishes her Realtor had disclosed information about the Project because the commenter would have found another place to live. She does not want to live close to utility towers (Oral - Horowitz).

- The commenter is concerned that property values would become worse with the Project. The commenter wonders who would want to live by the Project. She wonders if anybody would buy the home she recently purchased if they had knowledge of the Project. She is considering selling her house so that she would be able to before construction of the Project begins. (Oral - Horowitz).

EMF-Related Comments Received

- There should be discussion in the CEQA document and the PEA about the impacts or lack of impacts from EMF as a result of the additional transmission lines. At a minimum, a reference in the PEA should have been made to the addendum document which addresses this issue (Written - City of Fontana).

- The commenter has read studies about EMF and is concerned about the proposed subtransmission source lines being 30 or 40 feet from a house or backyard. Although studies say that installing transmission lines is safe in terms of EMF, the commenter believes that many people would not have bought their homes if they knew the Project would take place (Oral - Allard).

- The commenter is concerned about what would be emitted by the subtransmission lines (Oral - Horowitz).

General Comments

- The commenter believes that the proposed location for the Falcon Ridge Substation is a good choice, and that there is clearly a need for electricity (Oral - Allard).

- The commenter states that people are beginning to realize that Fontana is a nice place. The City is improving and has a chance of becoming a nice environment. That chance would decrease with the construction of the Project (Oral - Horowitz).

- The primary purpose of the City of Fontana letter was to urge the CPUC to require an EIR be completed for the project. The city is pleased that that path has been chosen (Oral - City of Fontana).

- The City of Fontana will send ESA and CPUC a list of cumulative projects and a list of specific standards and requirements (Oral – City of Fontana).

- The City of Rialto will send ESA and CPUC a list of cumulative projects, a list of required permits, usage data of Ferguson Park, and a letter specifically requesting to be a responsible agency (Oral – City of Rialto).

5. Consideration of Issues Raised in Scoping Process

A primary purpose of this Scoping Report is to document the process of soliciting and identifying comments from agencies and the public. The scoping process provides the means to determine those issues that interested participants consider to be the principal areas for study and analysis. Every issue that has been raised that falls within the scope of CEQA during scoping will be addressed and/or be considered in the EIR.

APPENDIX A

Notice of Preparation

STATE OF CALIFORNIA **JERRY BROWN, Governor**

PUBLIC UTILITIES COMMISSION
505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3298

To: **State Clearinghouse, Responsible and Trustee Agencies, Property Owners, & Interested Parties**

From: **John Boccio, Environmental Project Manager**

Subject: **NOTICE OF PREPARATION (NOP) OF AN ENVIRONMENTAL IMPACT REPORT (EIR) AND NOTICE OF AN INFORMATIONAL WORKSHOP AND SCOPING MEETING: Permit to construct electrical facilities with voltages between 50 kV and 200kV: Falcon Ridge Substation Project (A.1012017)**

Date: **March 30, 2011**

Description of Proposed Project
Pursuant to the California Environmental Quality Act (CEQA), the State of California Public Utilities Commission (CPUC) is preparing an EIR for the Project identified below, and is requesting comments on the scope and content of the EIR. Southern California Edison (SCE), in its CPUC application (A.1012017), filed on December 29, 2010, seeks a permit to construct (PTC) the Falcon Ridge Substation Project (Project), which consists of the following major elements:

- Construction of a 66/12 kilovolt (kV) substation (Falcon Ridge Substation). Falcon Ridge Substation would be an unattended, automated 56 MVA 66/12 kV low-profile substation located on a 7.5-acre parcel in the City of Fontana;
- Installation of two 66 kV subtransmission source line segments to connect the Falcon Ridge Substation to the existing Alder 66/12 kV and Etiwanda 220/66 kV substations (upgrades would occur within each of the existing substations to accommodate the Project);
- Construction of three underground 12 kV distribution getaways; and
- Installation of telecommunications facilities at the proposed Falcon Ridge Substation, installation of telecommunications fiber optic cable on the proposed 66 kV subtransmission source lines, and the modification of the existing telecommunications facilities at the Etiwanda and Alder substations to connect the proposed substation to the SCE telecommunications network..

The purpose of the Project is to serve the current and projected demand for electricity, and enhance reliability and system operational flexibility in the cities of Rancho Cucamonga, Rialto, Fontana and the surrounding areas of unincorporated San Bernardino County (Electrical Needs Area).

Location of the Project
The substation site would be located in the City of Fontana, and the subtransmission source lines would be located in the cities of Rancho Cucamonga, Fontana, Rialto, and a portion of unincorporated San Bernardino County. See Figure 1.

Issues To Be Addressed In The EIR
It has been determined that an EIR is required because the Project could result in potentially significant impacts to air quality and other environmental resources. The EIR will address all of the issues identified in the CEQA Environmental Checklist Form (see CEQA Guidelines Appendix G). The EIR will identify the potentially significant environmental effects of the Project, including those resulting from its construction, operation and maintenance. The EIR also will discuss and analyze a reasonable range of alternatives to the Project, including a No Project alternative, and alternatives to the Project that could attain most of its basic objectives while avoiding or reducing any of its significant environmental effects.

The Project and alternatives consider two potential substation sites and two potential subtransmission source routes that would connect the substation to existing substations, three new 12 kV underground distribution getaways, and telecommunications facilities to connect the substation to SCE's existing telecommunication system. Substation sites to be analyzed include at least: (A) an approximately 7.5-acre vacant parcel currently owned by SCE located south of Casa Grande Avenue, ease of Sierra Avenue, north of Summit Avenue, and adjacent to SCE's existing transmission ROW in the City of Fontana, and (B) an approximately 9.6-acre privately-owned vacant parcel located on the southeast corner of Casa Grande Avenue and Sierra Avenue in the City of Fontana. Subtransmission source lines to be analyzed include at least: (1) installation of a three-mile segment and a nine-mile segment of new subtransmission lines across land currently designated as Residential, Open Space, Mixed Use, Commercial, and Industrial; and (2) installation of a four-mile segment and a nine-mile segment of new subtransmission lines across land with the same land use designations as those for Subtransmission Source Line 1. Other alternatives may be added based on input received during the 30-day scoping period following issuance of this NOP or by the EIR team in response to potentially significant environmental impacts identified during the EIR process.

Specific areas of analysis to be addressed in the EIR include: aesthetics, agriculture and forestry resources, air quality, biological resources, cultural resources, geology and soils, greenhouse gas emissions, hazards and hazardous materials, hydrology and water quality, land use and planning, mineral resources, noise, population and housing, public services, recreation, transportation and traffic, and utilities and service systems. Where feasible, mitigation measures will be recommended to avoid or reduce potentially significant impacts. The EIR also will address potential cumulative impacts of the Project, considered together with past, other current and reasonably foreseeable future projects in the area.

Information to be included in the EIR will be based, in part, on input and comments received during the scoping period. Decision-makers, responsible and trustee agencies under CEQA, property owners, and members of the public also will have an opportunity to comment on the Draft EIR once it is issued. Additional information about the environmental review process for the Project can be found on the CPUC's website: http://www.cpuc.ca.gov/Environment/info/esa/falconridge/index.html.

Public Scoping Period for this Notice of Preparation

State law mandates a 30-day time limit after the date of the NOP for the scoping period. The scoping period for this Project begins on Wednesday, March 30, 2011, and closes at 5:00 p.m. on Friday, April 29, 2011. Please include a name, organization (if applicable), address, and e-mail address of a contact person for all future notification related to this process. Public comments will become part of the public record and will be published in a Scoping Report.

Please send your comments to:

Mr. John Boccio
Falcon Ridge Substation Project
c/o Environmental Science Associates
225 Bush Street, Suite 1700
San Francisco, CA 94104
E-mail: FalconRidge@esassoc.com
Fax: (415) 896-0332

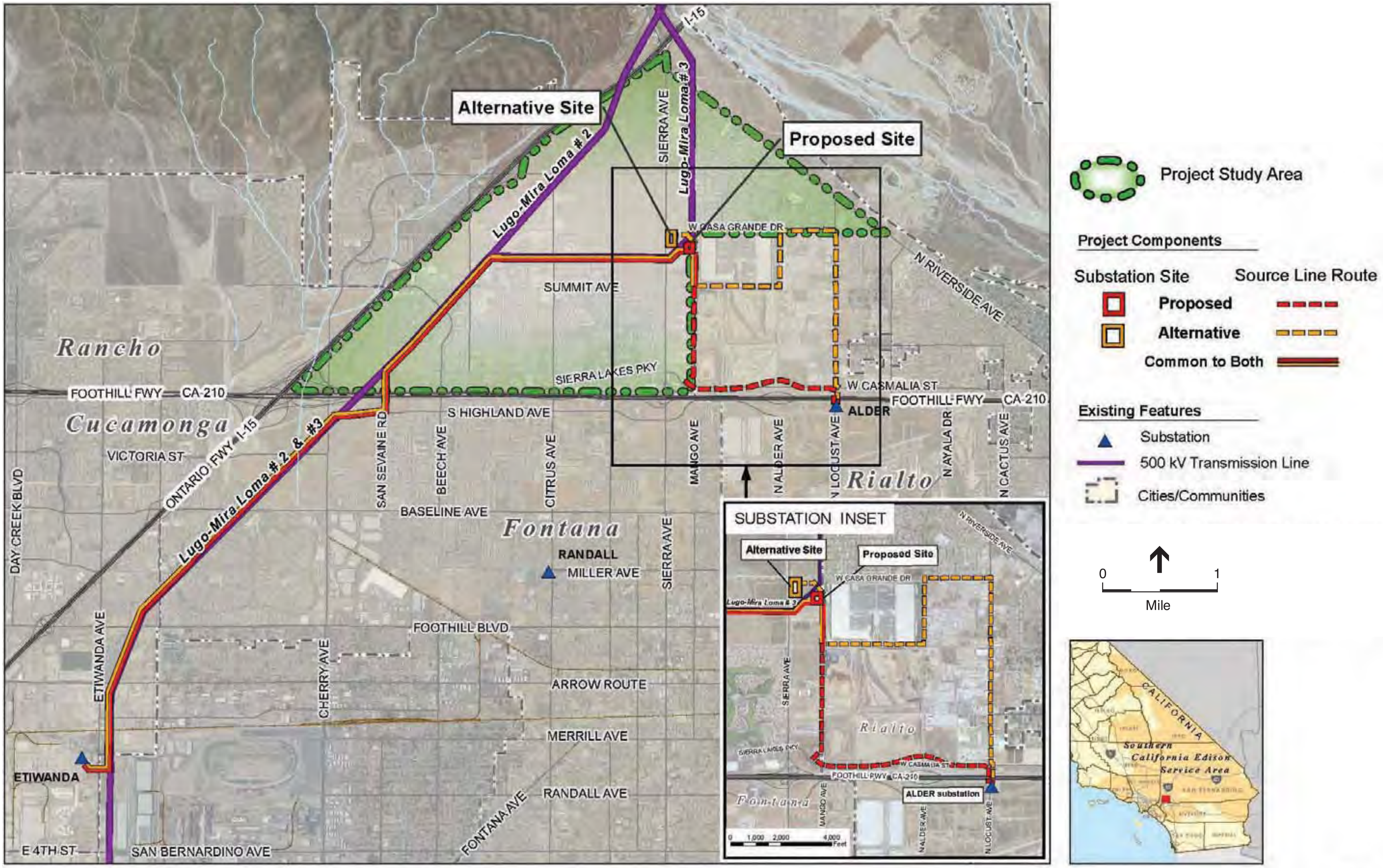
Educational Workshop and Scoping Meeting
In order for the public and regulatory agencies to have an opportunity to submit comments on the scope of the EIR for the Project, a meeting will be held during the NOP scoping period. The meeting will be held:

Thursday, April 14, 2011
6:30 p.m. – 8:30 p.m.
Summit High School
15551 Summit Avenue
Fontana, CA 92336

From 6:30 to 7:00, the CPUC will hold an educational workshop. This workshop will address: a) CPUC's process for reviewing the Project application, b) the environmental review process, and c) details on how members of the public can become involved with each of these processes.

From 7:00 to 8:30 the CPUC will hold the official scoping meeting. The scoping meeting will start with a brief presentation providing an overview of the Project and alternatives identified to date. Following the presentation, interested parties will be provided an opportunity to provide comments about the Project. Comment forms will be supplied for those who wish to submit written comments at the scoping meeting. Written comments also may be submitted anytime during the NOP scoping period to the address, e-mail or facsimile number provided above.

REMINDER: All comments will be accepted by postmark, e-mail or facsimile through 5 p.m. Friday, April 29, 2011. Please be sure to include your name, organization (if applicable), address, and e-mail address.



SOURCE: SCE, 2010

Falcon Ridge Substation Project

Figure 1

Site Location Map

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APPENDIX B
Newspaper Notices

(Space below for use of County Clerk only)

INLAND VALLEY
DAILY BULLETIN
(formerly The Daily Report)

2041 E. 4th Street
Ontario, CA 91764

PROOF OF PUBLICATION
(2015.5 C.C.P.)

STATE OF CALIFORNIA

County of San Bernardino

I am a citizen of the United States, I am over the age of eighteen years, and not a party to or interested in the above-entitled matter. I am the principal clerk of the printer of INLAND VALLEY DAILY BULLETIN, a newspaper of general circulation printed and published daily in the City of Ontario, County of San Bernardino, and which newspaper has been adjudged a newspaper of general circulation by the Superior Court of the County of San Bernardino, State of California, on the date of August 24, 1951, Case Number 70663. The notice, of which the annexed is a true printed copy, has been published in each regular and entire issue of said newspaper and not in any supplement thereof on the following dates, to wit:

4/8,11/11

I declare under penalty of perjury that the foregoing is true and correct.

Executed at Ontario, San Bernardino Co. California this 11 day of APRIL, 20 11

signature

39

Proof o

California Public Utilities Commission Notice of Preparation of an Environmental Impact Report (EIR) and Educational Workshop/Scoping Meeting for the Falcon Ridge Substation Project

Notice is hereby given that the California Public Utilities Commission (CPUC) has released a Notice of Preparation (NOP) of an Environmental Impact Report (EIR) for the Lakeview Substation Project for public review and comment. The EIR will address potential direct, indirect and cumulative impacts of the construction, operation and maintenance of the proposed project and alternatives. Information to be included in the EIR also will be based on input and comments received during the NOP scoping period, which is open from March 30, 2011 until 5:00 p.m. on April 29, 2011. The NOP is available for public review on the Project website at: http://www.cpuc.ca.gov/Environment/info/esa/falconridge/index.html. The website provides access to public documents and information about the environmental review process for this project and will be updated during the review process to include announcements of upcoming public meetings and other information about the project. A copy of the NOP also may be requested by telephone at (415) 962-8490. Comments may be submitted in writing to: Mr. John Boccio, c/o ESA, 225 Bush Street, Suite 1700, San Francisco, CA 94104; by fax to (415) 896-0332; or by email to falconridge@esassoc.com.

Additionally, the CPUC will hold an educational workshop and Scoping Meeting on Thursday, April 14, 2011 at Summit High School, 15551 Summit Avenue, Fontana, California 92336. The workshop (6:30 p.m.-7:00 p.m.) will address the CPUC's processes for reviewing the project application and analyzing environmental impacts of the project as well as how the public can participate. The Scoping Meeting will be held from 7:00 to 8:30 p.m. All members of the public are invited to attend. Following the scoping period, the CPUC will prepare a Draft EIR that will consider comments received. Decision-makers, responsible and trustee agencies under CEQA, property owners, and interested persons and parties will have an opportunity to comment on the Draft EIR when it is published for review.

Published: April 8, 11, 2011 #166328

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(formerly The Daily Report)

2041 E. 4th Street
Ontario, CA 91764

(Space below for use of County Clerk only)

PROOF OF PUBLICATION
(2015.5 C.C.P.)

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39

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Published: April 8, 11, 2011 #166328

Fontana Herald News
16981 Foothill Blvd.

Proof of Publication

(2015.5 C.C.P.)

CA PUBLIC UTILITIES

State of California)
County of San Bernardino) **ss.**

I am a citizen of the United States and a resident of the State of California; I am over the age of eighteen years, and not a party to or interested in the above matter. I am the principal clerk of the printer and publisher of Fontana Herald News, a newspaper published in the English language in the City of Fontana, County of San Bernardino, and adjudicated a newspaper of general circulation as defined by the laws of the state of California by the Superior Court of the County of San Bernardino, under the date March 15, 1955, Case No. 73171. That the notice, of which the annexed is a copy, has been published in each regular and entire issue of said newspaper and not in any supplement thereof on the following dates, to-wit:

April 8, 2011

Executed on: 04/08/2011

At Fontana ,CA

I ceritfy (or declare) under penalty of perjury that the foregoing is true and correct.

JCh Sarde

Signature

California Public Utilities Commission Notice of Preparation of an Environmental Impact Report (EIR) and Educational Workshop/ Scoping Meeting for the Falcon Ridge Substation Project

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Publish 4/08, 4/15/2011

APPENDIX C

Scoping Meeting Attendance Sheet

Southern California Edison's Falcon Ridge Substation Project
Notice of Preparation of the Draft Environmental Impact Report
Public Workshop/Scoping Meeting
Hosted by the California Public Utilities Commission (CPUC)

Meeting Location: 15551 Summit Avenue, Fontana, California 92336

Date/Time: Thursday, April 14, 2011 at 6:30 p.m. to 8:30 p.m.

Name	Affiliation	Address	Email address
Donna Horowitz	Homeowner	5538 Sugar Maple Way	Donnah2622@aol
Charles Fahie	City of Fontana	8353 Sierra Ave	cfahie@fontana.org
Michael Dault		850 East Hospitality LN	michael.dault@grahmsavage.com
BRIAN D. SNOWBALL Sr	WATER OF LIFE COMMUNITY CHURCH HOMEOWNER	7533 BEAR CRK. DR FONT	brians@wateroflifecc.org
GINA GIBSON	CITY OF RIALTO	150 S. PALM AVE RIALTO CA 92376	GGIBSON@RIALTOCA.GOV
WALTER ALLISON	CITY OF RIALTO	150 S. PALM AVE RIALTO CA 92376	WALLISON@RIALTOCA.GOV
Ray Allard	Allard Engineering	8253 Sierra AV Fontana 92335	RAllard@Allardeng.com

APPENDIX D
Scoping Meeting Presentation

California Public Utilities Commission
Public Workshop & Scoping Meeting

Southern California Edison
Falcon Ridge Substation Project

April 14, 2011
Fontana, California

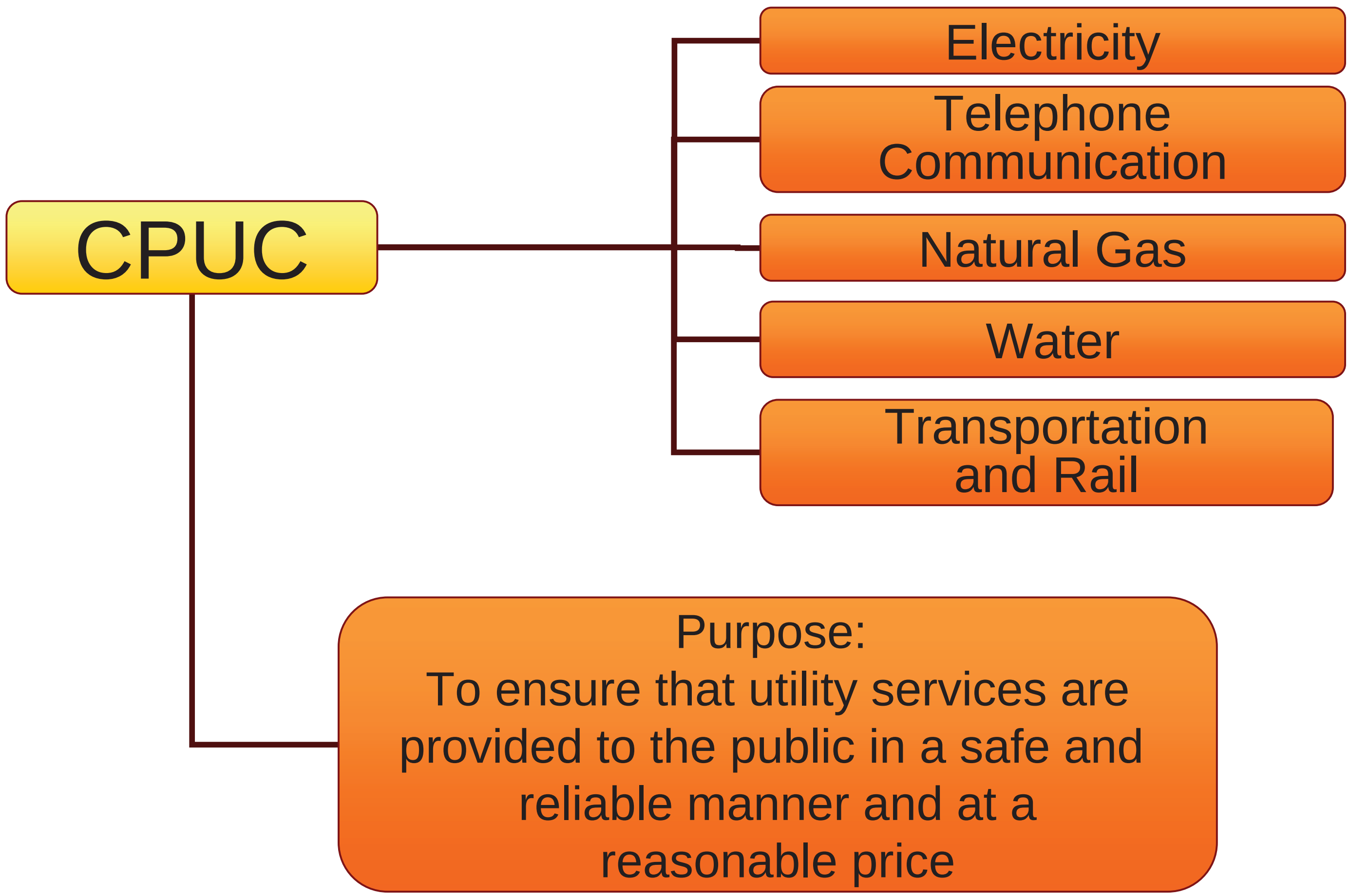
Participants and their Roles

- CPUC: California Environmental Quality Act (CEQA) Lead Agency
- Southern California Edison: Project Applicant
- Public Agencies
- Members of the Public

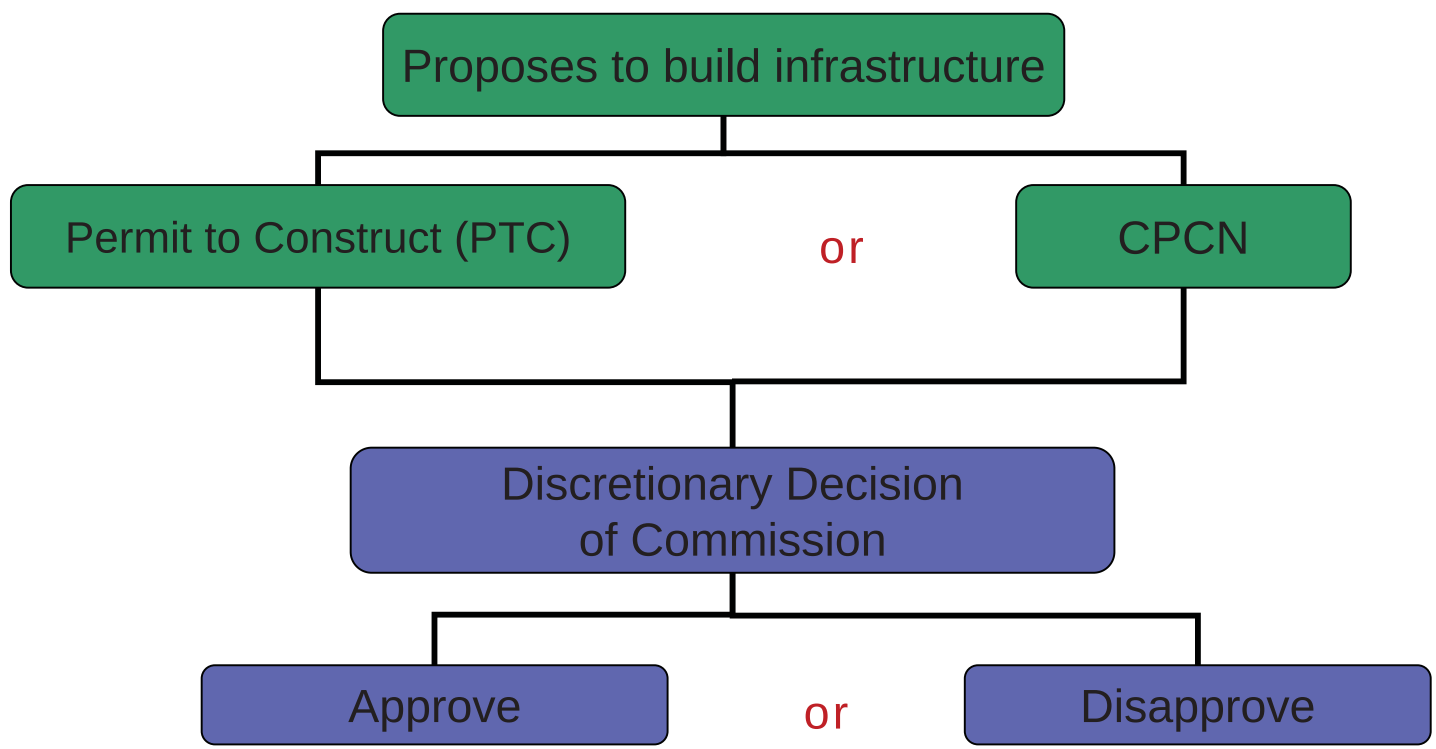
Workshop Agenda

- CPUC Decision and Review Processes
  - Environmental Evaluation
  - General Proceeding
  - Decision-making
- Opportunities for Public Involvement

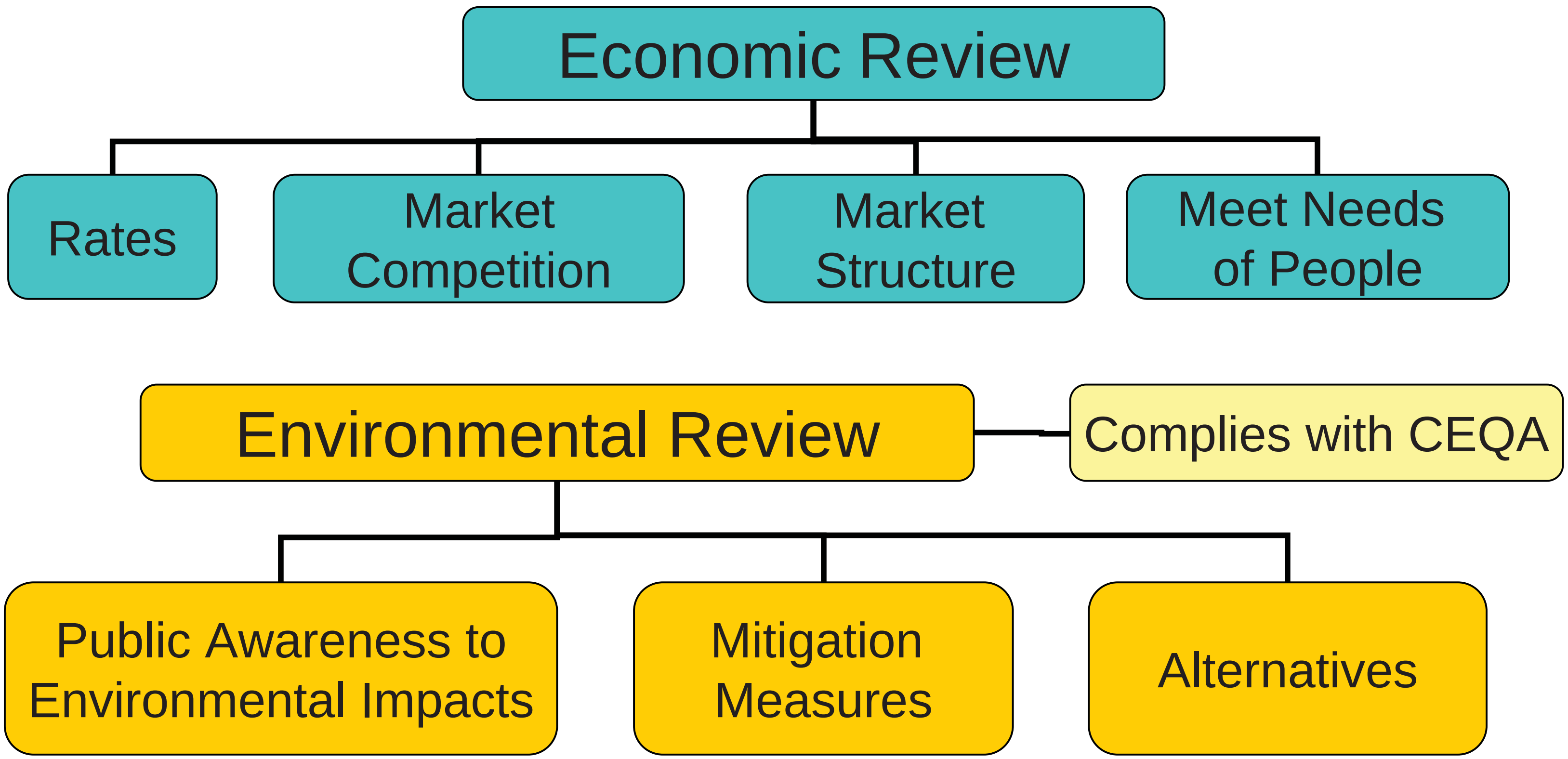
Who does the CPUC regulate?



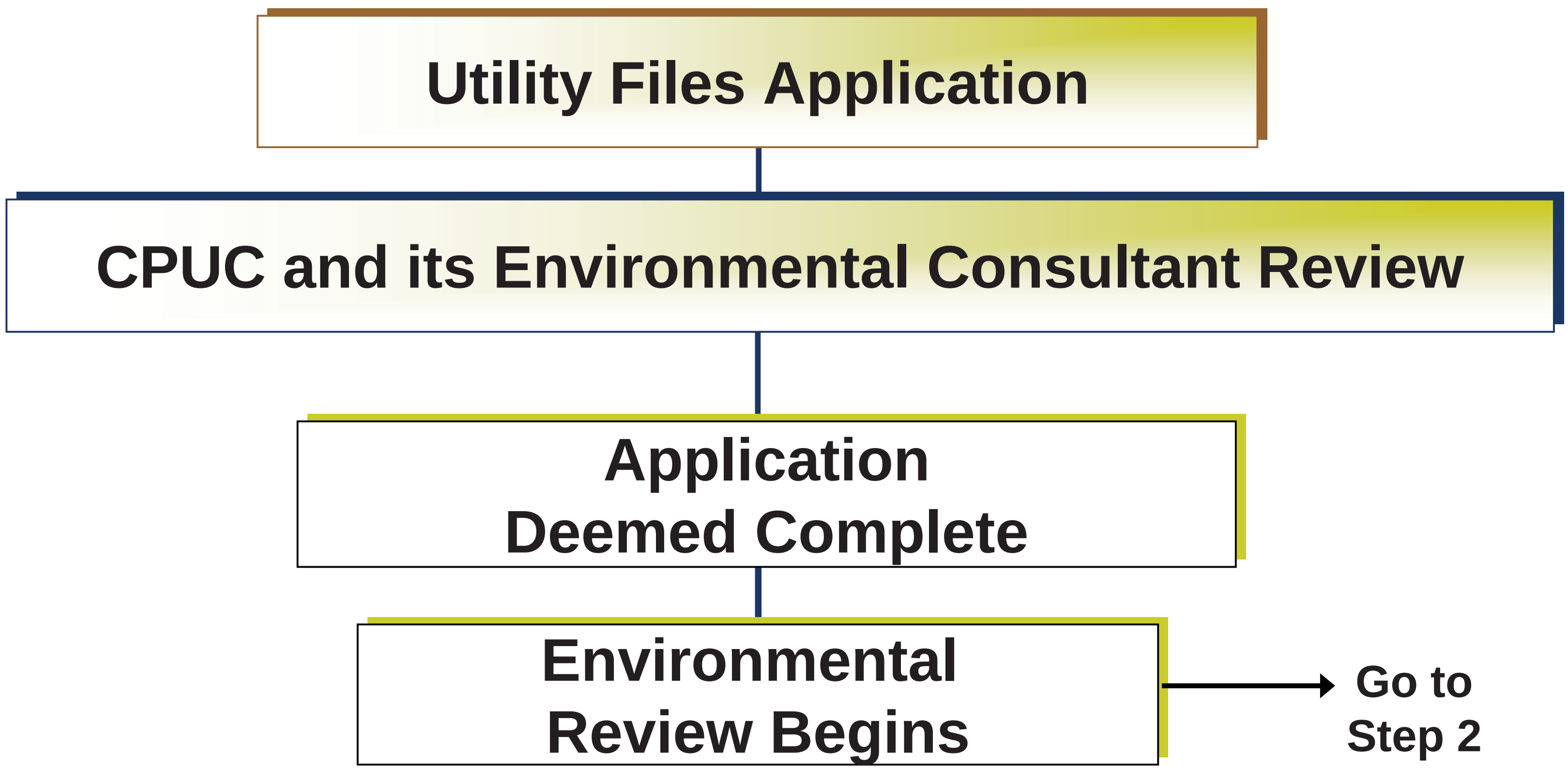
Permit to Construct



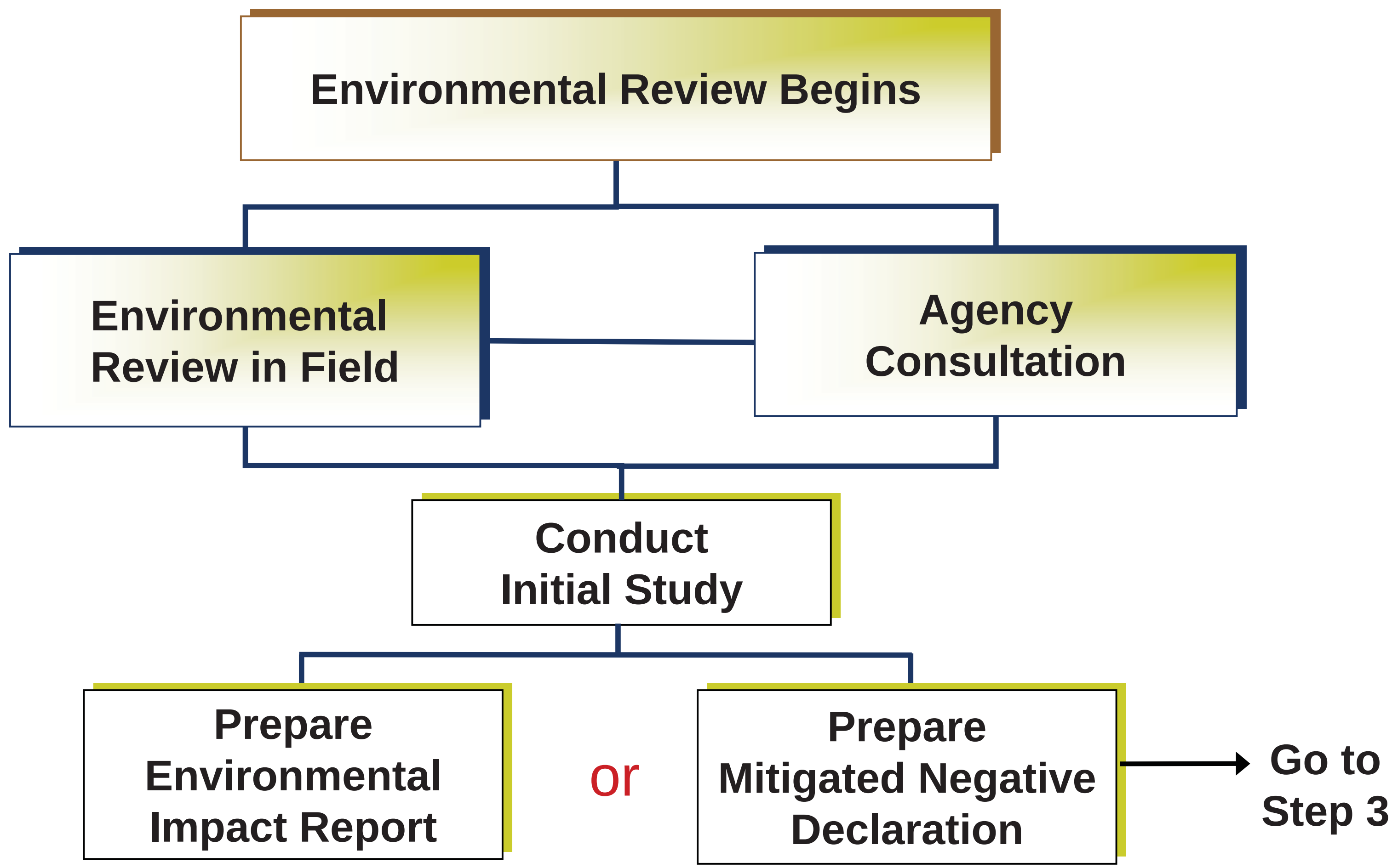
CPUC Review Process



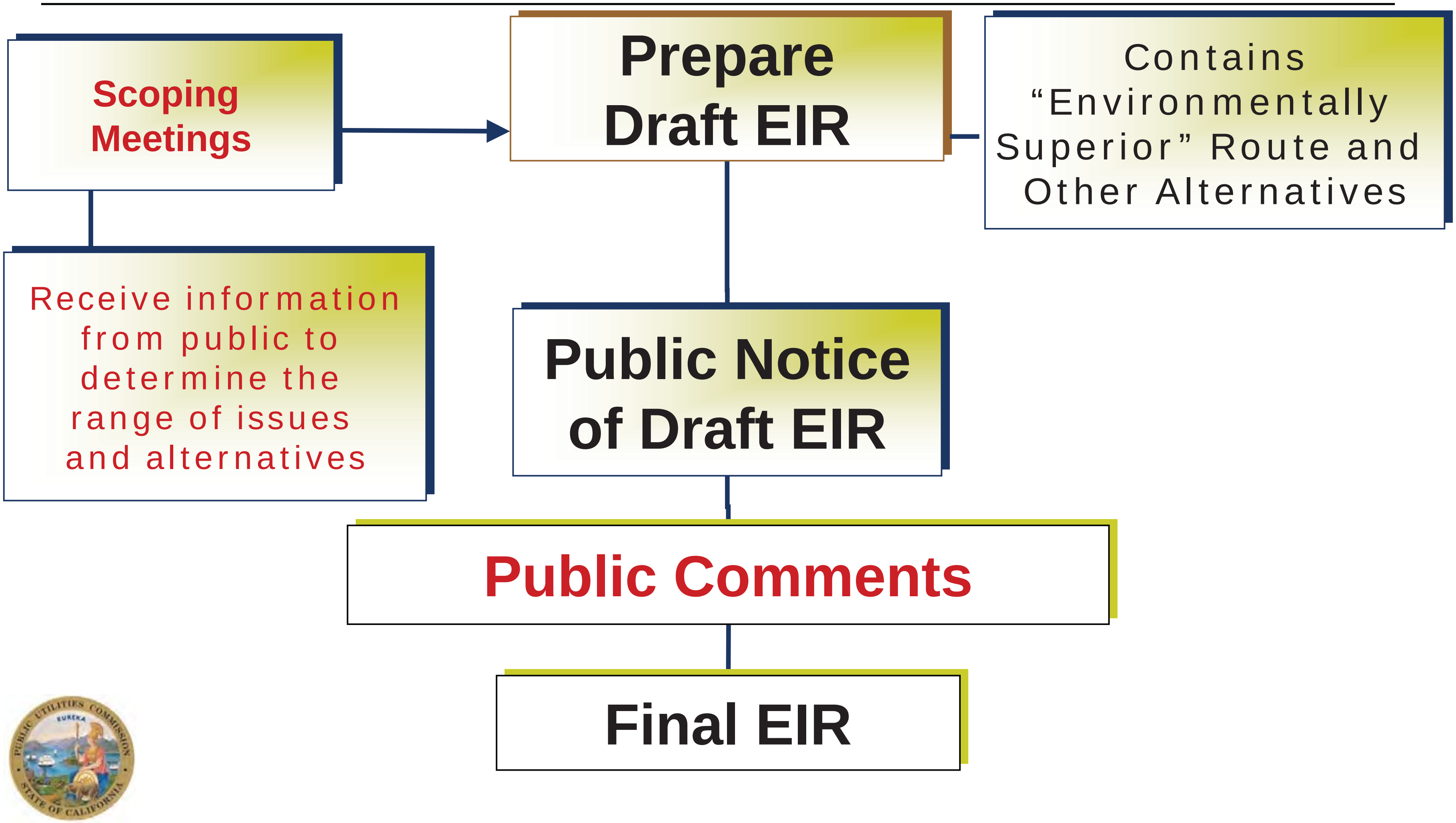
Application & Environmental Review Process (Step 1)



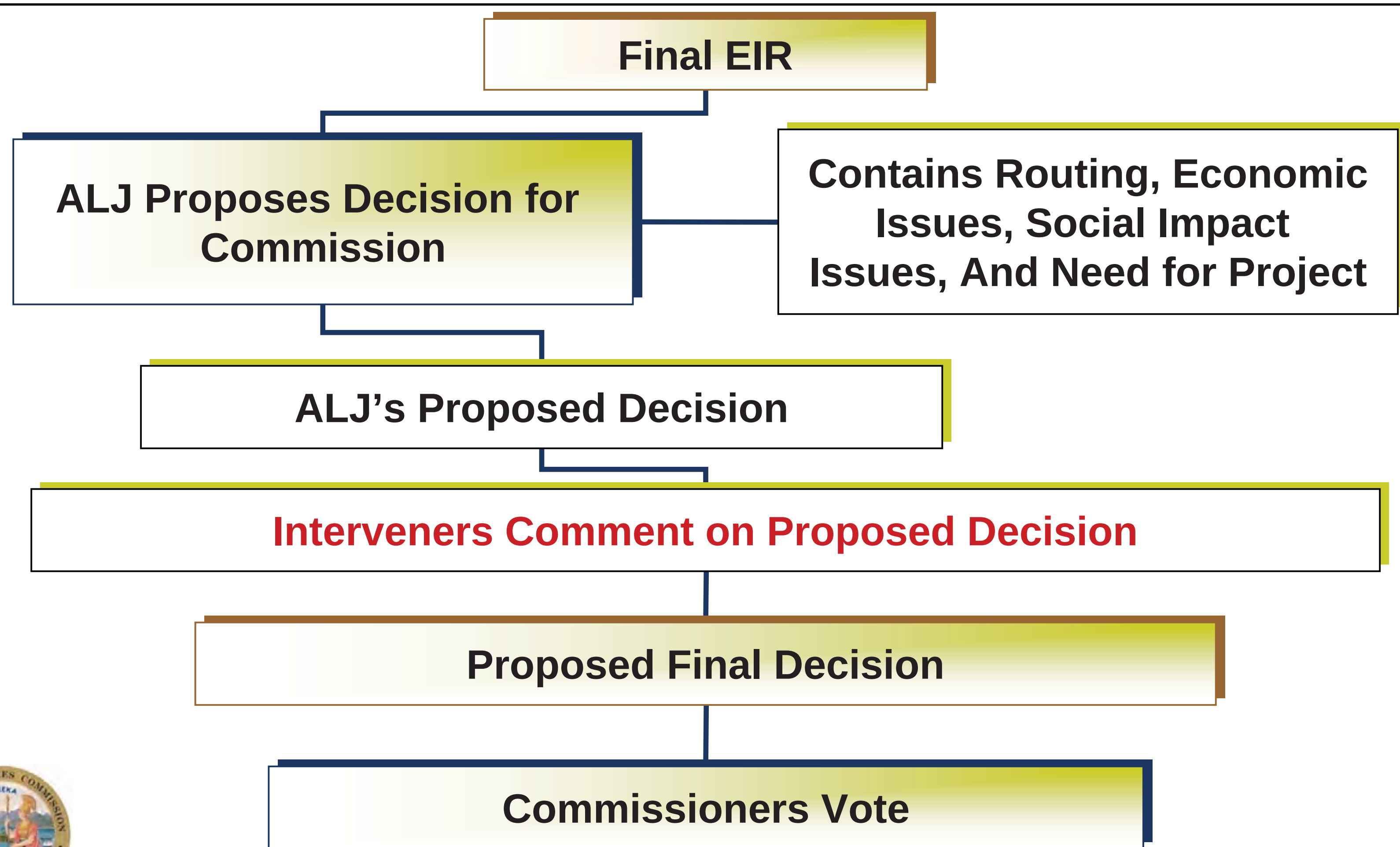
Application & Environmental Review Process (Step 2)



Application & Environmental Review Process (Step 3)



Application & Environmental Review Process (Step 4)



Public Participation

- Environmental Review
  - Scoping
  - Draft EIR
- General Proceeding

Contact Information

Mr. John Boccio
Falcon Ridge Substation Project
c/o Environmental Science Associates
225 Bush Street, Suite 1700
San Francisco, CA 94104
Fax: (415) 896-0332

E-mail:
FalconRidge@esassoc.com

Website:
http://www.cpuc.ca.gov/Environment/info/esa/falconridge/index.html

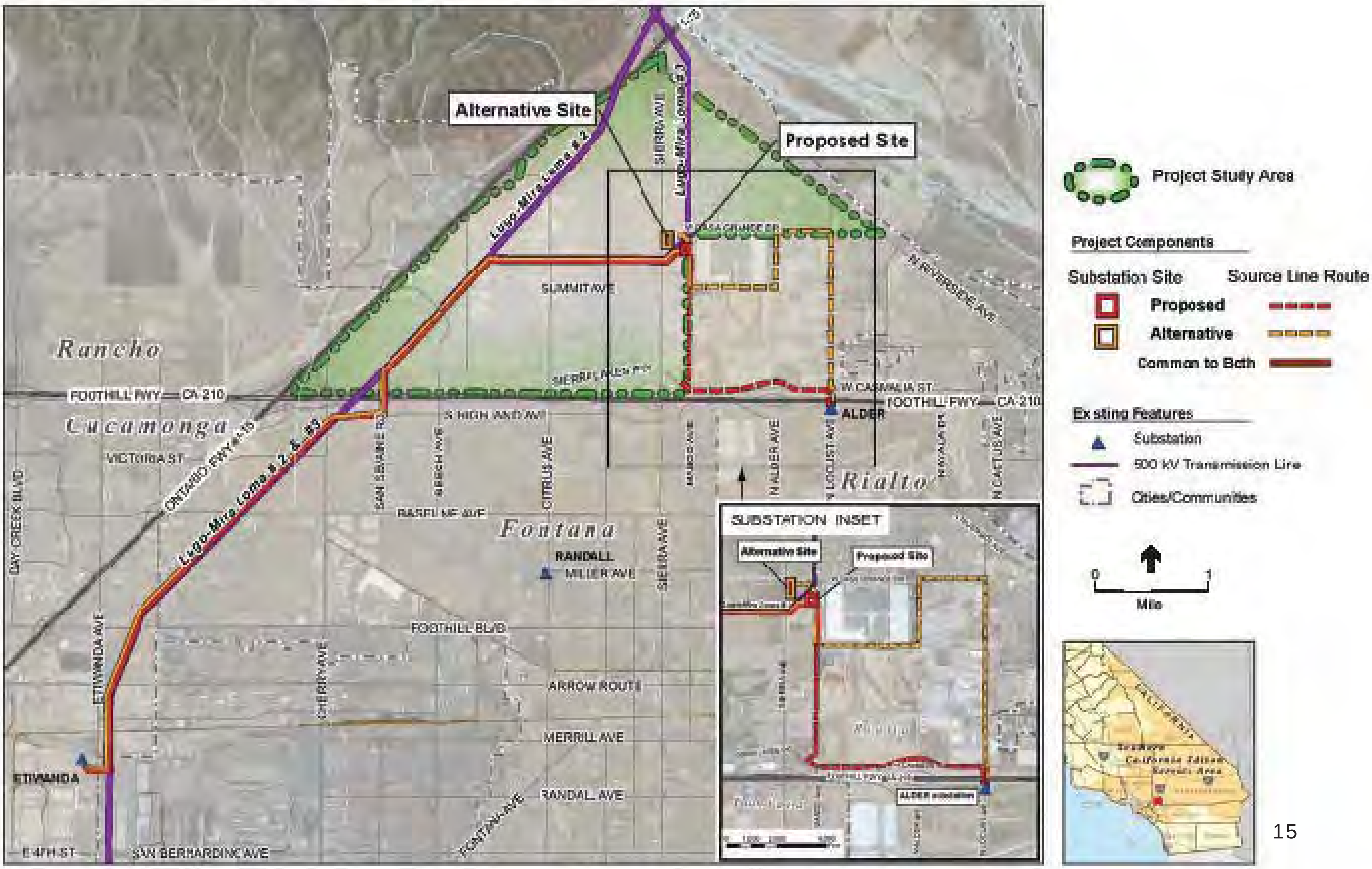
For Additional Information

http://www.cpuc.ca.gov

Scoping Meeting Agenda

- Project Overview
  - Background
  - Project Purpose and Need
  - Project Description
- Alternatives
- Next Steps
- Public Comment
  - Speaker Cards
  - Comment Forms

Proposed Location



SCE's Project Purpose and Need

Within the cities of Rancho Cucamonga, Rialto, Fontana and the surrounding areas of unincorporated San Bernardino County (the Electrical Needs Area):

- Serve the current and projected electrical demand for electricity,
- Enhance reliability and system operational flexibility
- Be operational by June 2014

Project Description Overview

- One 66/12 kilovolt (kV) substation
- Three underground 12 kV distribution "getaways"
- Two 66/12 kV subtransmission line segments to serve the new substation
- New and upgraded fiber optics to connect the substation to SCE's existing system

New Falcon Ridge Substation

- Construction of one unattended, automated 56 megavolt-ampere (MVA) 66/12 kilovolt (kV) substation on approximately 3 acres of a 7.5-acre parcel located in the City of Fontana.
- Substation capacity could expand to 112 MVA as necessary.

Subtransmission Source Lines

- Two new 66 kV subtransmission source lines to connect the Proposed Falcon Ridge Substation to the existing Alder Substation and Etiwanda Substation:
  - One new 66 kV subtransmission source line from the existing Alder Substation would be approximately 3 miles in length and connect to the Proposed Falcon Ridge Substation
  - One new 66 kV subtransmission source line from existing Etiwanda Substation would be approximately 9 miles in length and would connect to the Proposed Falcon Ridge Substation

Distribution Getaways

- Five underground vaults would be installed outside the substation walls on the SCE substation property, private property, or in franchise.
- <u>Getaway 1</u> would exit the substation site to the west for approximately 600 feet where a new vault would be installed. It would continue ~530 feet and then terminate in a new vault located within Sierra Avenue.
- <u>Getaway 2</u> would exit the site to the west for ~600 feet where a new vault would be installed, then continue for ~635 feet and terminate by being capped for future use.
- <u>Getaway 3</u> would exit the site to the north ~200 feet where a new vault would be installed, then continue ~540 feet and terminate in a new vault located within the future Casa Grande Avenue.

Telecommunications (Fiber Optics)

- Two fiber optic routes would connect the substation to Alder and Etiwanda substations.
- Telecommunications equipment at Etiwanda, Alder, and Randall substations would be upgraded.

Alternatives

- Initial Alternatives
  - Project Alternatives
    - 66/12 kV Substation Project
    - 115/12 kV Substation Project
  - Substation Site Alternative
  - Subtransmission Line Route Alternative
  - No Project
- Other Alternatives To Be Determined

Next Steps

- Scoping
  - Notice of Preparation was circulated to solicit input from agencies and the public: You can submit comments on the scope and contents of the EIR on or before <u>April 29, 2011</u>.
  - This meeting is part of the scoping process.
- Draft EIR
- Final EIR
- Commission consideration of the EIR and other factors, issuance of a draft decision on the Project
- Commission consideration of comments on the draft and alternate decisions, vote on the Project

Contact Information

Mr. John Boccio
Falcon Ridge Substation Project
c/o Environmental Science Associates
225 Bush Street, Suite 1700
San Francisco, CA 94104
Fax: (415) 896-0332

E-mail:
FalconRidge@esassoc.com

Website:
http://www.cpuc.ca.gov/Environment/info/esa/falconridge/index.html

Public Comment

Discussion Guidelines

- One person to speak at a time
- Be concise
- Stay on topic
- Support everyone's participation
- Respect others' opinions
- Written comments are encouraged

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APPENDIX E

Scoping Meeting Speaker Cards and Transcript

Speaker Card

Southern California Edison's Falcon Ridge Substation Project
Notice of Preparation of the Draft Environmental Impact Report Public Workshop/Scoping Meeting
April 14, 2011 at 6:30 P.M.

Name: Onna Horowitz

Mailing Address: 5538 Sugar Maple Way
Fontana

Organization (if applicable): Homeowner

Brief Comment: Property Values + Health
concerns.

Speaker Card

Southern California Edison's Falcon Ridge Substation Project
Notice of Preparation of the Draft Environmental Impact Report Public Workshop/Scoping Meeting
April 14, 2011 at 6:30 P.M.

Name: Charles Fahie

Mailing Address: 8353 SIERRA Ave.
FONTANA, CA 92335

Organization (if applicable): CITY OF FONTANA

Brief Comment: Concerns with Aesthetics & Land Use issues
Our protest letter dated 01/26/11 not reflected on
the CPUC website

Speaker Card

Southern California Edison's Falcon Ridge Substation Project
Notice of Preparation of the Draft Environmental Impact Report Public Workshop/Scoping Meeting
April 14, 2011 at 6:30 P.M.

Name: Ray Allard

Mailing Address: 8253 Sierra AV
Fontana, CA 92335

Organization (if applicable):

Brief Comment: what type of activities are allowed under wires.
ie Roads, Landscape, Parking, TRAILS.

BEFORE THE PUBLIC UTILITIES COMMISSION

OF THE STATE OF CALIFORNIA

In the Matter of the Application of SOUTHERN CALIFORNIA EDISON COMPANY (U 338-E) for a Permit to Construct Electrical Facilities With Voltages Between 50 kV and 200 kV: Falcon Ridge Substation Project

No. A.10-12-017

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TRANSCRIPT OF PROCEEDINGS

Thursday, April 14, 2011

Fontana, California

Reported by:
Terri L. Emery,
CSR No. 11598, CCR

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I N D E X
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Meeting Transcript

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Fontana, California;

Meeting Transcript

Thursday, April 14, 2011; 7:00 p.m.

* * *

MS. SCOTT: Charles, would you like to start.

MR. FAHIE: Yes. My name is Charles Fahie. I'm with the City of Fontana. We submitted some comments based on the notice of the application and I went on the PUC website and we didn't see a copy of our letter. We put this letter on the website and sent it Fed Ex, we faxed, E-mailed it. We sent it to everyone prior to the deadline.

MR. BOCCIO: The City of Fontana?

MR. FAHIE: City of Fontana.

MR. BOCCIO: Official protest. Okay. Do you know the date you sent it to us?

MR. FAHIE: It was the 26th of January.

MR. BOCCIO: 26th of January. Okay. I will look into that.

MR. FAHIE: And I have an extra copy of that letter for your record, but pretty much the letter spells out the major concerns that we had. Some of the things that we noticed, in the original application the project description was incorrect. It talked about staying within the existing SCE corridor for most of the new lines except down on San Sephine Avenue (phonetic) and south Highland

Avenue, but there's a portion, I guess, that was across too Sierra Avenue that's not within the existing corridor. So the project description didn't cover those issues.

Another major thing that we were concerned with was the aesthetic impacts of the proposed lines. The visual simulations that were submitted with the application, they did not -- they did not take in or depict in significant areas where there's residential development or in our general plan we have specific routes that are designated as scenic corridors, and that was totally ignored within the initial study and we would like for those scenic corridors within the city to be reevaluated.

MR. BOCCIO: And you've identified those streets in your letter?

MR. FAHIE: It's in the letter, all in the letter, and I've got a copy of our general plan section that addresses that. Most of it -- we have some questions also on land use impacts. The initial study said no impacts in all those areas, not even less than significant impacts, and we thought that that was incorrect rating of that. We asked that in some of those locations, we consider undergrounding of the lines in some of those locations, and when they evaluate the aesthetic impacts given that the existing transmission lines in the corridors are far apart and the lines are fairly high, these new lines are going to fit within a view corridor that's not impacted currently and we think that impact should be evaluated and addressed in the environmental document.

Also we were concerned that the substation location, any details on the landscaping or the screening that would be proposed for the substation is not in the document currently, that we could comment and make some intelligent comments on, and we would like to have some sort of an input on that early in the process so we can ensure that the substation is going to be screened adequately from residents and folks traveling on Sierra Avenue.

I'm not going to go into the entire length of the letter, but there's other impacts in here. I'll just give you a copy of the letter and let someone else speak. Meanly land use issues and aesthetic issues and possibility of land use and cleaning up the project description in the document.

MR. BOCCIO: Thank you.

MR. FAHIE: That's all my comments.

MS. SCOTT: Thank you. Next is Ray Allard.

MR. ALLARD: My name is Ray Allard, 8253 Sierra Avenue. I represent a lot of landowners, developers and projects in the area, and I think it's a great location for the substation. We clearly need good electricity, but I have a couple of concerns.

One is we have -- seems like we have a lot of 66 kV in Fontana already on Walnut and Sierra and other places. I don't know if the poles that were already used can manage this or something that has to be built and designed here.

On the alternatives analysis with the impact to land use, I don't quite know the degree of specificity. I have trouble with this word. You've got a large corridor and the new poles are on the north side of the corridor at times and then they move over to the south side of the corridor at times. So would an alternatives analysis look at the land use impacts of the south versus the north side since it seems to be able to flip. There are some houses that would be directly impacted, and on the other side there's more of an institutional type of use which the impact might be less. So you can't see it on these boards and it's really tough to make out in the photos, but on a blow-up of the corridor, you can kind of see what it is.

We've all read the studies about EMFs and one of these lines being 30 or 40 feet away from the house or in the backyard, and although the studies say that everything you do is fairly safe, I know it's going to go by some houses where the individual probably wouldn't have bought the house if it was there, and I'm wondering if there was any consideration to land value degradation in light of the fact that this particular line I know wasn't disclosed at some of the sales trailers because the big wide corridor, everyone expected two big giant towers in there, but now a pole of much smaller scale is being placed 20 feet from one of the edges, and so that seems to be a pretty big land use concern to a lot of people.

And then the comment I wrote on the card finally was it would be good to have a good understanding in the document of what would be allowed underneath the corridor, can you put a road, can you landscape, can you have a parking lot, can you have a trail and what could the trail look like. So there's a lot of land use planned in and around these corridors and crossing and stuff. We've got the new great park in Fontana which is a good facility and how all this ties in with that is something that needs particular attention.

MS. SCOTT: Next is Donna Horowitz.

MS. HOROWITZ: I'm Donna Horowitz, and my daughter and I are here because she bought a home in Fontana in October. We looked around for the best value, whatever, and it was in Fontana. Fontana to me has a terrible reputation and I think this is because exactly this problem. You know, you're mixing residential and industrial and Edison and whatever. You have a nice community. Lewis built a really nice shopping area down there and a sports center and parks. It seems like the builders have done a nice job here, but there's not a clear definition between residential and Edison substations and you know, all these things that decrease your home value.

Had I known this was going to come in, I wouldn't have bought the home and I'm kind of wishing it had been disclosed by my Realtor because I would have found another place to live. I don't want to live close to those towers, I don't want the humming, I don't want the obstruction of the foothills. This is a really nice area and Fontana is finally getting a chance and probably Rialto too to be a respectable community.

This type of thing to me is detrimental. Our property values are just going to be even worse with what's going on right now. Who is going to want to live by that? Do you think anybody is going to buy the home we just bought? I would like to probably sell it to get out before you start construction. That's how adamant I am about this. There's already a big tower on the other side of the homes on the cul-de-sac. We live right off Cypress and Summit and you can hear the humming. There's a high school just, you know, not that far from on the other side of Sierra where this substation will be. How is that going to impact those students and all those kids walking? And you know, people that have come out to our home said wow, this is really nice, we never knew Fontana was like this. Go figure. I never did either. And you finally have a chance to create a nice environment and this is coming in.

So I'm really concerned about the impact of all the homeowners, I'm totally concerned with safety and what's being emitted from this stuff. The towers are going to be ugly. Why -- I'd like to ask why aren't they being put underground like in other cities? How come the City of Claremont, the City of Upland, City of Rancho, how come these things are underground in these cities but right here bam, it's in your face? I'd like to know why that's not happening. Why are we going to have to look at 150 poles? How deep are the footings? Why can't you reach an agreement with the State of California and run them along the freeways and on a slope or something where it's not in a residential area? That's my big concern.

MS. SCOTT: Does anyone else want to speak?

MS. GIBSON: Here's a point of clarification. My name is Gina Gibson. I'm from the City of Rialto. We, like the City of Fontana, put together a protest letter.

We will also be submitting -- we submitted written comments and we'll be submitting a letter and specifically addressing scoping issues in the EIR. We will also be asked to be named as the responsible agency seeing as how it does go through our community, but there is a point of clarification for those who may wish to write something in your presentation. It says that the deadline is April 21st, 2011. On the notice that we received says the deadline is April 29.

MS. SCOTT: Yes. Thank you for raising that point. It is the 29th. We're accepting comments until the 29th.

MS. GIBSON: I wanted to make that point of clarification, and I think our comments were well documented. Certainly an impact to the City of Rialto in terms of land use, certainly an impact to Rialto in terms of aesthetics.

Also, it would be good if in the environmental document there was actually a land use map and a zoning map which talks about the different zoning designations in the respective communities for the City of Rialto and City of Fontana and Rancho and all of them because if someone is looking at this, they will not get the -- they won't have the understanding with respect to what is actually out there. It should include land use and zoning, and we have several specific plan designations. All of that information does need to be included in the document.

Also, a very good analysis of the alternative route, why is that not -- it's proposed as an alternative, but we need to see the analysis so we can make a good determination about why would one be environmentally superior as opposed to the other because we would favor a variation on the alternative route if not altogether underground.

MR. TERRELSON: One item to add to that. If you include the circulation elements --

MS. SCOTT: Could you please state your name?

MR. TERRELSON: Al Terrelson, City of Rialto. Just want to add because some of your corridors are along planned streets or future roads which are impacted by the uses like the land fill, we've already discussed a number of these different issues with emergency access and primary access, but I think we need to add a circulation element into the land use also, the land use elements to that. If you could get more information on the projected service areas, is this going to be residences and land uses, so that we can analyze and look at that too and potential impacts on existing residents and existing land uses.

MS. SCOTT: Great. Thank you.

MS. HOROWITZ: Can I ask the Edison people one thing? Why? Is it money that you're not putting this underground, that power is so high, is that it?

MS. SCOTT: Actually, I'm sure they would welcome the dialogue, but with all respect, it's not their meeting. This is the opportunity for the CPUC to hear from you.

MR. BOCCIO: Certainly the underground alternative will be considered.

MS. HOROWITZ: Especially with the winds.

MS. GIBSON: One thing to add, the undergrounding alternative, but also especially next to the residential areas, sometimes in EIRs the consultants have a tendency to do the no project and say if we were to underground everything, of course the cost is exorbitant, of course we know that, but do give care to the residential areas at a minimum what that would cost to underground in those areas or along Rialto's portion of their specific plan and Fontana's and just shouldn't be an automatic assumption it's all above ground or all underground and then put a cost to that because of course that would be many more millions, so we do need to take a really good look at what is an effective alternative in a way to address the energy needs of our community.

MS. SCOTT: Thank you.

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MR. ALLARD: And she brought up a good point about the winds. I believe Fontana is up there, design wind speed criteria to 110 miles an hour, but I'm sure your criteria is larger than that, and then the various faults in the foothills I'm sure will be looked at and analyzed also.

MR. TERRELSON: I would like to add the wind load design load in Rialto is 120.

MS. SCOTT: This has been great. Thank you.

MR. FAHIE: I'm trying to understand the process when we submit our initial comments to the initial application. We receive a call from Edison, we understand your comments, we're going to try to address your comments and give us a chance to respond. If Edison has comments from the initial notice, when do they come back to you and say we've got some things we want to change from our initial application to you before you going through the analysis? Does that happen or do they have to wait until you prepare the draft?

MR. BOCCIO: Edison can amend their application anytime they want to, so it's really up to them.

MR. FAHIE: And they haven't submitted any amendments to you based on the initial submittal?

MR. BOCCIO: Has there been any amendments to the application?

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MS. SCOTT: No.

MR. FAHIE: So we would have to assume that the comments that we submitted, that they're going to wait until you do your process before they would respond to those comments or may not respond to those comments depending --

MR. BOCCIO: I don't know if the utility will respond to your comments or not. They may, but I don't know if they're legally forced to. We have a body of laws regarding CEQA and we have our own process to follow through. Utilities quite often respond to letters from the community or cities directly, regardless of the Public Utilities Commission, just to be a good citizen and do things right. I don't know if they're going to respond or not.

MS. SCOTT: Independent of your dialogue with the applicant, if you would like for the comments that you made to be considered in the environmental document, let us know independent of that dialogue and we will be sure that they are addressed.

MR. FAHIE: My concern is this is not necessarily a comment that we want to change things but things we saw that makes sense or like the project description is incorrect because it talks about within the existing corridor and actually it's outside of the existing

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corridor. So I would assume that they would change those things that would make your analysis more accurate or pertinent before you get into the process. I'm curious when that happens, when does that happen.

MS. SCOTT: When you raise a point like that, if we require clarification of the project description, then we submit what's called a data request and it's a question or a list of questions as part of a formal process and they provide a formal answer, and with that information we go forward.

MR. FAHIE: So the draft that comes out would include those.

MS. SCOTT: Yes. Okay. If nobody has anything more to say, thank you again. Thank you for coming out on a beautiful night. Thank you for coming out in the middle of the week. Thanks for coming, prepared with something to say. We appreciate your input.

(Proceedings concluded at 7:49 p.m.)

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REPORTER'S CERTIFICATION

I, Terri L. Emery, Certified Shorthand Reporter, in and for the State of California, do hereby certify:

That the foregoing proceedings were taken before me at the time and place herein set forth; that the proceedings were reported stenographically by me and later transcribed into typewriting under my direction; that the foregoing is a true record of the proceedings taken at that time.

IN WITNESS WHEREOF, I have subscribed my name this 29th day of April, 2011.

____

Terri L. Emery, CSR No. 11598, CCR

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APPENDIX F

Scoping Period Written Comments

Fontana Unified School District
9680 Citrus Avenue · P.O. Box 5090 · Fontana · CA 92334-5090 (909) 357-5000

April 4, 2011

Mr. John Boccio
Falcon Ridge Substation Project
c/o Environmental Science Associates
225 Bush Street, Suite 1700
San Francisco, CA 94104
FalconRidge@esassoc.com

Re: FALCON RIDGE SUBSTATION PROJECT (sent via email)

This letter is to advise that the proposed project is near a proposed elementary school site. Title 5 of the California Code of regulations (article 2, section 14010) provides, in part:

c. The property line of the site even if it is a joint use agreement as described in subsection (o) of this section shall be at least the following distance from the edge of respective power line easements:
   1. 100 feet for 50-133 kV line.
   2. 150 feet for 220-230 kV line.
   3. 350 feet for 500-550 kV line.

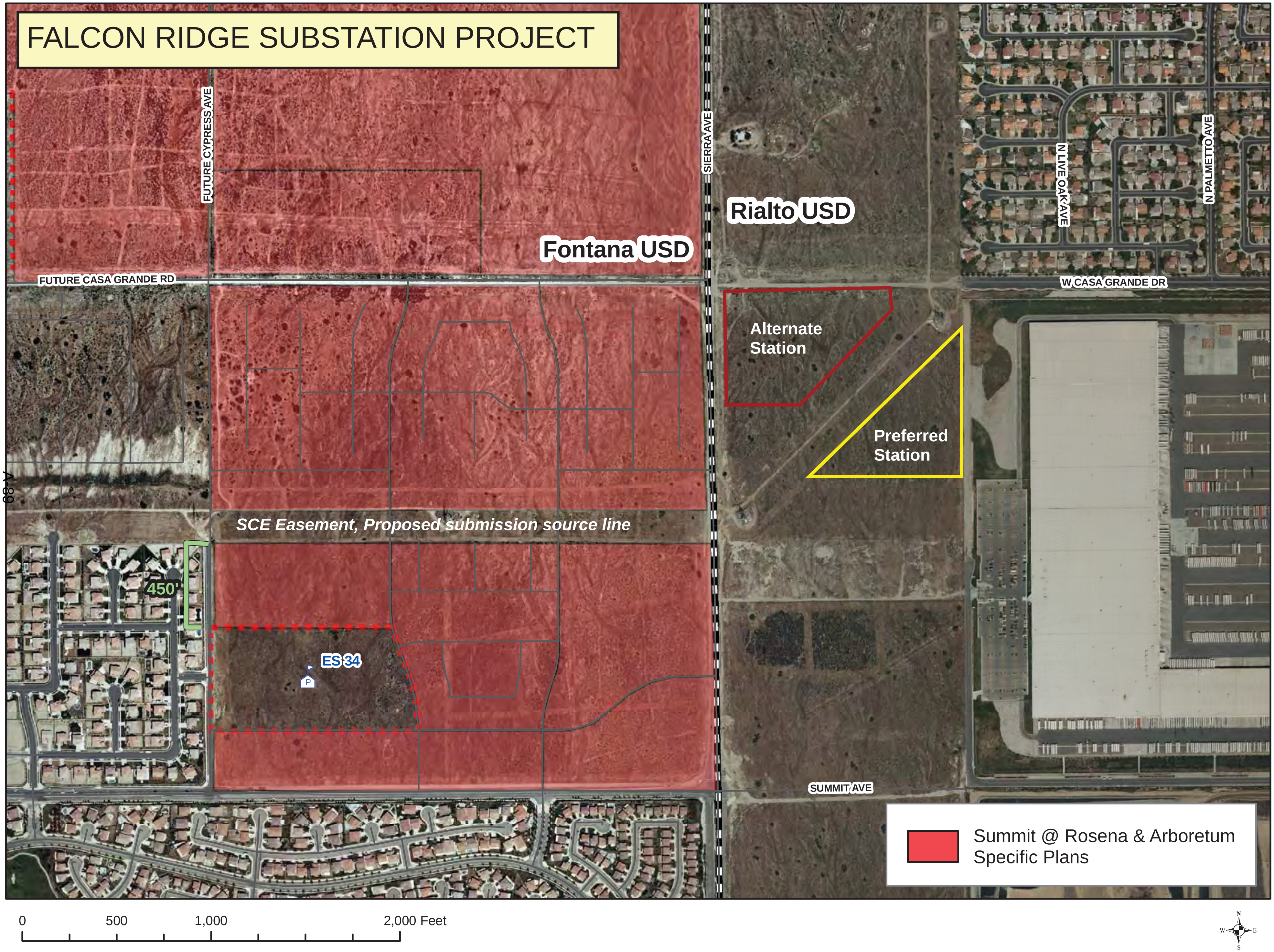
The current location of the future FUSD Elementary School #34 site is approximately 450 feet from the proposed project (see enclosed map). Any future changes or additions to the project would need to maintain the minimum distances outlined above.

Please do not hesitate to contact me with any questions, (909) 357-7522.

Sincerely,

Robert Copeland
Assistant Director, Maintenance & Operations
Fontana Unified School District
9851 Catawba Avenue
Fontana, CA 92335

Encl.



FALCON RIDGE SUBSTATION PROJECT
FUTURE CYPRESS AVE
SIERRA AVE
Rialto USD
Fontana USD
N LIVE OAK AVE
N PALMETTO AVE
FUTURE CASA GRANDE RD
W CASA GRANDE DR
Alternate Station
Preferred Station
SCE Easement, Proposed submission source line
450'
ES 34
P
SUMMIT AVE
Summit @ Rosena & Arboretum Specific Plans
0
500
1,000
2,000 Feet
N
W
E
S

From: Jeff Pierson [jpierson@intexcorp.com]
Sent: Monday, April 04, 2011 2:34 PM
To: Falcon Ridge
Cc: Doug Ford; Norman Gold; Robert McCullough
Subject: NOP FALCON RIDGE SUBSTATION PROJECT [A.1012017]

Mr. John Boccio,

We are in receipt of the Notice of Preparation relating to the above subject project that Environmental Science Associates is currently processing.

Intex Properties Inland Empire Corp. has property currently under entitlement for future development along the Utility Corridor from the northern point of San Sevaine Road to the southern point of Baseline Avenue in North Fontana.

We are extremely interested in obtaining detailed information on the routing of the power along this portion of the Lugo-Mira Loma #2 & #3 easement on our property, and more specifically, the transition from this corridor to the public right-of-way along San Sevaine Road and South Highland Avenue.

This project will have an impact on our current planning of streets/utilities and landscape amenities.

We are proposing a change in alignment of South Highland Avenue from San Sevaine Road to Cherry Avenue, and would appreciate further detail on the specific alignment of the line as it detours from the Corridor. In addition, we would appreciate understanding and reviewing the rational for this detour and the whether these lines will be buried or above grade.

Please keep us informed on all information and meetings regarding this project. We would like to obtain a copy of the draft EIR if possible.

My contact information is identified below. You may contact me at any time.

Regards,

Jeff.

JEFFREY L. PIERSON
UNITEX MANAGEMENT CORP.
INTEX PROPERTIES CORP.
4001 VIA ORO AVENUE
LONG BEACH, CA. 90810
USA

P. O. BOX 1440
LONG BEACH, CA. 90801
USA

PHONE: [310] 549-5400 x300
FAX: [310] 549-2676
CELL: [714] 343-2109

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

NATIVE AMERICAN HERITAGE COMMISSION
915 CAPITOL MALL, ROOM 364
SACRAMENTO, CA 95814
(916) 653-4082
(916) 657-5390 - Fax

April 7, 2011

John Boccio
California Public Utilities Commission
505 Van Ness Avenue
San Francisco, CA 94102-3298

RE: SCH# 2011041009 Falcon Ridge Substation Project; San Bernardino County.

Dear Mr. Boccio:

The Native American Heritage Commission (NAHC) has reviewed the Notice of Preparation (NOP) referenced above. The California Environmental Quality Act (CEQA) states that any project that causes a substantial adverse change in the significance of an historical resource, which includes archeological resources, is a significant effect requiring the preparation of an EIR (CEQA Guidelines 15064(b)). To comply with this provision the lead agency is required to assess whether the project will have an adverse impact on historical resources within the area of project effect (APE), and if so to mitigate that effect. To adequately assess and mitigate project-related impacts to archaeological resources, the NAHC recommends the following actions:

- ✓ Contact the appropriate regional archaeological Information Center for a record search. The record search will determine:
  - If a part or all of the area of project effect (APE) has been previously surveyed for cultural resources.
  - If any known cultural resources have already been recorded on or adjacent to the APE.
  - If the probability is low, moderate, or high that cultural resources are located in the APE.
  - If a survey is required to determine whether previously unrecorded cultural resources are present.
- ✓ If an archaeological inventory survey is required, the final stage is the preparation of a professional report detailing the findings and recommendations of the records search and field survey.
  - The final report containing site forms, site significance, and mitigation measurers should be submitted immediately to the planning department. All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum, and not be made available for public disclosure.
  - The final written report should be submitted within 3 months after work has been completed to the appropriate regional archaeological Information Center.
- ✓ Contact the Native American Heritage Commission for:
  - A Sacred Lands File Check. . **USGS 7.5 minute quadrangle name, township, range and section required.**
  - A list of appropriate Native American contacts for consultation concerning the project site and to assist in the mitigation measures. **Native American Contacts List attached.**
- ✓ Lack of surface evidence of archeological resources does not preclude their subsurface existence.
  - Lead agencies should include in their mitigation plan provisions for the identification and evaluation of accidentally discovered archeological resources, per California Environmental Quality Act (CEQA) §15064.5(f). In areas of identified archaeological sensitivity, a certified archaeologist and a culturally affiliated Native American, with knowledge in cultural resources, should monitor all ground-disturbing activities.
  - Lead agencies should include in their mitigation plan provisions for the disposition of recovered artifacts, in consultation with culturally affiliated Native Americans.
  - Lead agencies should include provisions for discovery of Native American human remains in their mitigation plan. Health and Safety Code §7050.5, CEQA §15064.5(e), and Public Resources Code §5097.98 mandates the process to be followed in the event of an accidental discovery of any human remains in a location other than a dedicated cemetery.

Sincerely,

Katy Sanchez

Katy Sanchez
Program Analyst
(916) 653-4040

cc: State Clearinghouse

Native American Contact List
San Bernardino County
April 7, 2011

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

San Manuel Band of Mission Indians
Ann Brierty, Policy/Cultural Resources Departmen
26569 Community Center. Drive — Serrano
Highland, CA 92346
(909) 864-8933, Ext 3250
abrierty@sanmanuel-nsn.gov
(909) 862-5152 Fax

San Manuel Band of Mission Indians
James Ramos, Chairperson
26569 Community Center Drive — Serrano
Highland, CA 92346
(909) 864-8933
(909) 864-3724 - FAX
(909) 864-3370 Fax

Ramona Band of Cahuilla Indians
Manuel Hamilton, Vice Chairperson
P.O. Box 391670 — Cahuilla
Anza, CA 92539
admin@ramonatribe.com
(951) 763-4105
(951) 763-4325 Fax

San Fernando Band of Mission Indians
John Valenzuela, Chairperson
P.O. Box 221838 — Fernandeño, Tataviam, Serrano, Vanyume, Kitanemuk
Newhall, CA 91322
tsen2u@hotmail.com
(661) 753-9833 Office
(760) 885-0955 Cell
(760) 949-1604 Fax

Morongo Band of Mission Indians
Robert Martin, Chairperson
12700 Pumarra Rroad — Cahuilla, Serrano
Banning, CA 92220
(951) 849-8807
(951) 755-5200
(951) 922-8146 Fax

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

Serrano Nation of Indians
Goldie Walker
P.O. Box 343 — Serrano
Patton, CA 92369

(909) 862-9883

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 only applicable for contacting local Native Americans with regard to cultural resources for the proposed SCH# 2011041009 Falcon Ridge Substation Project; San Bernardino County.

Ernest H. Siva
Morongo Band of Mission Indians Tribal Elder
9570 Mias Canyon Road   Serrano
Banning , CA 92220   Cahuilla
siva@dishmail.com
(951) 849-4676

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 only applicable for contacting local Native Americans with regard to cultural resources for the proposed SCH# 2011041009 Falcon Ridge Substation Project; San Bernardino County.

Public Comment Card

SCE's Falcon Ridge Substation Project
Comment Period: March 30, 2011 – April 29, 2011

Commenter Name: GINA GIBSON, SENIOR PLANNER

Address: 150 S. PALM AVE RIALTO CA 92376

Comment: THE CITY OF RIALTO HAS FILED A PROTEST WITH THE CPUC. WE HAVE PROPOSED AN ALTERNATIVE ROUTE FOR OVERHEAD LINES. OR, IF THE PROPOSED ROUTE IS APPROVED, WE HAVE STIPULATED THAT THE LINES BE PLACED UNDERGROUND TO MINIMIZE NEGATIVE IMPACTS TO AESTHETICS AND LAND USE. THE CITY OF RIALTO ALSO REQUESTS THE DISTINCTION OF BEING NAMED IN THE EIR AS A RESPONSIBLE AGENCY. A FORMAL LETTER WILL BE SUBMITTED BY THE CITY DURING THE SCOPING PERIOD. D-1

CITY OF FONTANA CALIFORNIA

City of Fontana
CALIFORNIA

January 26, 2011

California Public Utilities Commission
Docket Office, Room 2001
505 Van Ness Avenue
San Francisco, CA 94102

Re: Response to the Notice of Application for a Permit to Construct (PTC) for the Falcon Ridge Substation Project dated December 29, 2010 submitted by Southern California Edison Company (SCE).

Dear Sir:

Thank you for the opportunity to submit a protest on the above-referenced application filed with the California Public Utilities Commission (CPUC). The proposed 66/12kilovolt (kV) distribution substation is located within the City of Fontana, generally located at the southeast corner of Casa Grande and Sierra Avenue. Additionally, the proposed source lines connecting this substation to other substations in the area are proposed within existing SCE easements and at least one new easement contemplated in the City of Fontana.

The City of Fontana is concerned with the conclusions set forth in the Proponent's Environmental Assessment (PEA) given that the City wasn't provided a review copy of the PEA prior to its submittal to the CPUC. Based on our review of the applicant's PEA and our own knowledge of our community and planning documents, this project may result in significant aesthetic impacts and land use impacts from the placement of the overhead 66 kV subtransmission source lines. We therefore respectfully protest this proposal and request that public hearings be held to receive input from the City, from residents, and from the affected surrounding property owners. The City has detailed and attached a list of concerns with the PEA and the apparent lack of information in the PEA, and provides a summary of the concerns below:

1. Proposed new ROW for the 66 kV transmission lines and access roads will significantly impact existing and approved residential development site plans resulting in potential significant impacts to existing/approved Land Uses without Applicant Proposed Measures to reduce impacts.

2. Proposed installation of the 66 kV lines along the new alignment of Mango Avenue as it intercepts Casmalia Avenue (Sierra Lakes Parkway) should be considered for revisions to follow a straight line to Casmalia Avenue (Sierra Lakes Parkway) along the landfill's western boundary to reduce the Aesthetic and Land Use impacts to the existing commercial uses and future development at the Casmalia Avenue (Sierra Lakes Parkway) and Mango Avenue intersection.

3. Proposed 66 kV transmission lines may result in potentially significant impacts without Applicant Proposed Measures to reduce impacts to designated scenic view sheds/scenic corridors (designated in the Community Design Element, Goal No. 1, of the City of Fontana General Plan) north of Summit Avenue, north along Sierra Avenue, north along Citrus Avenue and Cypress Avenue and west along Baseline Avenue unless they are undergrounded. This is contrary to the No Impact findings in the PEA Page 4.1-21, third paragraph.

4. Visual impacts of the substation cannot be determined or deemed to be "less than significant" without a detail of the landscaping and screening that will be provided; this detail should be included in the PEA.

5. There should be a discussion in the CEQA Initial Study Checklist, and the PEA, on the impacts or lack of impacts from EMF (Electro Magnetic Field) as a result of the additional transmission lines. At the minimum, a reference in the PEA should be made to the addendum document which addresses this issue.

6. Aesthetic Impacts – Underground proposed 66 kV subtransmission source lines at existing parks, adjacent to existing residential dwelling units and approved residential projects (primarily north of Summit Avenue), at scenic crossings such as Sierra Avenue, Baseline Avenue, and Citrus Avenue, and along any new ROW (along South Highland Avenue and San Sevaine Avenue).

7. Aesthetic Impacts – Provide a detailed landscaping plan for the substation with visual simulations to ensure less than significant visual impacts.

8. Land Use and Planning Impacts – Eliminate the 30 foot ROW easement proposed in the Summit at Rosena Specific Plan, or include a discussion of the need for the easement and an environmental review satisfactory to address the possible use of eminent domain authority to require the easement as expressed to City staff by SCE team leaders.

9. Land Use and Planning Impacts – ROW for the 66 kV subtransmission lines on the west side of the landfill along the alignment of Mango Avenue should extend south in a straight line along the landfill until the ROW intersects Sierra Lakes Parkway.

Per the instructions in the Notice of Application, the following person is the point of contact for the City of Fontana:

Don Williams, AICP, Director of Community Development
8353 Sierra Avenue
Fontana, CA 92335
(909) 350-6723
dwilliams@fontana.org

The City of Fontana looks forward to working with the CPUC and SCE to ensure that this project, which is very important to the City of Fontana and the region, is processed in a timely manner with minimum impacts to the community. Please contact Charles Fahie, AICP, Senior Planner at (909) 350-6724 or Don Williams, AICP, Director of Community Development at (909) 350-6723 as to the time and place for public hearings.

Respectfully,

DEVELOPMENT SERVICES ORGANIZATION
Community Development Department

Don Williams, AICP
Director of Community Development

Attachment:
City of Fontana's response to PEA for Falcon Ridge Substation project

cc: Southern California Edison Co.
Law Dept. – Exception Mail
Attn: Meraj Rizvi
2244 Walnut Grove Avenue
Rosemead, CA 91770

California Public Utilities Commission
Director, Energy Division
505 Van Ness Avenue, 4th Floor
San Francisco

Ken Hunt, City Manager
Don Williams, AICP, Director of Community Development
Ricardo Sandoval, City Engineer
Charles Fahie, AICP, Senior Planner

The City of Fontana's response to the Proponents Environmental Assessment (PEA), submitted by SCE, for the Falcon Ridge Substation Project dated December 29, 2010.

The Proponents Environmental Assessment (PEA) concludes that,

> *"with the implementation of Applicant-Proposed Measures (APMs), the majority of the potential significant environmental effects associated with the Proposed Project would be reduced to less than significant levels. However, impacts to Air Quality would remain significant and unavoidable."*

After reviewing the PEA, City staff has concluded that this project may result in significant Aesthetic impacts and Land Use impacts from the placement of the overhead 66 kV subtransmission source lines if the preferred alternative as presented is not modified, or additional APMs are not proposed to reduce the impacts. The following concerns with the PEA support the City's position on potential significant impacts within the City of Fontana:

- <u>Potential Significant Land Use Impact</u> - The project description for the Etiwanda subtransmission source line route states, *"The 66 kV subtransmission facilities would then again extend northeast within SCE's existing transmission ROW until it intersects with Summit Avenue. The 66 kV subtransmission facilities would then extend east on SCE's existing transmission ROW until it reaches the Proposed Substation site."* Figure 3.2, Page 3-7 of the PEA depicts a 30 foot wide 66 kV easement and proposed 66kV lines adjacent to but outside of the existing SCE ROW. In other sections and figures (vegetation maps) of the PEA, this easement that runs from the substation west approximately 2500 feet from Sierra Avenue to Cypress Avenue is depicted for access road only and the 66 kV line is in the existing SCE ROW. Section 3.3, page 3-46, references the acquisition of approximately 13 acres of new easement rights for a 30 foot wide ROW to accommodate the subtransmission source lines and road access for a distance of approximately 3.6 miles in length, but it doesn't give the locations for the new ROW. This discrepancy in the document must be resolved prior to circulation of the document. Regardless of whether the easement will be utilized for access roads or for the construction of transmission lines, the impact on the existing land uses must be evaluated in the PEA. Acquisition of this easement may result in potentially significant Land Use impacts within the approved Summit at Rosena Specific Plan on the northwest corner for Sierra Avenue and Summit Avenue. A 30 foot Easement could result in a major revision to the approved specific plan to accommodate lot dimensions and street design. A discussion of the impacts of utilizing Eminent Domain to acquire the land and the environmental consequences should be discussed in the PEA.

  The proposal to install above ground subtransmission source lines along the alignment of Mango Avenue to the intersection of Sierra Lakes Parkway and then east along Sierra Lakes Parkway to Rialto should be modified to run along the landfill until the lines intercept sierra lakes parkway/Casmalia Avenue then continue east to Rialto. This would alleviate any potential significant Land Use Impacts proposed at the northeast and northwest corner of Mango Avenue and Sierra Lakes Parkway.

Given the information provided above, it is inconceivable that the CEQA Initial Study Checklist submitted with the application to the CPUC does not list Land Use and Planning as an environmental factor that would potentially be affected by the project (Page A-6 of Appendix A). In addition, Page A-14, Section X, of the Initial Study Checklist shows No Impact to Land Use and Planning.

- Potential Significant Aesthetic Impacts – The following is extracted from the City of Fontana General Plan Community Design Element, Goal #1, Issue #2, Open Space Views and Use:

  "How can the City best preserve and incorporate view corridors into its design guidelines?

  Discussion: Fontana has the good fortune to be surrounded on the north and south by a significant amount of visible open space in the form of mountains and hills. To the northwest and northeast respectively lie the San Gabriel and San Bernardino Mountains; to the south lie the Jurupa Hills. These views are further enhanced by the fact that the City's street system is almost totally a north/south and east/west grid, enabling largely unobstructed views. Clearly, one of the best ways to enhance the City's identity is to use this natural open space as a defining visual boundary and a view corridor.

  The City has long recognized the need to incorporate view corridors in its design guidelines. In 1987, the City commissioned a Scenic Corridor plan and Design Guidelines Study for the North Fontana area. This study identified six scenic corridor routes and two freeways for special design treatment including:

  - *North-south routes: Sierra, Citrus and Cherry Avenues*
  - *East-west routes: Foothill Blvd., Baseline and Highland Avenues*
  - *Major freeways: I-15 and I-210*

  The study recommended the creation of spacious view corridors and incorporation of community design themes, streetscape identity devices and specialized landscape treatment at strategic points along these routes."

The scenic corridors that exist along Baseline Avenue, Sierra Avenue and Citrus Avenue will be significantly affected by the proposed 66kV lines if they are installed above ground and result in significant negative Aesthetic impacts. In addition, the view of the San Gabriel and San Bernardino mountains to the north (no visual simulations were provided in the PED from any of the residential developments viewing the mountains to the north) from the existing and approved residential developments north of Summit Avenue will be significantly impacted by the proposed installation of the new transmission lines unless Applicant Proposed Measures to reduce impacts are included in the PEA. The existing 500 kV SCE towers are normally spaced approximately 1,300 feet to 1,570 feet apart with a height range of 128 feet to 225 feet. The height of the transmission lines vary, but for argument sake, we can assume that they are at least 100 feet or higher from the ground surface. The proposed 66 kV poles are spaced from 155 feet to 240 feet with a height range of 61 feet to 100 feet with an assumed height of the transmission lines at a minimum of 50 feet. Given that the new smaller poles for the 66kV transmission lines impacts a view shed that is not compromised by the existing 500 kV lines and towers, this new construction will result in significant impacts to the scenic view shed without Applicant Proposed Measures to reduce impacts.

January 26, 2011

The proposed substation may impact existing views that are currently enjoyed from the surrounding communities. The substation is located off of Sierra Avenue, designated as a scenic corridor route in the City of Fontana General Plan. The PEA, Page 3-10, second and third paragraphs references perimeter wall treatment for the substation and future landscaping to filter views for the surrounding community and other potential sensitive receptors. This perimeter treatment and landscaping should be detailed and identified as Applicant Proposed Measures to reduce Aesthetic Impacts in the PEA and initial Study Checklist.

Given the information provided above, it is inconceivable that the CEQA Initial Study Checklist submitted with the application to the CPUC does not list Aesthetics as an environmental factor that would potentially be affected by the project (Page A-6 of Appendix A). In addition, Page A-10, Section I, of the Initial Study Checklist shows No Impact to an existing scenic vista.

Michael.Daudt@GreshamSavage.com · San Bernardino Office
(909) 890-4499 · *fax* (909) 890-0687

April 29, 2011

VIA EMAIL [FalconRidge@esassoc.com]
AND FAX [415-896-0332]

Mr. John Boccio
Falcon Ridge Substation Project
c/o Environmental Science Associates
225 Bush Street, Suite 1700
San Francisco, CA 94104

Re: Scoping Period Comments: Permit to construct electrical facilities with voltages between 50 kV and 200 kV: Falcon Ridge Substation Project (A.1012017)

Dear Mr. Boccio:

On behalf of J.W. Mitchell Land Company, LLC ("J.W. Mitchell"), we respectfully submit the following comments on the proposed Falcon Ridge Substation Project ("Project"). J.W. Mitchell is the owner of the Summit at Rosena project consisting of approximately 158 acres of land generally located north of Summit Avenue and bounded on the east and the west by Sierra Avenue and Cypress Avenue, respectively, in the City of Fontana ("Summit Property"). The Summit Property is bisected by the existing Southern California Edison Company ("SCE") right-of-way which runs from east to west through the site.

To ensure a thorough evaluation of the potentially significant environmental impacts stemming from the Project, we request that the EIR address the following concerns:

1) <u>Land Use and Zoning Conflicts.</u> SCE will need to obtain approximately 13 acres of new easement rights for a 30 foot wide right-of-way to accommodate the new subtransmission source lines ("Additional ROW"). The Additional ROW will pass through several specific plan areas – including the Summit at Rosena Specific Plan – and as a consequence will necessitate major modifications to existing entitlements and land use approvals. Accordingly, the EIR should evaluate potentially significant impacts related to conflicts with existing zoning designations and planned development.

2) General Plan Policies. The EIR should assess Project compatibility with relevant City of Fontana General Plan policies including Land Use Policy 2.2 (requiring sensitive integration of utility corridors into the community) and Public Facilities, Services, and Infrastructure Policy 9.3 (requiring collaboration with utility companies to achieve the maximum undergrounding of utility lines).

3) Visual and Aesthetic Impacts. The EIR must not simply conclude that the Project would not result in significant visual and aesthetic impacts merely because the proposed subtransmission source line route already features existing 500 kV steel towers and associated overhead lines. Instead the EIR must give due consideration to whether the construction of additional towers and overhead lines – which in the case of our client will move SCE infrastructure significantly closer to planned residential uses and thereby reduce the usability of the land – will substantially degrade the visual character of the Project area.

4) Alternatives Analysis. Included in the reasonable range of alternatives mandated by CEQA, the EIR should consider undergrounding portions of the 66 kV subtransmission source line route where appropriate to avoid impacts to existing and planned residential development.

Thank you for your consideration.

Very truly yours,

Michael S. Daudt, for
GRESHAM SAVAGE
NOLAN & TILDEN,
A Professional Corporation

MSD:ld

cc: John C. Nolan, Esq.
Mark A. Ostoich, Esq.

M723-000 – 662237.1

California Natural Resources Agency
DEPARTMENT OF FISH AND GAME
http://www.dfg.ca.gov
Inland Deserts Region
3602 Inland Empire Blvd., Suite C-200
Ontario, CA 91764
(909) 484-0167

***EDMUND G. BROWN**, Governor*
***JOHN McCAMMAN**, Director*

April 29, 2011

Mr. John Boccio
California Public Utilities Commission
505 Van Ness Avenue
San Francisco, CA 94102-3298

Re: Notice of Preparation of Environmental Impact Report Falcon Ridge Substation Project County of San Bernardino -- SCH# 2011041009

Dear Mr. Boccio:

The Department of Fish and Game (Department) appreciates this opportunity to comment on the Notice of Preparation for the Draft Environmental Impact Report (DEIR) for the Falcon Ridge Substation Project. The project involves the construction of a 66/12 kV substation, two 115 kV subtransmission lines to connect the Alder and Etiwanda substations, three underground 12 kV distribution getaways, fiber optic cable and extension of the operating and transfer buses at Alder Substation. The purpose of the project is to serve the current and projected demand for electricity in the cities of Rancho Cucamonga, Rialto, Fontana and areas of unincorporated San Bernardino County.

The Department is responding as a Trustee Agency for fish and wildlife resources [Fish and Game Code Sections 711.7 and 1802 and the California Environmental Quality Act (CEQA) Guidelines Section 15386], and as a Responsible Agency regarding any discretionary actions (CEQA Guidelines Section 15381), such as a Lake or Streambed Alteration Agreement (California Fish and Game Code Sections 1600 *et seq.*) and/or a California Endangered Species Act (CESA) Permit (California Fish and Game Code Sections 2080 and 2080.1).

The site is located in the County of San Bernardino, City of Fontana, City of Rialto and City of Rancho Cucamonga. The substation is located in a triangle created by the Ontario Freeway (I-15), N. Riverside Avenue, and the Foothill Freeway (SR 210).

Implementation of the proposed project may impact chaparral or Riversidean sage scrub habitat. Species that may be found in the area include: San Bernardino kangaroo rat and coastal California gnatcatcher (federally listed), Pacific pocket mouse, Northwestern San Diego pocket mouse, burrowing owl, San Diego horned lizard, Cooper's hawk, red-tailed hawk, San Diego black-tailed jackrabbit, Belding's orange-throated whiptail, and assorted raptors. Many of these animals are State Species of Special Concern.

Conserving California's Wildlife Since 1870

"Species of Special Concern" status applies to animals not listed under the federal Endangered Species Act or the California Endangered Species Act, but which (1) are declining at a rate that could result in listing, or (2) historically occurred in low numbers and known threats to their persistence currently exist.

This designation is intended to result in special consideration for these animals by the Department, land managers, consulting biologists, and others, and is intended to focus attention on the species to help avert the need for costly listing under federal and State endangered species laws. Fort these reasons, the Department recommends that mitigation be provided for impacts to these species.

The Department advises that any biological habitat assessments or walkovers be conducted within a year of distribution of the CEQA document. Habitat assessments that identify the possibility of listed threatened or endangered plants should also provide the results of any focus surveys in the CEQA document. CEQA documents that rely on future surveys or regulatory compliance (with the exception of pre-construction surveys for burrowing owls or bird nests) as mitigation may not satisfy the Department's obligations under CEQA and may require future supplemental documents processed via CEQA.

The existing condition of a project site as "ruderal", "degraded" or "agriculture use" by the lead agency does not preclude the presence of native species, such as grassland species, the burrowing owl, foraging raptors, or riparian species. A basic biological resources survey should still be conducted at these sites and the results included in the CEQA document.

The Department is concerned about the continuing loss of jurisdictional waters of the State and the encroachment of development into areas with native habitat values. The DEIR should contain sufficient, specific, and current biological information on the existing habitat and species at the project site; measures to minimize and avoid sensitive biological resources; and mitigation measures to offset the loss of native flora and fauna and State waters. If the project site contains Federally- or State-listed species, the DEIR should include measures to avoid and minimize impacts to these species as well as mitigation measures to compensate for the loss of biological resources. The DEIR should not defer impact analysis and mitigation measures to future regulatory discretionary actions, such as a Lake or Streambed Alteration Agreement, CESA Permit, or Federal Endangered Species Act (ESA) Permit.

This particular project has the potential to have significant environmental impacts on sensitive flora and fauna resources, including Federally- and State-listed endangered species. Therefore, the DEIR should include an alternatives analysis which focuses on environmental resources and ways to avoid or minimize impacts to those resources.

To enable Department staff to adequately review and comment on the proposed project, we suggest that updated biological studies be conducted prior to any environmental or discretionary approvals. The following information should be included in any focused biological report or supplemental environmental report:

1. A complete assessment of the flora and fauna within and adjacent to the project area, with particular emphasis upon identifying endangered, threatened, and locally unique species and sensitive habitats.

    a. A thorough assessment of rare plants and rare natural communities, following the Department's November 2009 guidance for Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities. The guidance document can be found at the following link: http://www.dfg.ca.gov/biogeodata/cnddb/pdfs/Protocols_for_Surveying_and_Evaluating_Impacts.pdf

    b. A complete assessment of sensitive fish, wildlife, reptile, and amphibian species. Seasonal variations in use of the project area should also be considered. Focused species-specific surveys, conducted at the appropriate time of year and time of day when the sensitive species are active or otherwise identifiable, are required. Acceptable species-specific survey procedures should be developed in consultation with the Department and the U.S. Fish and Wildlife Service.

    c. Rare, threatened, and endangered species to be addressed should include all those which meet the CEQA definition (See CEQA Guidelines, 15380)

    d The Department's California Natural Diversity Data Base in Sacramento should be contacted at (916) 327-5960 to obtain current information on any previously reported sensitive species and habitat, including Significant Natural Areas identified under Chapter 12 of the California Fish and Game Code.

2. A thorough discussion of direct, indirect, and cumulative impacts expected to adversely affect biological resources, with specific measures to offset such impacts.

    a. CEQA Guidelines, 15125(a), direct that knowledge of the regional setting is critical to an assessment of environmental impacts and that special emphasis should be placed on resources that are rare or unique to the region.

    b. Project impacts should be analyzed relative to their affects on off-site habitats. Specifically, this should encompass adjacent public lands, open space, adjacent natural habitats, and riparian ecosystems. In addition, impacts to and maintenance of wildlife corridor/movement areas, including access to undisturbed habitat in adjacent areas, should be fully evaluated and provided.

    c. The zoning of areas for development projects or other uses that are nearby or adjacent to natural areas may inadvertently contribute to wildlife-human interactions. A discussion of possible conflicts and mitigation measures to reduce these conflicts should be included in the environmental document.

d. A cumulative effects analysis should be developed as described under CEQA Guidelines, 15130. General and specific plans, as well as past, present, and anticipated future projects, should be analyzed relative to their impacts on similar plant communities and wildlife habitats.

e. The document should include an analysis of the effect that the project may have on regional and/or subregional conservation programs or Habitat Conservation Plans. Under Sections 2800-2835 of the California Fish and Game Code, the Department, through the Natural Communities Conservation Planning (NCCP) program is coordinating with local jurisdictions, landowners, and the Federal Government to preserve local and regional biological diversity.

3. A range of alternatives should be analyzed to ensure that alternatives to the proposed project are fully considered and evaluated (CEQA Guidelines 15126.6). A range of alternatives which avoid or otherwise minimize impacts to sensitive biological resources should be included. Specific alternative locations should also be evaluated in areas with lower resource sensitivity where appropriate.

a. Mitigation measures for project impacts to sensitive plants, animals, and habitats should emphasize evaluation and selection of alternatives which avoid and/or otherwise minimize project impacts. Off-site compensation for unavoidable impacts through acquisition and protection of high-quality habitat should be addressed.

b. The Department considers Rare Natural Communities as threatened habitats having both local and regional significance. Thus, these communities should be fully avoided and otherwise protected from project-related impacts. These habitats include, but are not limited to Riversidean alluvial fan sage scrub, coastal sage scrub and riparian habitat.

c. The Department generally does not support the use of relocation, salvage, and/or transplantation as mitigation for impacts to rare, threatened, or endangered species. Department studies have shown that these efforts are experimental in nature and largely unsuccessful.

4. A CESA Permit must be obtained, if the project has the potential to result in "take" of species of plants or animals listed under CESA, either during construction or over the life of the project. CESA Permits are issued to conserve, protect, enhance, and restore State-listed threatened or endangered species and their habitats. Early consultation is encouraged, as significant modification to the proposed project and mitigation measures may be required in order to obtain a CESA Permit. Revisions to the California Fish and Game Code, effective January 1998, require that the Department issue a separate CEQA document for the

issuance of a CESA permit unless the project CEQA document addresses all project impacts to listed species and specifies a mitigation monitoring and reporting program that will meet the requirements of a CESA permit. For these reasons, the following information is requested:

a. Biological mitigation, monitoring, and reporting proposals should be of sufficient detail and resolution to satisfy the requirements for a CESA Permit.

b A Department-approved Mitigation Agreement and Mitigation Plan are required for plants listed as rare under the Native Plant Protection Act.

5. The Department opposes the elimination of watercourses and/or their channelization or conversion to subsurface drains. All wetlands and watercourses, whether intermittent or perennial, must be retained and provided with substantial setbacks which preserve the riparian and aquatic values and maintain their value to on-site and off-site wildlife populations.

   a. Under Section 1600 *et seq.* of the California Fish and Game Code, the Department requires the project applicant to notify the Department of any activity that will divert, obstruct or change the natural flow or the bed, channel or bank (which includes associated riparian resources) of a river, stream or lake, or use material from a streambed prior to the applicant's commencement of the activity. Streams include, but are not limited to, intermittent and ephemeral streams, rivers, creeks, dry washes, sloughs, blue-line streams, and watercourses with subsurface flow. The Department's issuance of a Lake and Streambed Alteration Agreement for a project this is subject to CEQA will require CEQA compliance actions by the Department as a responsible agency. The Department, as a responsible agency under CEQA, may consider the local jurisdiction's (lead agency) Negative Declaration or Environmental Impact Report for the project. However, if the CEQA document does not fully identify potential impacts to lakes, streams, and associated resources (including, but not limited to riparian and alluvial fan sage scrub habitat) and provide adequate avoidance, mitigation, monitoring, and reporting commitments, additional CEQA documentation will be required prior to execution (signing) of the Streambed Alteration Agreement. In order to avoid delays or repetition of the CEQA process, potential impacts to a lake or stream, as well as avoidance and mitigation measures need to be discussed within this CEQA document. The Department recommends the following measures to avoid subsequent CEQA documentation and project delays:

      (i) Incorporate all information regarding impacts to lakes, streams and associated habitat within the DEIR. Information that should be included within this document includes: (a) a delineation of lakes, streams, and associated habitat that will be directly or indirectly impacted by the proposed project; (b) details on the biological resources (flora and fauna) associated with the lakes and/or streams; (c) identification of the presence or absence of sensitive plants, animals, or natural communities; (d) a discussion of environmental alternatives; (e) a discussion of avoidance measures to reduce project impacts, (f) a discussion of potential mitigation measures required to reduce the project impacts to a level of insignificance; and (g) an analysis of impacts to habitat caused by a change in the flow of water across the site. The applicant and lead agency should keep in mind that the State also has a policy of no net loss of wetlands.

(ii) The Department recommends that the project applicant and/or lead agency consult with the Department to discuss potential project impacts and avoidance and mitigation measures. Early consultation with the Department is recommended since modification of the proposed project may be required to avoid or reduce impacts to fish and wildlife resources. To obtain a Streambed Alteration Agreement Notification package, please visit our website at: http://www.dfg.ca.gov/habcon/1600.

Thank you for this opportunity to comment. Please contact Robin Maloney-Rames at (909) 980-3818, if you have any questions regarding this letter.

Sincerely,

Robin Maloney-Rames for

Jeff Brandt
Senior Environmental Scientist

cc: State Clearinghouse, Sacramento

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APPENDIX G

City Meeting Notes

ESA Energy

225 Bush Street
Suite 1700
San Francisco, CA 94104
415.896.5900 phone
415.896.0332 fax

www.esassoc.com

meeting notes

project	Falcon Ridge Substation Project	project no.	207584.09
date	May 11, 2011	time	11:00 a.m.

present
Charles Fahie, Senior Planner, City of Fontana
Don Williams, Director of Community Development, City of Fontana
John Boccio, Project Manager, CPUC
Janna Scott, Project Manager, ESA
Julie Holst, Deputy Project Manager, ESA

subject
Scoping Meeting with City of Fontana Community Development Department Regarding SCE's Proposed Falcon Ridge Substation Project

key points:

- The primary purpose of the City of Fontana protest letter was to urge the CPUC to require an EIR be completed for the project. The city is pleased that that path has been chosen.
- The City of Fontana is in support of the project; however, it wishes that the transmission lines go underground in a couple of areas. The city also wishes that screening of the substation to meet city standards.
- The City of Fontana will rework the language of its letter, submitted in January, to read as an official protest. Once this letter is complete, the city will resubmit it.
- The Project Description remains incorrect. SCE's response to Fontana's letter explaining the errors still contained incorrect information. SCE must amend the Project Description soon.
- ESA requested that the City of Fontana create a map containing specific project description changes and locations where it wishes the line to go underground. ESA also requested that the City of Fontana suggest Key Observation Points.
- The City of Fontana will request a courtesy review with SCE regarding screening of and landscaping surrounding the substation. The City will ask SCE to present different landscape/screening exhibits. Once an option is agreed upon, it will be submitted as either an Applicant Proposed Measure or recommended to the CPUC by the city as a Mitigation Measure.
- Building permits are ministerial in the city; the city retains discretion over aesthetics.
- The City of Fontana will send ESA and CPUC a list of cumulative projects and a list of specific standards and requirements.

ESA Energy

225 Bush Street
Suite 1700
San Francisco, CA 94104
415.896.5900 phone
415.896.0332 fax

www.esassoc.com

meeting notes

project	Falcon Ridge Substation Project	project no.	207584.09
date	May 11, 2011	time	2:00 p.m.

present
Gina Gibson, Senior Planner, City of Rialto
Walter Allison, Principal Civil Engineer, City of Rialto
John Boccio, Project Manager, CPUC
Janna Scott, Project Manager, ESA
Julie Holst, Deputy Project Manager, ESA

subject
Scoping Meeting with City of Rialto Planning Department Regarding SCE's Proposed Falcon Ridge Substation Project

key points:

- The City of Rialto wishes either that the proposed route to Alder Substation be installed underground or the alternative route to Alder Substation be approved with a slight modification. This modification entails the alternative route following Lowell Street west rather than West Casa Grande. The City prefers this modification to the alternative because of a high-end residential area and Ferguson Park, which are north of West Casa Grande. Lowell Road is surrounded by industrial area owned by UPS, and would be a better road for a transmission line. The City of Rialto never heard a response about this possible alternative from SCE.

- The City of Rialto wishes that the preferred route be underground because West Casmalia is a corridor to a new Specific Plan development.

- The City of Rialto wants to know the side of the street on which transmission lines would be installed.

- The City of Rialto suggested researching a development called Golden Bear.

- The City of Rialto will send ESA and CPUC a list of cumulative projects, a list of required permits, usage data of Ferguson Park, and a letter specifically requesting to be a responsible agency.

APPENDIX B
SCE's EMF Field Management Plan

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A Note on EMF and Cardiac Pacemakers

Electric and magnetic fields (EMFs) associated with some transmission lines can affect the operation of older model pacemakers by causing them to revert to asynchronous pacing. Cardiovascular specialists do not consider prolonged asynchronous pacing to be a problem: periods of operation in this mode are commonly induced by cardiologists to check pacemaker performance. With dual-chamber pacemakers, inappropriate pacing has been documented before unit reversion to asynchronous mode.[1] Depending on the manufacturer and design, the magnetic field threshold for pacemaker interference, including the possibility of inappropriate pacing, is in the range of two to 12 Gauss (G), and the electric field threshold is about 1.5 kilovolts/meter (kV/m) for some of the more sensitive dual-chamber units, and above 2.0 kV/m for older ventricular units.[2]

Most of the 9-mile long Etiwanda Subtransmission Source Line Route would be within an existing 500 kV transmission line right-of-way (ROW), with only approximately 0.75 mile of the route in a new corridor. Because of the relatively low voltage and current that would be associated with the proposed 66 kV subtransmission source lines compared to the existing 500 kV transmission line, the portion of the Etiwanda Subtransmission Source Line Route that would be within the 500 kV ROW would result in little change to the existing EMFs. The approximately 3-mile long Alder Subtransmission Source Line Route would be located primarily in a new corridor. Based on the magnetic field data included in the enclosed Field Management Plan, which was included in SCE’s application for a Permit to Construct the Falcon Ridge Substation Project, it is estimated that the maximum magnetic fields that would occur directly under the proposed subtransmission source line routes in new corridors would be approximately 0.007 to 0.015 G. Based on electric field data for typical 66 kV subtransmission lines,[3] it is estimated that the maximum electric field that would occur directly under the proposed substation transmission source line routes in new corridors would be approximately 0.9 kV/m. Therefore, the EMFs associated with the project would not result in pacemaker interference.

1 Electric Power Research Institute, *Susceptibility of Implanted Pacemakers and Defibrillators to Interference by Power-Frequency Electric and Magnetic Fields*, August 1997.

2 Id.

3 National Grid, EMFs.info - 66 kV overhead lines: electric fields. Available online: http://www.emfs.info. Accessed on December 20, 2011.

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CDHS	California Department of Health Services
C/L	center line
CPCN	Certificate of Public Convenience and Necessity
CPUC	California Public Utilities Commission
ELF	Extremely Low Frequency
EMF	electric and magnetic fields
FMP	field management plan
GO	General Order
IARC	International Agency for Research on Cancer
kV	kilovolt
LWS	light weight steel
mG	milliGauss
MVA	megavolt-ampere
MW	megawatt
NIEHS	National Institute of Environmental Health Sciences
NRPB	National Radiation Protection Board
PEA	Proponents Environmental Assessment
RAPID	Research and Public Information Dissemination
ROW	right-of-way
SCE	Southern California Edison Company
T/L	transmission line
TSP	tubular steel pole
WHO	World Health Organization

I. EXECUTIVE SUMMARY

This document is Southern California Edison Company's (SCE) Field Management Plan (FMP) for the proposed Falcon Ridge Substation Project (Proposed Project). SCE proposes to construct the Falcon Ridge Substation Project (Proposed Project) to meet forecasted electrical demands in the cities of Rancho Cucamonga, Fontana, Rialto, and the surrounding areas of unincorporated San Bernardino County. The Proposed Project would include the following components:

- Construction of a new 66/12 kilovolt (kV) distribution substation (Falcon Ridge Substation). Falcon Ridge Substation would be an unattended, automated, 56 mega-volt ampere (MVA), 66/12 kV low-profile substation.

- Installation of two new 66 kV subtransmission source lines to connect the proposed Falcon Ridge Substation to the existing Etiwanda 220/66 kV Substation (Etiwanda Substation) and Alder 66/12 kV Substation (Alder Substation).

    - One new 66 kV subtransmission source line from the existing Alder Substation would be approximately 3 miles in length and connect to the proposed Falcon Ridge Substation.

        - In order to accommodate the connection of the subtransmission source line, a 66 kV switchrack position at Alder Substation would need to be equipped and the operating and transfer buses would need to be extended.

For the purpose of EMF evaluation, this minor substation modification will not be evaluated in this FMP.

- One new 66 kV subtransmission source line from the existing Etiwanda Substation would be approximately 9 miles in length and connect to the proposed Falcon Ridge Substation.
    - In order to accommodate the connection of the subtransmission source line, a 66 kV switchrack position at Etiwanda Substation would need to be equipped. For the purpose of EMF evaluation, this minor substation modification will not be evaluated in this FMP.

- Construction of three new underground 12 kV distribution getaways

SCE provides this FMP in order to inform the public, the California Public Utilities Commission (CPUC), and other interested parties of its evaluation of "no-cost and low-cost" magnetic field reduction design options for this project, and SCE's proposed plan to apply these design options to this project. This FMP has been prepared in accordance with CPUC Decision No. 93-11-013 and Decision No. 06-01-042 relating to extremely low frequency (ELF)[5] electric and magnetic fields (EMF). This FMP also provides background on the current status of scientific research related to possible health effects of EMF, and a description of the CPUC's EMF policy.

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[5] The extremely low frequency is defined as the frequency range from 3 Hz to 3,000 Hz.

The “no-cost and low-cost” magnetic field reduction design options that are incorporated into the design of the Proposed Project are as follows:

- Utilizing subtransmission structure heights that meet or exceed SCE’s preferred EMF design criteria
- Utilizing subtransmission line construction that reduces the space between conductors compared with other designs
- Arranging conductors of proposed subtransmission line for magnetic field reduction
- Site selection of the substation site
- Placing major substation electrical equipment (such as transformers, switchracks, buses and underground duct banks) away from the substation property lines
- Configuring the transfer and operating buses with the transfer bus closest to the nearest property line

Table 1 summarizes “no-cost and low-cost” magnetic field reduction design options that SCE considered for the Proposed Project.

SCE’s plan for applying the above “no-cost and low-cost” magnetic field reduction design options for the Proposed Project is consistent with CPUC’s EMF policy and with the direction of leading national and international health agencies. Furthermore, the plan complies with SCE’s EMF Design Guidelines[6], and with applicable national and state safety standards for new electrical facilities.

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[6] EMF Design Guidelines, August 2006.

Table 1. Summary of "No-cost and Low-cost" Magnetic Field Reduction Design Options

Area No.	Location[7]	Adjacent Land Use[8]	MF Reduction Design Options Considered	Estimated Cost to Adopt	Design Option(s) Adopted? (Yes/No)	Reason(s) if not adopted
Falcon Ridge Substation	Located within a SCE owned parcel east of Sierra Avenue and approximately 1,500 feet north of Summit Avenue in Fontana, California	3,6	• Placing major substation electrical equipment (such as transformers, switchracks, buses and underground duct banks) away from the substation property lines • Configuring the transfer and operating buses with the transfer bus closest to the nearest property line	• No-Cost • No-Cost	• Yes • Yes	
66 kV Etiwanda Source Line Segment 1	Overhead 66 kV lines from across the street of Etiwanda Substation extending along the SCE 500 kV ROW to the intersection of South Highland Ave	1,2,3,4,6	• Utilizing subtransmission structure heights that meet or exceed SCE's preferred EMF design criteria • Utilizing subtransmission line construction that reduces the space between conductors compared with other designs • Arranging conductors of proposed subtransmission line for magnetic	• No-Cost[9] • No-Cost • Low-Cost	• Yes • Yes • Yes	

7 This column shows the major cross streets, existing subtransmission lines, or substation name as reference points.

8 Land usage codes are as follows: 1) schools, licensed day-cares, and hospitals, 2) residential, 3) commercial/industrial, 4) recreational, 5) agricultural, and 6) undeveloped land.

9 Included in the preliminary design

Area No.	Location[7]	Adjacent Land Use[8]	MF Reduction Design Options Considered	Estimated Cost to Adopt	Design Option(s) Adopted? (Yes/No)	Reason(s) if not adopted
			field reduction			
66 kV Etiwanda Source Line Segment 2	Overhead 66 kV lines from the intersection of San Sevaine Road and SCE ROW extending along the ROW to 0.25 mile north of the intersection of Summit Ave	2,4,5,6	• Utilizing subtransmission structure heights that meet or exceed SCE's preferred EMF design criteria • Utilizing subtransmission line construction that reduces the space between conductors compared with other designs • Arranging conductors of proposed subtransmission line for magnetic field reduction	• No-Cost[10] • No-Cost • Low-Cost	• Yes • Yes • Yes	
66 kV Etiwanda Source Line Segment 3	Overhead 66 kV lines from 0.25 miles north of intersection of SCE ROW and Summit Avenue to the intersection of SCE ROW and Citrus Ave	2,6	• Utilizing subtransmission structure heights that meet or exceed SCE's preferred EMF design criteria • Arranging conductors of proposed subtransmission line for magnetic field reduction	• No-Cost • Low-Cost	• Yes • Yes	
66 kV Etiwanda Source Line Segment 4	Overhead 66 kV lines from SCE ROW and Citrus Avenue to the proposed Falcon Ridge Substation east of Sierra Ave	2,6	• Utilizing subtransmission structure heights that meet or exceed SCE's preferred EMF design criteria • Arranging conductors of proposed subtransmission line for magnetic field reduction	• No-Cost • Low-Cost	• Yes • Yes	
66 kV Etiwanda	Overhead 66 kV lines between segment 1 and	2,5,6	• Utilizing subtransmission structure heights that meet or exceed SCE's	• No-Cost[11]	• Yes	

10 Included in the preliminary design

11 Included in the preliminary design

Area No.	Location[7]	Adjacent Land Use[8]	MF Reduction Design Options Considered	Estimated Cost to Adopt	Design Option(s) Adopted? (Yes/No)	Reason(s) if not adopted
Source Line Segment 5	3, from SCE 500 kV ROW to the intersection of South Highland Avenue going east on South Highland Avenue and divert from the ROW, and going north on San Sevaine Road and joining up the SCE ROW		preferred EMF design criteria • Arranging conductors of proposed subtransmission line for magnetic field reduction	• Low-Cost	• Yes	
66 kV Alder Source Line	Overhead 66 kV lines from Alder Substation which is located on the southeast corner of State Route 210 and Locust Avenue. The route follows Locust Avenue going north to the north of West Casmalia Street. It will then extend westward along West Casmalia until it intersects with Mango Avenue. At the intersection of West Casmalia Street and Mango Avenue, the 66 kV subtransmission facilities would then extend north along the future extension of Mango Avenue until it reaches the proposed substation site.	3,6	• Utilizing subtransmission structure heights that meet or exceed SCE's preferred EMF design criteria	• No-Cost	• Yes	

II. BACKGROUND REGARDING EMF AND PUBLIC HEALTH RESEARCH ON EMF

There are many sources of power frequency[12] electric and magnetic fields, including internal household and building wiring, electrical appliances, and electric power transmission and distribution lines. There have been numerous scientific studies about the potential health effects of EMF. After many years of research, the scientific community has been unable to determine if exposures to EMF cause health hazards. State and federal public health regulatory agencies have determined that setting numeric exposure limits is not appropriate.[13]

Many of the questions about possible connections between EMF exposures and specific diseases have been successfully resolved due to an aggressive international research program. However, potentially important public health questions remain about whether there is a link between EMF exposures and certain diseases, including childhood leukemia and a variety of adult diseases (e.g., adult cancers and miscarriages). As a result, some health authorities have identified magnetic field exposures as a possible human carcinogen. As summarized in greater detail below, these conclusions are consistent with the following published reports: the National Institute of Environmental Health Sciences (NIEHS) 1999[14], the National Radiation Protection Board (NRPB) 2001[15], the International Commission on non-Ionizing Radiation Protection (ICNIRP) 2001, the California Department of Health Services (CDHS) 2002[16], and the International Agency for Research on Cancer (IARC) 2002[17] and the World Health Organization (WHO) 2007[18].

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[12] In U.S., it is 60 Hertz (Hz).

[13] CPUC Decision 06-01-042, p. 6, footnote 10

[14] National Institute of Environmental Health Sciences' Report on Health Effects from Exposures to Power-Line frequency Electric and Magnetic Fields, NIH Publication No. 99-4493, June 1999.

[15] National Radiological Protection Board, Electromagnetic Fields and the Risk of Cancer, Report of an Advisory Group on Non-ionizing Radiation, Chilton, U.K. 2001

[16] California Department of Health Services, An Evaluation of the Possible Risks from Electric and Magnetic Fields from Power Lines, Internal Wiring, Electrical Occupations, and Appliances, June 2002.

[17] World Health Organization / International Agency for Research on Cancer, IARC Monographs on the evaluation of carcinogenic risks to humans (2002), Non-ionizing radiation, Part 1: Static and extremely low-

Continued on the next page

The federal government conducted EMF research as a part of a $45-million research program managed by the NIEHS. This program, known as the EMF RAPID (Research and Public Information Dissemination), submitted its final report to the U.S. Congress on June 15, 1999. The report concluded that:

- "The scientific evidence suggesting that ELF-EMF exposures pose any health risk is weak."[19]

- "The NIEHS concludes that ELF-EMF exposure cannot be recognized as entirely safe because of weak scientific evidence that exposure may pose a leukemia hazard."[20]

- "The NIEHS suggests that the level and strength of evidence supporting ELF-EMF exposure as a human health hazard are insufficient to warrant aggressive regulatory actions; thus, we do not recommend actions such as stringent standards on electric appliances and a national program to bury all transmission and distribution lines. Instead, the evidence suggests passive measures such as a continued emphasis on educating both the public and the regulated community on means aimed at reducing exposures. NIEHS suggests that the power industry continue its current practice of siting power lines to reduce exposures and continue to explore ways to reduce the creation of magnetic fields around transmission and distribution lines without creating new hazards."[21]

In 2001, Britain's NRPB arrived at a similar conclusion:

> "After a wide-ranging and thorough review of scientific research, an independent Advisory Group to the Board of NRPB has concluded that the power frequency electromagnetic fields that exist in the vast majority of homes are not a cause of cancer in general. However, some epidemiological studies do indicate a possible small risk of childhood leukemia associated with exposures to unusually high levels of power frequency magnetic fields."[22]

Continued from the previous page

frequency (ELF) electric and magnetic fields, IARCPress, Lyon, France: International Agency for Research on Cancer, Monograph, vol. 80, p. 338, 2002

18 WHO, Environmental Health Criteria 238, EXTREMELY LOW FREQUENCY FIELDS.

19 National Institute of Environmental Health Sciences, NIEHS Report on Health Effects from Exposures to Power-Frequency Electric and Magnetic Fields, p. ii, NIH Publication No. 99-4493, 1999

20 *ibid.*, p. iii

21 *ibid.*, p. 37 - 38

22 NRPB, NRPB Advisory Group on Non-ionizing Radiation Power Frequency Electromagnetic Fields and the Risk of Cancer, NRPB Press Release May 2001

In 2002, three scientists for CDHS concluded:

> "To one degree or another, all three of the [C]DHS scientists are inclined to believe that EMFs can cause some degree of increased risk of childhood leukemia, adult brain cancer, Lou Gehrig's Disease, and miscarriage.
>
> They [CDHS] strongly believe that EMFs do not increase the risk of birth defects, or low birth weight.
>
> They [CDHS] strongly believe that EMFs are not universal carcinogens, since there are a number of cancer types that are not associated with EMF exposure.
>
> To one degree or another they [CDHS] are inclined to believe that EMFs do not cause an increased risk of breast cancer, heart disease, Alzheimer's disease, depression, or symptoms attributed by some to a sensitivity to EMFs. However, all three scientists had judgments that were "close to the dividing line between believing and not believing" that EMFs cause some degree of increased risk of suicide, or
>
> For adult leukemia, two of the scientists are 'close to the dividing line between believing or not believing' and one was 'prone to believe' that EMFs cause some degree of increased risk."[23]

Also in 2002, the World Health Organization's (WHO) IARC concluded:

> "ELF magnetic fields are possibly carcinogenic to humans"[24], based on consistent statistical associations of high-level residential magnetic fields with a doubling of risk of childhood leukemia...Children who are exposed to residential ELF magnetic fields less than 0.4 microTesla (4.0 milliGauss) have no increased risk for leukemia…. In contrast, "no consistent relationship has been seen in studies of childhood brain tumors or cancers at other sites and residential ELF electric and magnetic fields."[25]

In June of 2007, the WHO issued a report on their multi-year investigation of EMF and the possible health effects. After reviewing scientific data from numerous EMF and human health studies, they concluded:

> "Scientific evidence suggesting that everyday, chronic low-intensity (above 0.3-0.4 μT [3-4 mG]) power-frequency magnetic field exposure poses a health risk is based on epidemiological

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[23] CDHS, An Evaluation of the Possible Risks From Electric and Magnetic Fields (EMFs) From Power Lines, Internal Wiring, Electrical Occupations and Appliances, p. 3, 2002

[24] IARC, Monographs, Part I, Vol. 80, p. 338

[25] *ibid*., p. 332 - 334

> studies demonstrating a consistent pattern of increased risk for childhood leukemia."[26]
>
> "In addition, virtually all of the laboratory evidence and the mechanistic evidence fail to support a relationship between low-level ELF magnetic fields and changes in biological function or disease status. Thus, on balance, the evidence is not strong enough to be considered causal, but sufficiently strong to remain a concern."[27]
>
> "A number of other diseases have been investigated for possible association with ELF magnetic field exposure. These include cancers in both children and adults, depression, suicide, reproductive dysfunction, developmental disorders, immunological modifications and neurological disease. The scientific evidence supporting a linkage between ELF magnetic fields and any of these diseases is much weaker than for childhood leukemia and in some cases (for example, for cardiovascular disease or breast cancer) the evidence is sufficient to give confidence that magnetic fields do not cause the disease"[28]
>
> "Furthermore, given both the weakness of the evidence for a link between exposure to ELF magnetic fields and childhood leukemia, and the limited impact on public health if there is a link, the benefits of exposure reduction on health are unclear. Thus the costs of precautionary measures should be very low."[29]

III. APPLICATION OF THE CPUC'S "NO-COST AND LOW-COST" EMF POLICY TO THIS PROJECT

Recognizing the scientific uncertainty over the connection between EMF exposures and health effects, the CPUC adopted a policy that addresses public concern over EMF with a combination of education, information, and precaution-based approaches. Specifically, Decision 93-11-013 established a precautionary based "no-cost and low-cost" EMF policy for California's regulated electric utilities based on recognition that scientific research had not demonstrated that

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[26] WHO, Environmental Health Criteria 238, EXTREMELY LOW FREQUENCY FIELDS, p. 11 - 13, 2007
[27] *ibid*., p. 12
[28] *ibid*., p. 12
[29] *ibid*., p. 13

exposures to EMF cause health hazards and that it was inappropriate to set numeric standards that would limit exposure.

In 2006, the CPUC completed its review and update of its EMF Policy in Decision 06-01-042. This decision reaffirmed the finding that state and federal public health regulatory agencies have not established a direct link between exposure to EMF and human health effects,[30] and the policy direction that (1) use of numeric exposure limits was not appropriate in setting utility design guidelines to address EMF,[31] and (2) existing "no-cost and low-cost" precautionary-based EMF policy should be continued for proposed electrical facilities. The decision also reaffirmed that EMF concerns brought up during Certificate of Public Convenience and Necessity (CPCN) and Permit to Construct (PTC) proceedings for electric and transmission and substation facilities should be limited to the utility's compliance with the CPUC's "no-cost and low-cost" policies.[32]

The decision directed regulated utilities to hold a workshop to develop standard approaches for EMF Design Guidelines and such a workshop was held on February 21, 2006. Consistent design guidelines have been developed that describe the routine magnetic field reduction measures that regulated California electric utilities consider for new and upgraded transmission line and transmission substation projects. SCE filed its revised EMF Design Guidelines with the CPUC on July 26, 2006.

"No-cost and low-cost" measures to reduce magnetic fields would be implemented for this project in accordance with SCE's EMF Design Guidelines. In summary, the process of

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[30] CPUC Decision 06-01-042, Conclusion of Law No. 5, mimeo. p. 19 ("As discussed in the rulemaking, a direct link between exposure to EMF and human health effects has yet to be proven despite numerous studies including a study ordered by this Commission and conducted by DHS.").

[31] CPUC Decision 06-01-042, mimeo. p. 17 - 18 ("Furthermore, we do not request that utilities include non-routine mitigation measures, or other mitigation measures that are based on numeric values of EMF exposure, in revised design guidelines or apply mitigation measures to reconfigurations or relocations of less than 2,000 feet, the distance under which exemptions apply under GO 131-D. Non-routine mitigation measures should only be considered under unique circumstances.").

[32] CPUC Decision 06-01-042, Conclusion of Law No. 2, ("EMF concerns in future CPCN and PTC proceedings for electric and transmission and substation facilities should be limited to the utility's compliance with the Commission's low-cost/no-cost policies.").

evaluating "no-cost and low-cost" magnetic field reduction measures and prioritizing within and between land usage classes considers the following:

1. SCE's priority in the design of any electrical facility is public and employee safety. Without exception, design and construction of an electric power system must comply with all applicable federal, state, and local regulations, applicable safety codes, and each electric utility's construction standards. Furthermore, transmission and subtransmission lines and substations must be constructed so that they can operate reliably at their design capacity. Their design must be compatible with other facilities in the area and the cost to operate and maintain the facilities must be reasonable.

2. As a supplement to Step 1, SCE follows the CPUC's direction to undertake "no-cost and low-cost" magnetic field reduction measures for new and upgraded electrical facilities. Any proposed "no-cost and low-cost" magnetic field measures, must, however, meet the requirements described in Step 1 above. The CPUC defines "no-cost and low-cost" measures as follows:

    - Low-cost measures, in aggregate, should:
        - Cost in the range of 4 percent of the total project cost.
        - Result in magnetic field reductions of "15% or greater at the utility ROW [right-of-way]…"[33]

    The CPUC Decision stated,

    > "We direct the utilities to use 4 percent as a benchmark in developing their EMF mitigation guidelines. We will not establish 4 percent as an absolute cap at this time because we do not want to arbitrarily eliminate a potential measure that might be available but costs

[33] CPUC Decision 06-01-042, p. 10

more than the 4 percent figure. Conversely, the utilities are encouraged to use effective measures that cost less than 4 percent."[34]

3. The CPUC provided further policy direction in Decision 06-01-042, stating that, "[a]lthough equal mitigation for an entire class is a desirable goal, we will not limit the spending of EMF mitigation to zero on the basis that not all class members can benefit."[35] While Decision 06-01-042 directs the utilities to favor schools, day-care facilities and hospitals over residential areas when applying low-cost magnetic field reduction measures, prioritization within a class can be difficult on a project case-by-case basis because schools, day-care facilities, and hospitals are often integrated into residential areas, and many licensed day-care facilities are housed in private homes, and can be easily moved from one location to another. Therefore, it may be practical for public schools, licensed day-care centers, hospitals, and residential land uses to be grouped together to receive highest prioritization for low-cost magnetic field reduction measures. Commercial and industrial areas may be grouped as a second priority group, followed by recreational and agricultural areas as the third group. Low-cost magnetic field reduction measures will not be considered for undeveloped land, such as open space, state and national parks, and Bureau of Land Management and U.S. Forest Service lands. When spending for low-cost measures would otherwise disallow equitable magnetic field reduction for all areas within a single land-use class, prioritization can be achieved by considering location and/or density of permanently occupied structures on lands adjacent to the projects, as appropriate.

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[34] CPUC Decision 93-11-013, § 3.3.2, p.10.
[35] CPUC Decision 06-01-042, p. 10

This FMP contains descriptions of various magnetic field models and the calculated results of magnetic field levels based on those models. These calculated results are provided only for purposes of identifying the relative differences in magnetic field levels among various transmission or subtransmission line design alternatives under a specific set of modeling assumptions and determining whether particular design alternatives can achieve magnetic field level reductions of 15 percent or more. The calculated results are not intended to be predictors of the actual magnetic field levels at any given time or at any specific location if and when the project is constructed. This is because magnetic field levels depend upon a variety of variables, including load growth, customer electricity usage, and other factors beyond SCE's control. The CPUC affirmed this in D. 06-01-042 stating:

> "Our [CPUC] review of the modeling methodology provided in the utility [EMF] design guidelines indicates that it accomplishes its purpose, which is to measure the relative differences between alternative mitigation measures. Thus, the modeling indicates relative differences in magnetic field reductions between different transmission line construction methods, but does not measure actual environmental magnetic fields."[36]

IV. PROJECT DESCRIPTION

Southern California Edison Company (SCE) proposes to construct the Falcon Ridge Substation Project (Proposed Project) to meet forecasted electrical demands in the cities of Rancho Cucamonga, Fontana, Rialto, and the surrounding areas of unincorporated San Bernardino County. Figure 1 shows the proposed substation site, two source line substations, as well as the preferred and alternate source line routes.

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[36] CPUC Decision 06-01-042, p. 11

The Proposed Project would include the following major electrical components:

- Construction of a new 66/12 kilovolt (kV) distribution substation (Falcon Ridge Substation). Falcon Ridge Substation would be an unattended, automated, 56 mega-volt ampere (MVA), 66/12 kV low-profile substation.

- Installation of two new 66 kV subtransmission source lines to connect the proposed Falcon Ridge Substation to the existing Etiwanda 220/66 kV Substation (Etiwanda Substation) and Alder 66/12 kV Substation (Alder Substation).

    - One new 66 kV subtransmission source line from the existing Alder Substation would be approximately 3 miles in length and connect to the proposed Falcon Ridge Substation.

        - In order to accommodate the connection of the subtransmission source line, a 66 kV switchrack position at Alder Substation would need to be equipped and the operating and transfer buses would need to be extended. For the purpose of EMF evaluation, this minor substation modification will not be evaluated in this FMP.

    - One new 66 kV subtransmission source line from the existing Etiwanda Substation would be approximately 9 miles in length and connect to the proposed Falcon Ridge Substation.

        - In order to accommodate the connection of the subtransmission source line, a 66 kV switchrack position at Etiwanda Substation would need to be equipped. For the purpose of EMF evaluation, this minor substation modification will not be evaluated in this FMP.

- Construction of three new underground 12 kV distribution getaways

<u>Etiwanda-Falcon Ridge 66 kV Subtransmission Line</u>

The Etiwanda Subtransmission Source Line Route would connect to the existing Etiwanda Substation which is located south of Foothill Boulevard and west of Etiwanda Avenue. The new 66 kV subtransmission facilities would exit Etiwanda Substation underground for approximately 1,300 feet in a new duct bank to the east side of Etiwanda Avenue where the subtransmission line would rise to an overhead position via a TSP riser pole. The 66 kV subtransmission facilities would then extend northeast within SCE's existing transmission ROW until it intersects with South Highland Avenue where it would be placed underground for approximately 300 feet to maintain required electrical clearances with the existing 500 kV transmission line. The subtransmission line would rise to an overhead position where SCE's existing transmission ROW intersects South Highland Avenue and would divert from SCE's existing transmission ROW and extend east parallel to South Highland Avenue to the intersection of South Highland Avenue and San Sevaine Road. The subtransmission line would then extend north paralleling San Sevaine Road spanning the 210 Freeway at right angles until San Sevaine Road intersects with SCE's existing transmission ROW. The total length of subtransmission routing off of the existing corridor would be approximately 0.75 miles. The 66 kV subtransmission facilities would then again extend northeast within SCE's existing transmission ROW, until it intersects with Summit Avenue. The 66 kV subtransmission facilities would then extend east on SCE's existing transmission ROW until it reaches the proposed substation site. New access roads would be required to construct and maintain the subtransmission facilities. The Etiwanda Subtransmission Source Line Route would be approximately 9 miles long.

In order to accommodate the new 66 kV subtransmission facilities for the Etiwanda Subtransmission Source Line Route, four interset poles would be required at locations where the proposed Etiwanda Subtransmission Source Line Route crosses the Etiwanda-Alder-Randall, Etiwanda-Randall, and the Etiwanda-Declez #1 66 kV subtransmission lines. Additionally, three existing wood poles located within existing ROW between Foothill Boulevard and Baseline Avenue would be replaced with TSPs. There is the potential for re-framing pole-heads along portions of this route.

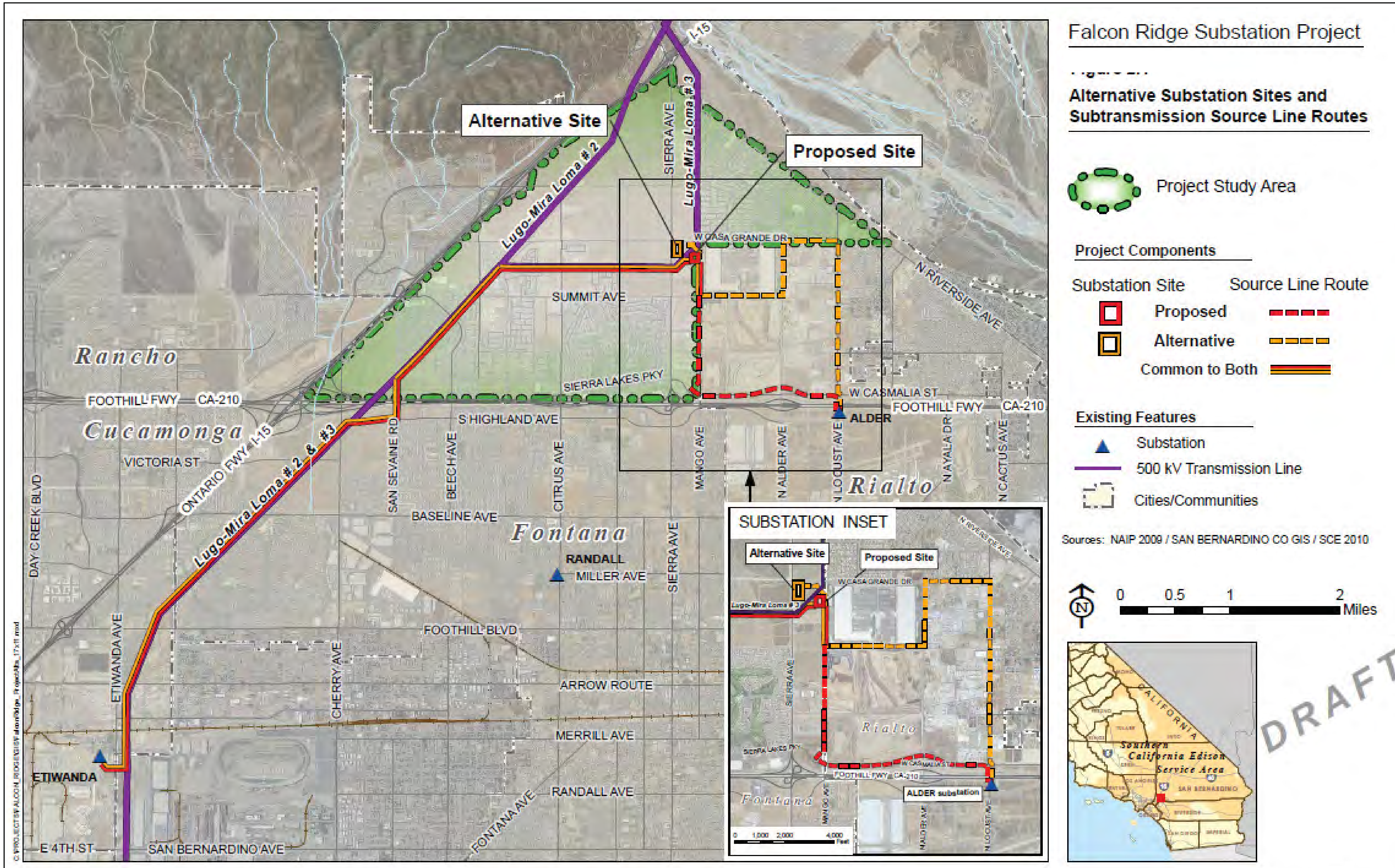
Alder-Falcon Ridge 66 kV Subtransmission Line

The Alder Subtransmission Source Line Route would connect to the existing Alder Substation which is located south of the 210 Freeway and east of Locust Avenue. The new 66 kV subtransmission facilities would leave Alder Substation on existing structures (Etiwanda-Alder-Randall 66 kV Subtransmission Line) to the west for approximately 600 feet and would include removing one LWS pole, replacing it with one new TSP and re-framing pole-heads to accommodate the second circuit. The new 66 kV subtransmission facilities would then extend north on three new TSPs spanning the 210 Freeway and paralleling Locust Avenue until it intersects with West Casmalia Street. At the intersection of Locust Avenue and West Casmalia Street, one existing pole would be removed and existing distribution, telecom facilities and other joint pole users would be placed underground to the north side of West Casmalia Street. The 66 kV subtransmission facilities would then extend west on new structures along West Casmalia Street until it intersects with Mango Avenue. At the intersection of West Casmalia Street and Mango Avenue, the 66 kV subtransmission facilities would then extend north on new structures along the future extension of Mango Avenue until it reaches the proposed substation Site. New access roads would be required to construct and maintain the subtransmission facilities, see Section 3.2.3.2 Access Roads for additional information. The Alder Source Line Route would be approximately 3 miles in length.

Falcon Ridge Substation

The Falcon Ridge Substation would be a new 66/12 kV unattended, automated, 56 MVA low-profile substation capable of an ultimate buildout of 112 MVA. The substation would encompass approximately 2.7 acres of an approximately 7.5-acre parcel located in the City of Fontana. SCE's remaining acreage within the proposed site may be considered for future street improvements and widening, street setbacks, safety buffers, and landscaping if needed. The dimensions of the substation would be approximately 370 feet by 337 feet. The property is triangular in shape and the property boundaries are approximately 800 feet by 800 feet by 1130 feet.

Figure 1. Falcon Ridge Substation Project Area Map



V. EVALUATION OF "NO-COST AND LOW-COST" MAGNETIC FIELD REDUCTION DESIGN OPTIONS

Please note that following magnetic field models and the calculated results of magnetic field levels are intended only for purposes of identifying the relative differences in magnetic field levels among various subtransmission line and subtransmission line design alternatives under a specific set of modeling assumptions (see §VII-Appendix A for more detailed information about the calculation assumptions and loading conditions) and determining whether particular design alternatives can achieve magnetic field level reductions of 15 percent or more. The calculated results are not intended to be predictors of the actual magnetic field levels at any given time or at any specific location when the Proposed Project is constructed.

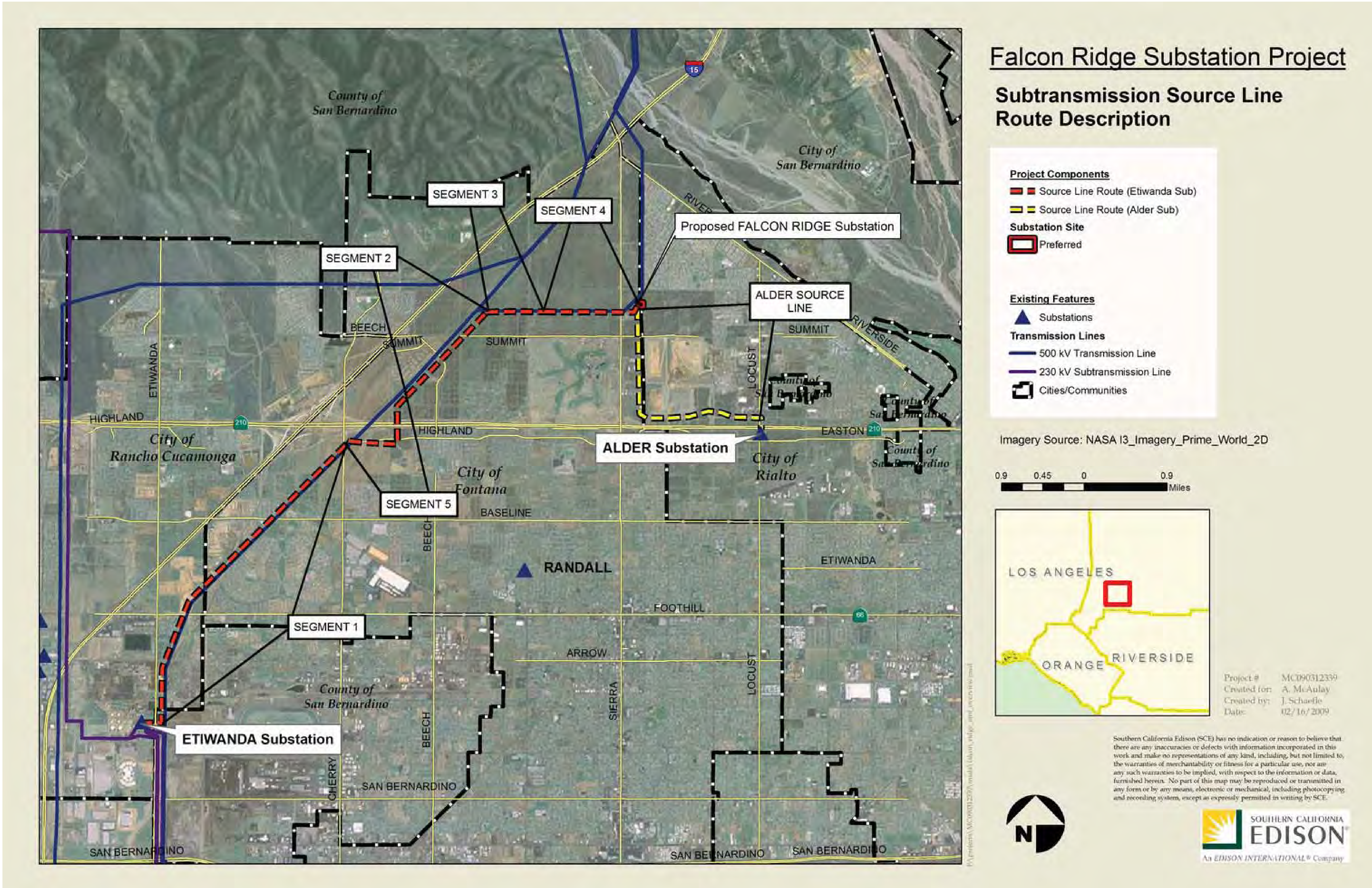
For the purpose of evaluating "no-cost and low-cost" magnetic field reduction design options, the Proposed Project is divided into three parts:

- Part 1: Proposed Etiwanda–Falcon Ridge and Alder–Falcon Ridge 66 kV Subtransmission Lines
- Part 2: Proposed Falcon Ridge 66/12 kV Substation
- Part 3: Project Alternatives

Part 1: Proposed Etiwanda–Falcon Ridge and Alder–Falcon Ridge 66 kV Subtransmission Lines

Figure 2 shows the Etiwanda Source Line which is broken down into five segments for magnetic field reduction analysis, as well as the Alder Source Line.

Figure 2. Source Lines Segments for Magnetic Field Analysis



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Segment 1 - Etiwanda Source Line (Etiwanda – Falcon Ridge 66 kV)

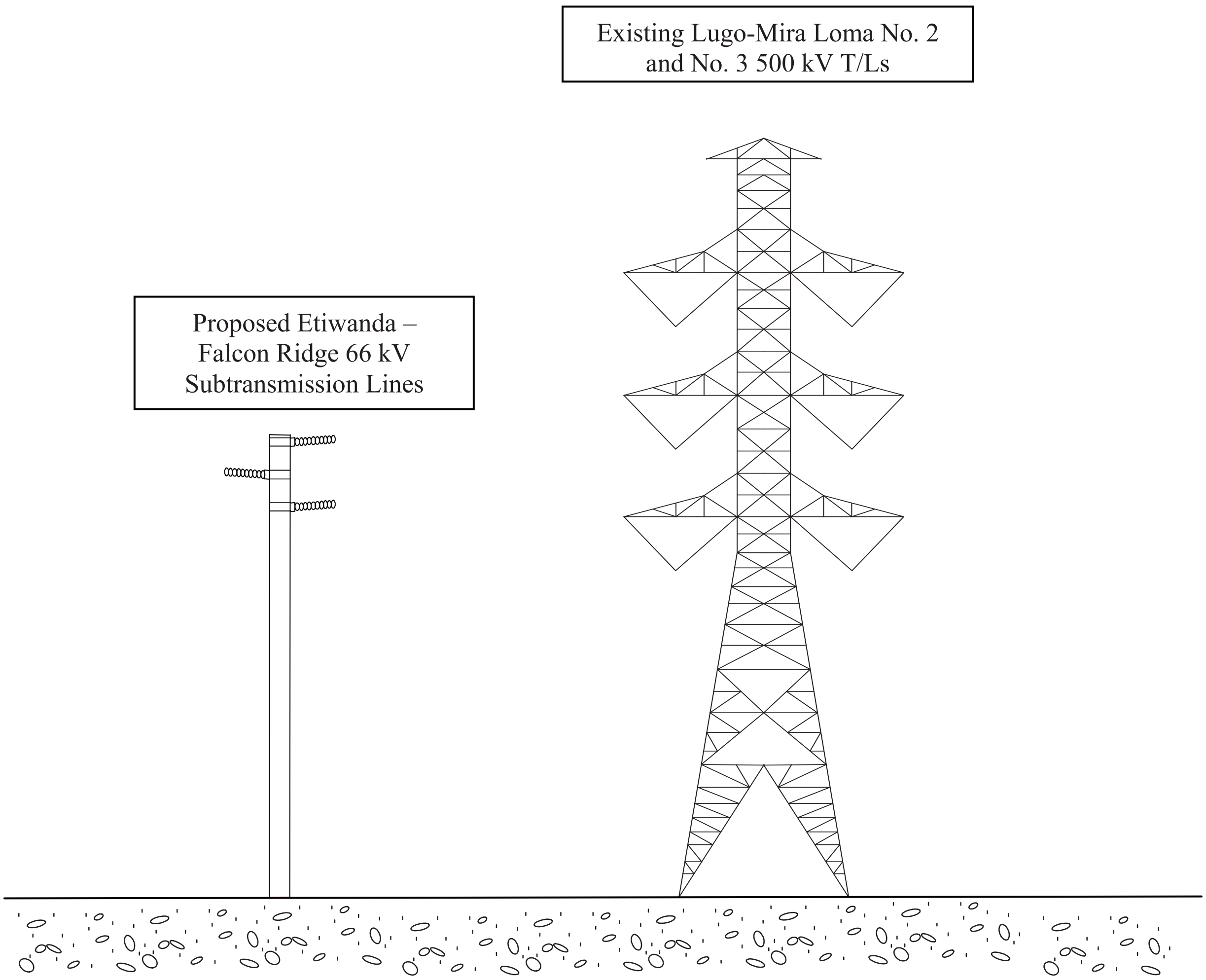
Figure 3 shows the typical design of the Etiwanda 66 kV source line Segment 1 and the existing Lugo-Mira Loma No. 2 and No. 3 double-circuit 500 kV T/Ls. The Segment 1 will be constructed mostly on single-circuit structures on the west side of the 500 kV T/Ls. Based on preliminary designs, the LWS poles would be at least 75 feet in height (65 feet above ground), and TSPs would range between 70 to 100 feet in height. The structures will mostly be located within SCE 500 kV ROW. Currently there is a licensed day care center approximately 50 feet from the west edge (left ROW in Figure 4) of the SCE ROW on the corner of South Heritage Circle and West Liberty Parkway in Fontana. There are residential areas, commercial/industrial, and recreational areas along the Segment 1.

No-Cost Field Reduction Measures: The proposed design for Segment 1 includes the following no-cost field reduction measure:

1. Utilizing structure heights that meet or exceed SCE's EMF preferred design criteria.
2. Utilizing subtransmission line construction that reduces the space between conductors compared with other designs

Figure 3. Proposed Etiwanda – Falcon Ridge 66 kV Single-Circuit - Segment 1 and Existing Lugo-Mira Loma No.2 and No.3 Double-Circuit 500 kV T/Ls

(Looking North-East)



Low-Cost Field Reduction Options: Because there is a day care center and some residential areas near the west edge of SCE ROW where the proposed 66 kV line will be, the low-cost measure of arranging conductors for field reduction was considered for this segment.

Magnetic Field Calculations: Figure 4 and Table 2 show the calculated magnetic field levels for proposed 66 kV design. These calculations were made using the minimum proposed structure height of 65 feet above ground with the low-cost measure of arranging conductors for magnetic field reduction incorporated.

Figure 4. Calculated Magnetic Field Levels[37] for Segment 1 Proposed Etiwanda – Falcon Ridge 66 kV Line and Existing Lugo-Mira Loma No. 2 and No. 3 500 kV T/Ls

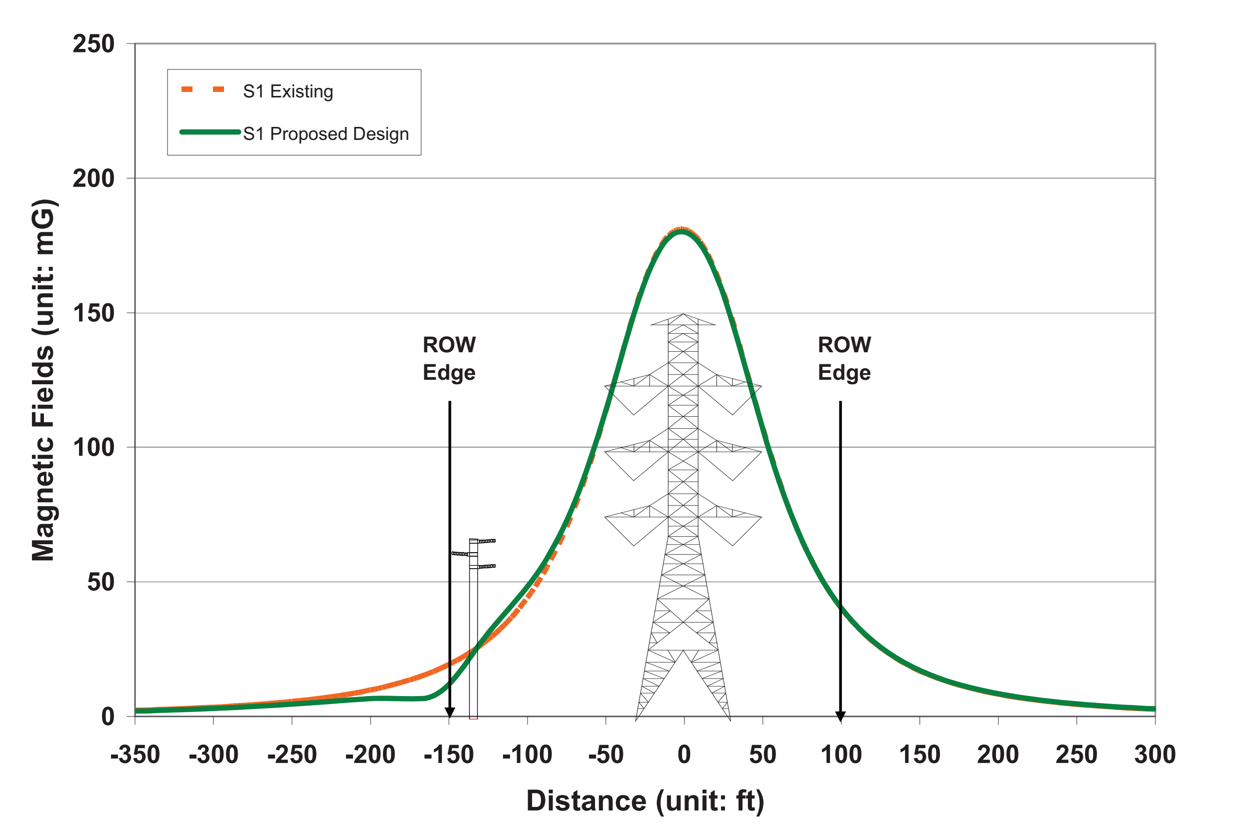


Table 2. Calculated Magnetic Field Levels[38] for Segment 1				
Design Options	Left ROW Edge (mG)	% Reduction	Right ROW Edge (mG)	% Reduction
Existing	19.3	N/A	40.1	N/A
Proposed Design	11.9	38%	40.2	Less than 15% Increase

[37] This table lists calculated magnetic field levels for design comparison only and is not meant to predict actual magnetic field levels.

[38] This table lists calculated magnetic field levels for design comparison only and is not meant to predict actual magnetic field levels.

Recommendations for Segment 1: *The proposed design includes no-cost field reduction measures such as using structure heights that meet or exceed SCE's EMF preferred design criteria and utilizing subtransmission line construction that reduces the space between conductors compared with other designs. Because the presence of a day care center and residential area in the nearby vicinity, the low-cost field reduction measure of arranging phase conductors for field reduction is recommended for this segment.*

Segment 2 - Etiwanda Source Line

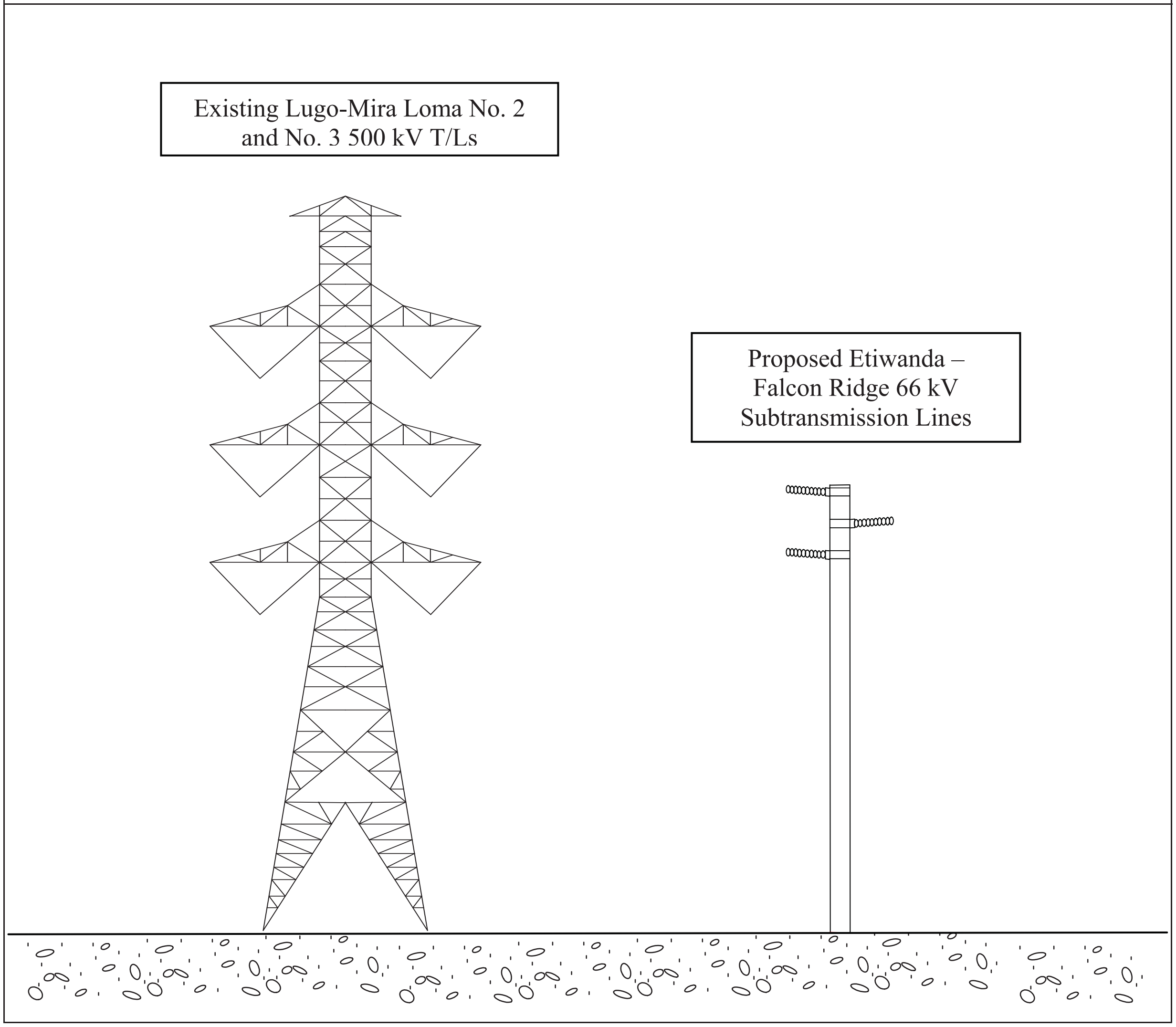
Figure 5 shows the typical design of the Etiwanda 66 kV source line Segment 2 and the existing Lugo-Mira Loma No. 2 and No. 3 double-circuit 500 kV T/Ls. The Segment 2 will be constructed mostly on single-circuit structures on the east side of the 500 kV T/Ls. Based on preliminary designs, the LWS poles would be at least 75 feet in height (65 feet above ground), and TSPs would range between 70 to 100 feet in height. The structures will mostly be located within SCE 500 kV ROW. There are residential, recreational, and agricultural areas along Segment 2.

No-Cost Field Reduction Measures: The proposed design for Segment 2 includes the following no-cost field reduction measure:

1. Utilizing structure heights that meet or exceed SCE's EMF preferred design criteria.
2. Utilizing subtransmission line construction that reduces the space between conductors compared with other designs

Figure 5. Proposed Etiwanda – Falcon Ridge 66 kV Single-Circuit - Segment 2 and Existing Lugo-Mira Loma No. 2 and No. 3 Double-Circuit 500 kV T/Ls

(Looking North-East)



Low-Cost Field Reduction Options: Because there are some residential areas near the east edge of SCE ROW where the proposed 66 kV line will be, the low-cost measure of arranging conductors for field reduction was considered for this segment.

Magnetic Field Calculations: Figure 6 and Table 3 show the calculated magnetic field levels for proposed design. These calculations were made using the minimum proposed structure height of 65 feet above ground with the low-cost measure of arranging conductors for magnetic field reduction incorporated.

Figure 6. Calculated Magnetic Field Levels[39] for Segment 2 Proposed Etiwanda – Falcon Ridge 66 kV Line and Existing Lugo-Mira Loma No. 2 and No. 3 500 kV T/Ls

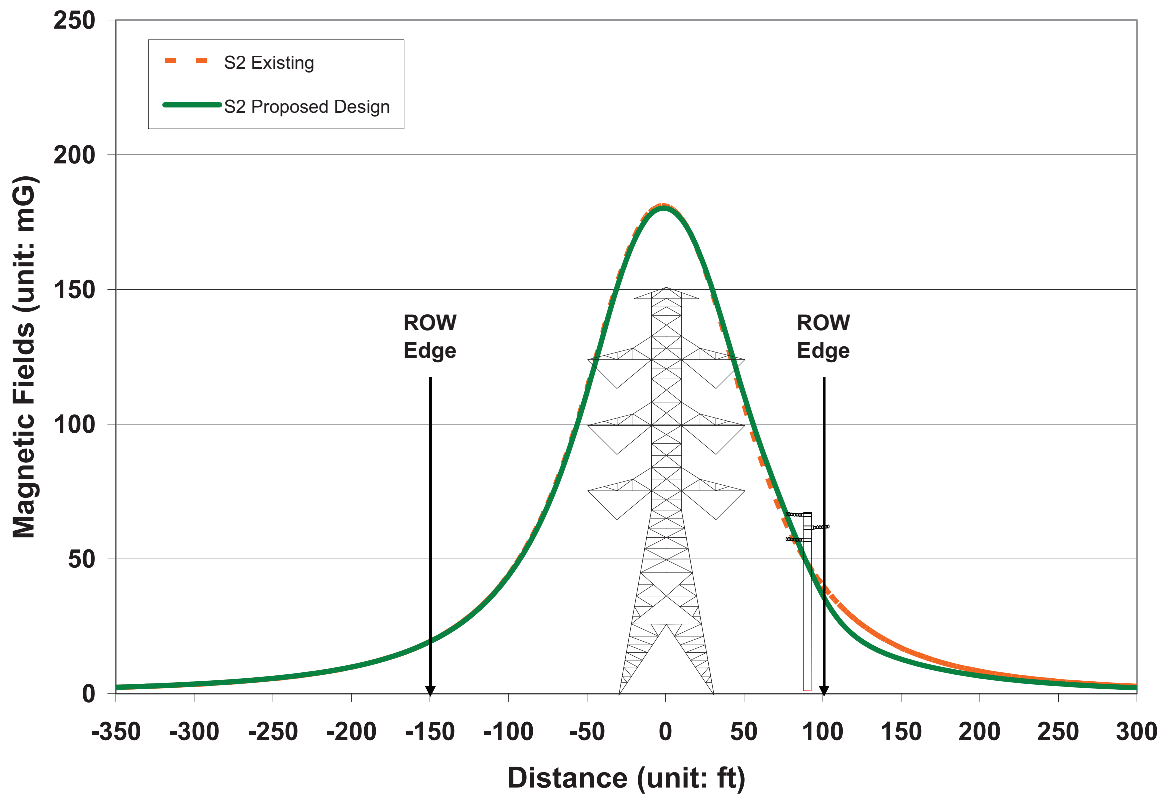


Table 3. Calculated Magnetic Field Levels[40] for Segment 2				
Design Options	Left ROW Edge (mG)	% Reduction	Right ROW Edge (mG)	% Reduction

[39] This table lists calculated magnetic field levels for design comparison only and is not meant to predict actual magnetic field levels.

[40] This table lists calculated magnetic field levels for design comparison only and is not meant to predict actual magnetic field levels.

Existing	19.3	N/A	40.1	N/A
Proposed Design	19.3	0	36.5	9.0

Recommendations for Segment 2: *The proposed design includes no-cost field reduction measures such as using structure heights that meet or exceed SCE's EMF preferred design criteria and utilizing subtransmission line construction that reduces the space between conductors compared with other designs. Because the presence of some residential areas in the nearby vicinity, the low-cost field reduction measure of arranging phase conductors for field reduction is recommended for this segment even the field reduction is less than 15% from the existing condition at the edge of the ROW. Without arranging phase conductors for field reduction, the magnetic field will increase from the existing condition.*

Segment 3 - Etiwanda Source Line

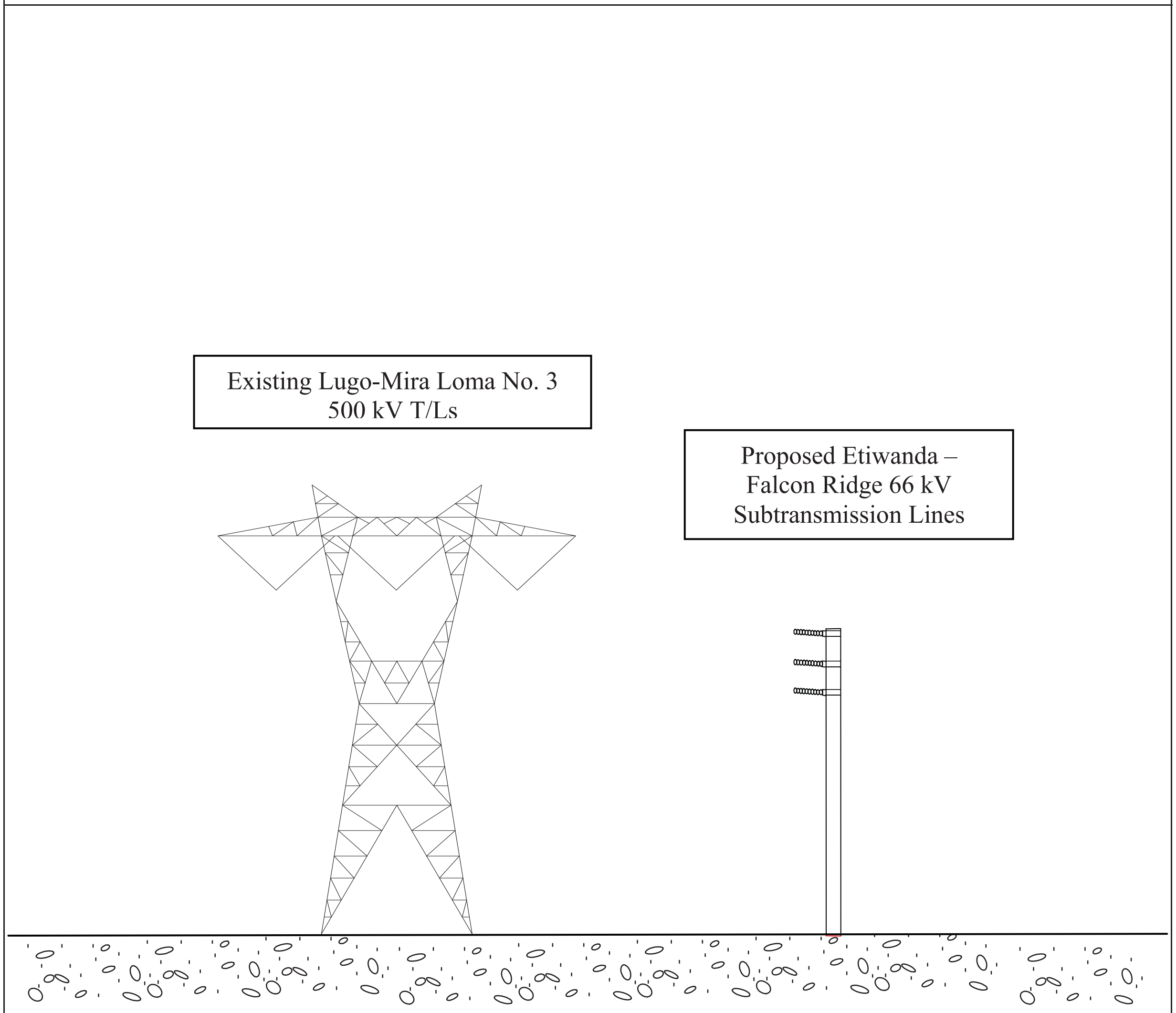
Figure 7 shows the typical design of the Etiwanda 66 kV source line Segment 3 and the existing Lugo-Mira Loma No. 3 single-circuit 500 kV T/L. The Segment 3 will be constructed mostly on single-circuit structures on the south side of the 500 kV T/L. Based on preliminary designs, the LWS poles would be at least 75 feet in height (65 feet above ground), and TSPs would range between 70 to 100 feet in height. The structures will mostly be located within SCE 500 kV ROW. There are residential areas along Segment 3.

No-Cost Field Reduction Measures: The proposed design for Segment 3 includes the following no-cost field reduction measure:

1. Utilizing structure heights that meet or exceed SCE's EMF preferred design criteria.

Figure 7. Proposed Etiwanda – Falcon Ridge 66 kV Single-Circuit - Segment 3 and Existing Lugo-Mira Loma No. 3 Single-Circuit 500 kV T/Ls

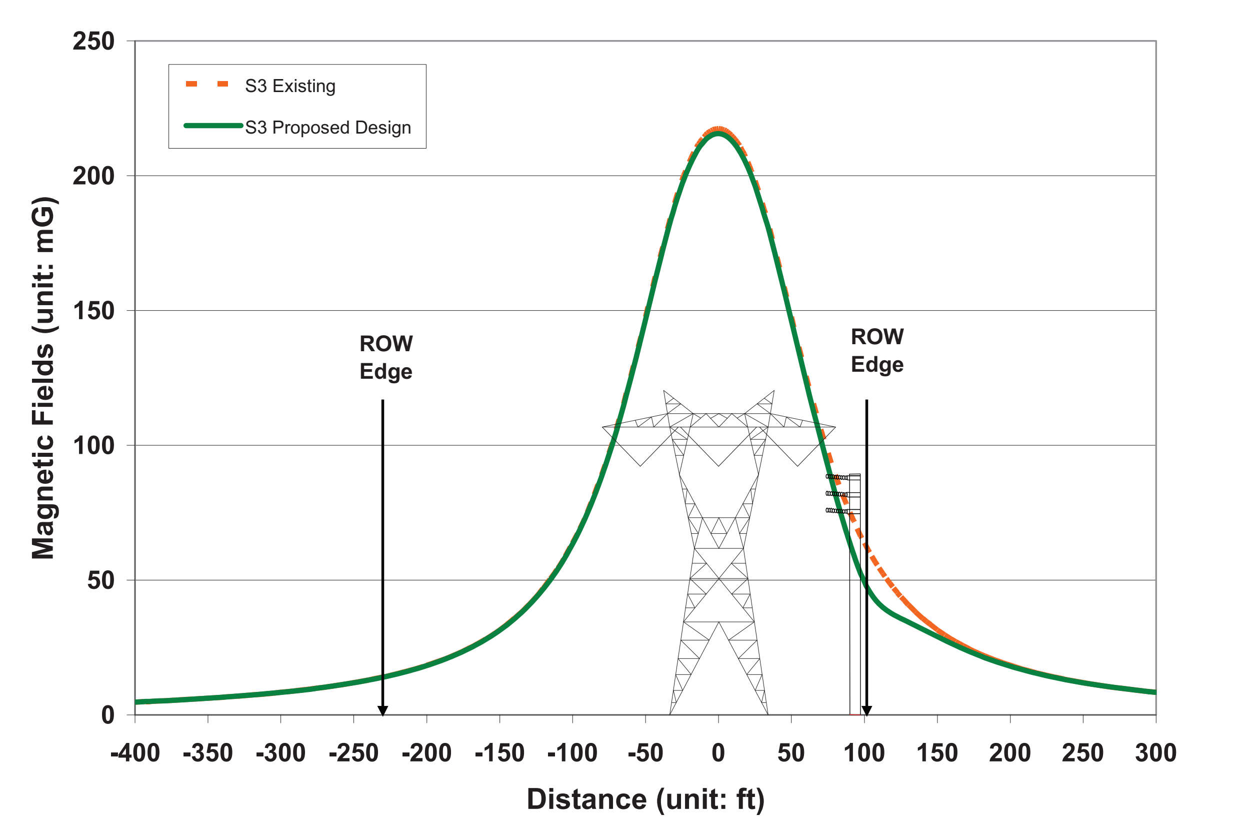
(Looking East)



Low-Cost Field Reduction Options: Because there are some residential areas near the east edge of SCE ROW where the proposed 66 kV line will be, the low-cost measure of arranging conductors for field reduction was considered for this segment.

Magnetic Field Calculations: Figure 8 and Table 4 show the calculated magnetic field levels for proposed design. These calculations were made using the minimum proposed structure height of 65 feet above ground with the low-cost measure of arranging conductors for magnetic field reduction incorporated.

Figure 8. Calculated Magnetic Field Levels[41] for Segment 3 Proposed Etiwanda – Falcon Ridge 66 kV Line and Existing Lugo-Mira Loma No. 3 500 kV T/Ls



[41] This table lists calculated magnetic field levels for design comparison only and is not meant to predict actual magnetic field levels.

Table 4. Calculated Magnetic Field Levels[42] for Segment 3				
Design Options	Left ROW Edge (mG)	% Reduction	Right ROW Edge (mG)	% Reduction
Existing	14.0	N/A	63.7	N/A
Proposed Design	14.0	0	49.3	22.6

Recommendations for Segment 3: *The proposed design includes no-cost field reduction measures such as using structure heights that meet or exceed SCE's EMF preferred design criteria. Because the presence of some residential areas in the nearby vicinity, the low-cost field reduction measure of arranging phase conductors for field reduction is recommended for this segment.*

Segment 4 - Etiwanda Source Line

Figure 9 shows the typical design of the Etiwanda 66 kV source line Segment 4 and the existing Lugo-Mira Loma No. 3 single-circuit 500 kV T/L. The Segment 4 will be constructed mostly on single-circuit structures on the south side of the 500 kV T/L. Based on preliminary designs, the LWS poles would be at least 75 feet in height (65 feet above ground), and TSPs would range between 70 to 100 feet in height. The structures will mostly be located within SCE 500 kV ROW. There are residential areas along Segment 4.

No-Cost Field Reduction Measures: The proposed design for Segment 3 includes the following no-cost field reduction measure:

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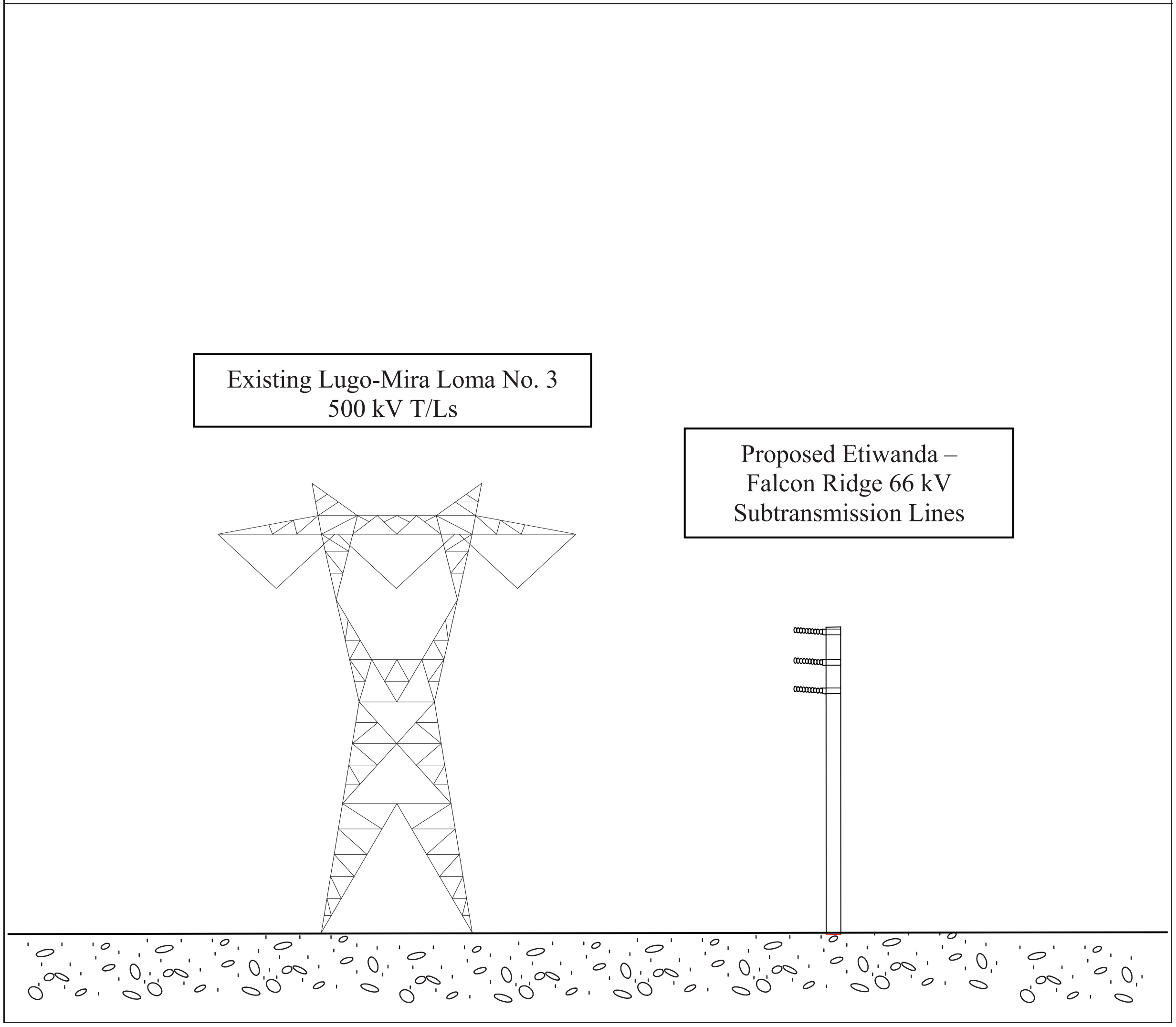
[42] This table lists calculated magnetic field levels for design comparison only and is not meant to predict actual magnetic field levels.

1. Utilizing structure heights that meet or exceed SCE's EMF preferred design criteria.

Figure 9. Proposed Etiwanda – Falcon Ridge 66 kV Single-Circuit - Segment 4 and Existing Lugo-Mira Loma No. 3 Single-Circuit 500 kV T/Ls

(Looking East)



Low-Cost Field Reduction Options: Because there are some residential areas near the east edge of SCE ROW where the proposed 66 kV line will be, the low-cost measure of arranging conductors for field reduction was considered for this segment.

Magnetic Field Calculations: Figure 10 and Table 5 show the calculated magnetic field levels for proposed design. These calculations were made using the minimum proposed structure height of 65 feet above ground with the low-cost measure of arranging conductors for magnetic field reduction incorporated.

Figure 10. Calculated Magnetic Field Levels[43] for Segment 4 Proposed Etiwanda – Falcon Ridge 66 kV Line and Existing Lugo-Mira Loma No. 3 500 kV T/Ls

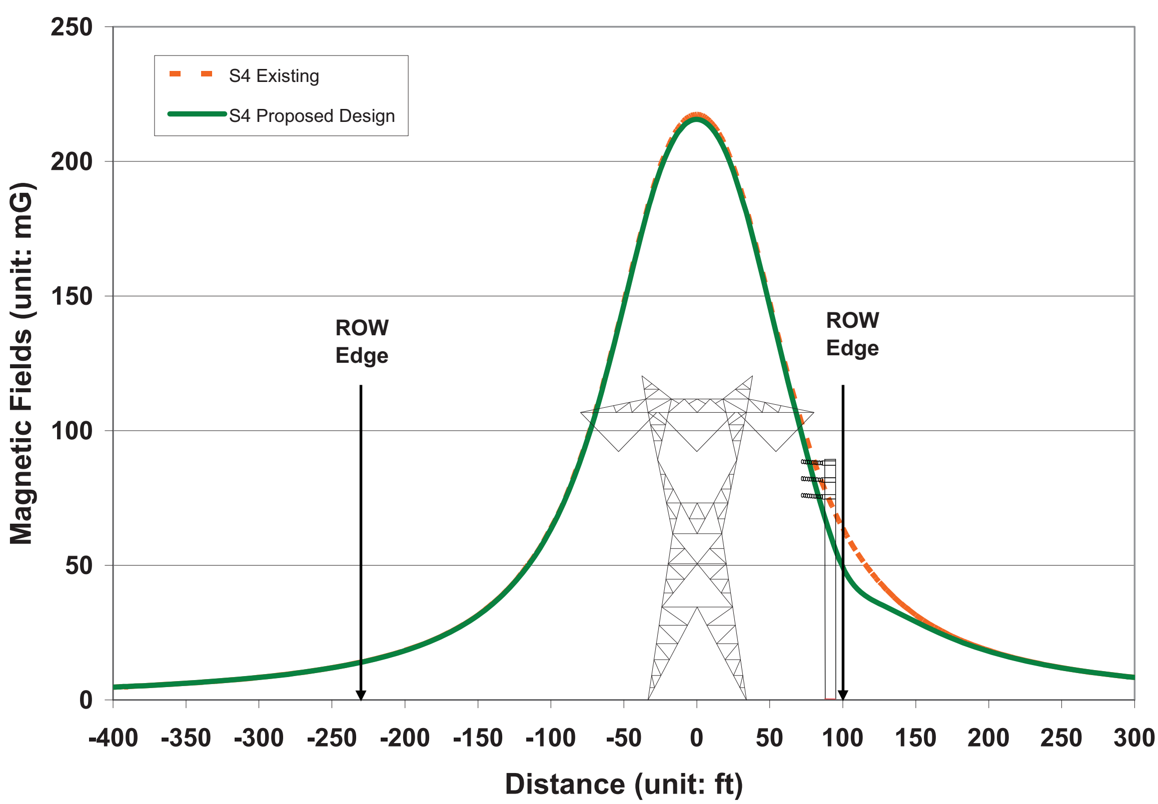


Table 5. Calculated Magnetic Field Levels[44] for Segment 4				
Design Options	Left ROW Edge (mG)	% Reduction	Right ROW Edge (mG)	% Reduction
Existing	14.0	N/A	63.7	N/A
Proposed Design	14.0	0	49.3	22.6

Recommendations for Segment 4: *The proposed design includes no-cost field reduction measures such as using structure heights that meet or exceed SCE's EMF preferred design criteria. Because the presence of some residential areas in the nearby vicinity, the low-cost field reduction measure of arranging phase conductors for field reduction is recommended for this segment.*

Segment 5 - Etiwanda Source Line

Etiwanda source line Segment 5 is between Segment 1 and Segment 2, but divert from the SCE ROW. Figure 11 shows the typical design of the Etiwanda 66 kV source line Segment 5. The Segment 5 will be constructed mostly on single-circuit. Based on preliminary designs, the LWS poles would be at least 75 feet in height (65 feet above ground), and TSPs would range between 70 to 100 feet in height. The structures will be located along South Highland Avenue and San Sevaine Road in an existing or future street ROW. For EMF analysis, calculated field levels were evaluated at 10 feet from the center line (C/L) of the structure for a single circuit. There are abandoned agricultural areas along Segment 5.

Continued from the previous page

43 This table lists calculated magnetic field levels for design comparison only and is not meant to predict actual magnetic field levels.

No-Cost Field Reduction Measures: The proposed design for Segment 5 includes the following no-cost field reduction measure:

1. Utilizing structure heights that meet or exceed SCE's EMF preferred design criteria.
2. Utilizing subtransmission line construction that reduces the space between conductors compared with other designs

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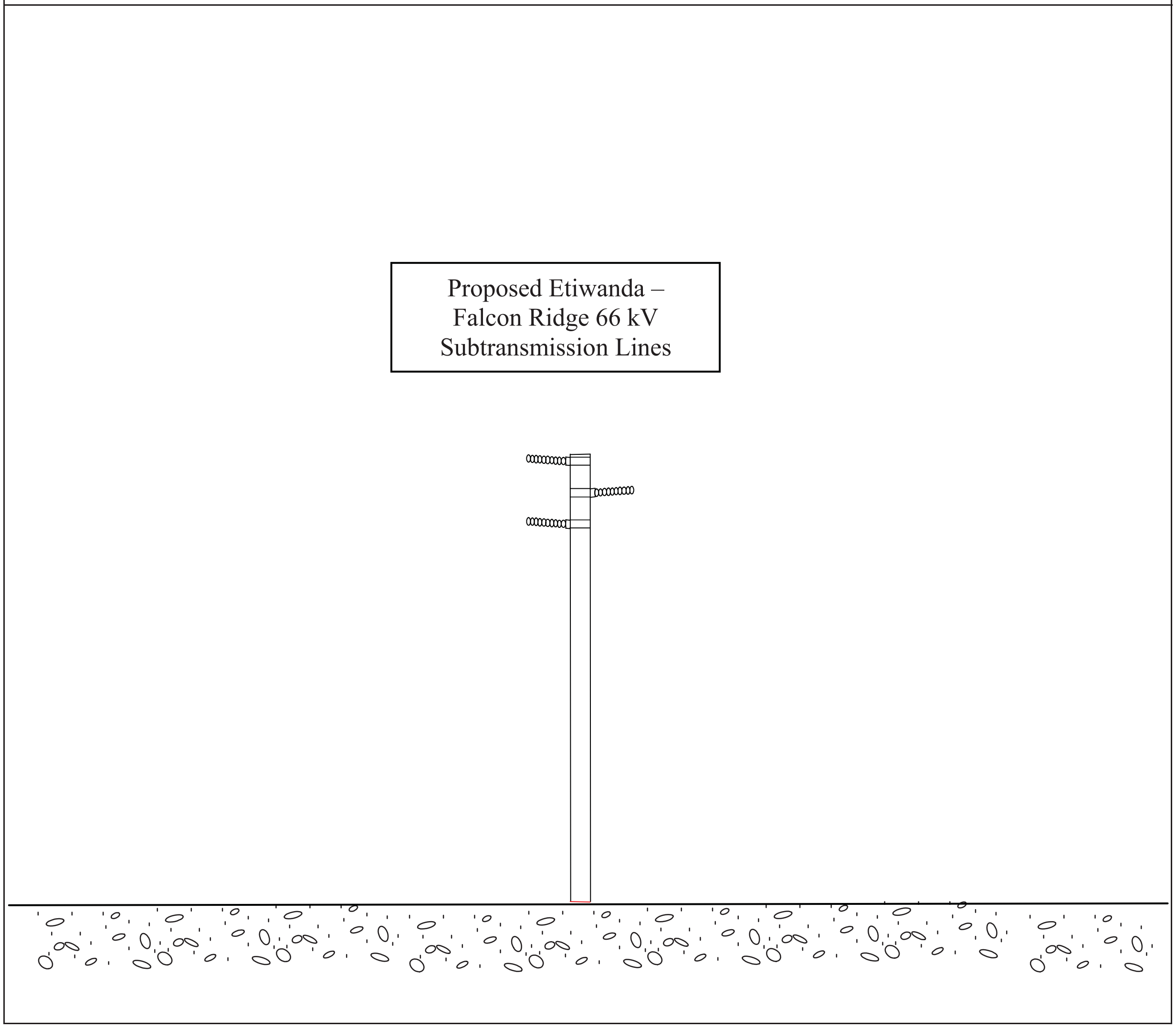
Continued from the previous page

44 This table lists calculated magnetic field levels for design comparison only and is not meant to predict actual magnetic field levels.

Figure 11. Proposed Etiwanda – Falcon Ridge 66 kV Single-Circuit - Segment 5



Low-Cost Field Reduction Options: Because the proposed design incorporates the above no-cost field reduction measures including structure heights that meet or exceed SCE's EMF preferred design criteria, no further low-cost reduction measures such as utilizing taller structures were considered for this segment.

Magnetic Field Calculations: Figure 12 and Table 6 show the calculated magnetic field levels for proposed design. These calculations were made using the typical proposed structure height of 65 feet above ground.

Figure 12. Calculated Magnetic Field Levels[45] for Segment 5 Proposed Etiwanda – Falcon Ridge 66 kV Line

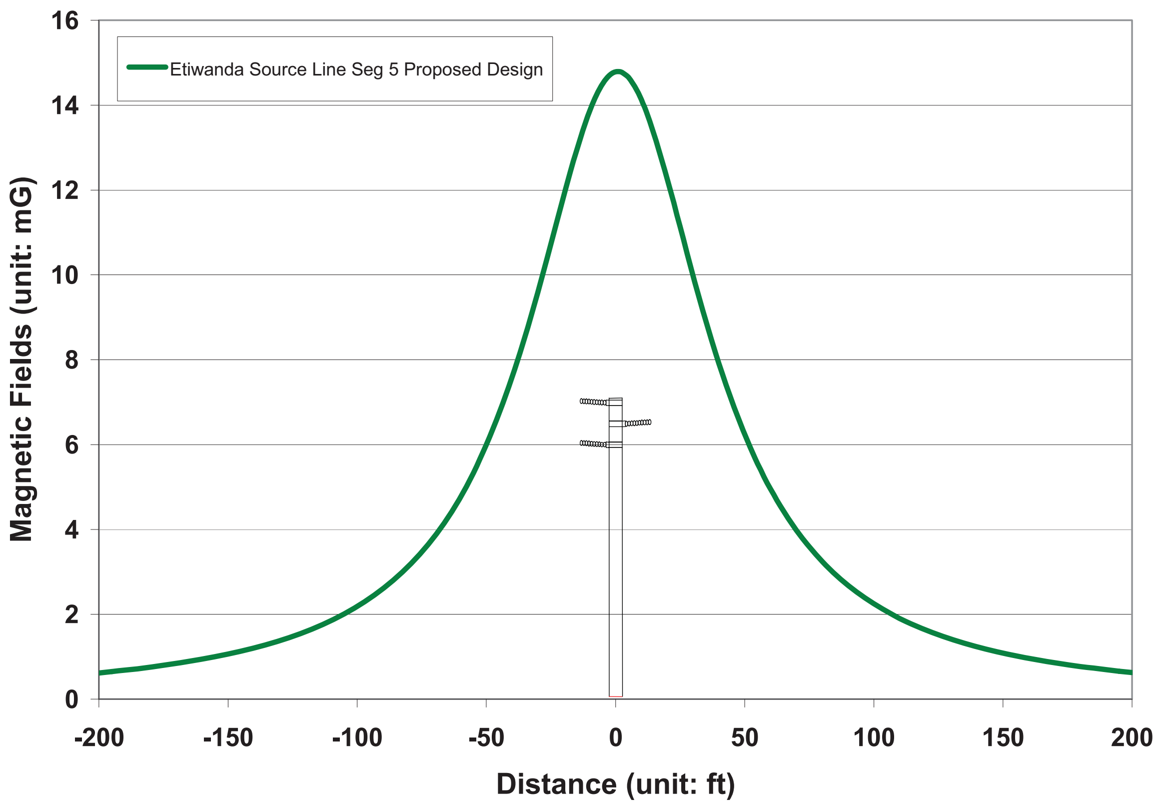


Table 6. Calculated Magnetic Field Levels[46] for Segment 5				
Design Options	10 Feet Left of C/L (mG)	% Reduction	10 Feet Right of C/L (mG)	% Reduction
Proposed Design	14.1	N/A	13.9	N/A

45 This table lists calculated magnetic field levels for design comparison only and is not meant to predict actual magnetic field levels.

46 This table lists calculated magnetic field levels for design comparison only and is not meant to predict actual magnetic field levels.

Recommendations for Segment 5: *Because the proposed design already incorporates structures with heights meeting or exceeding SCE's preferred design criteria, no further low-cost field reduction measures are recommended.*

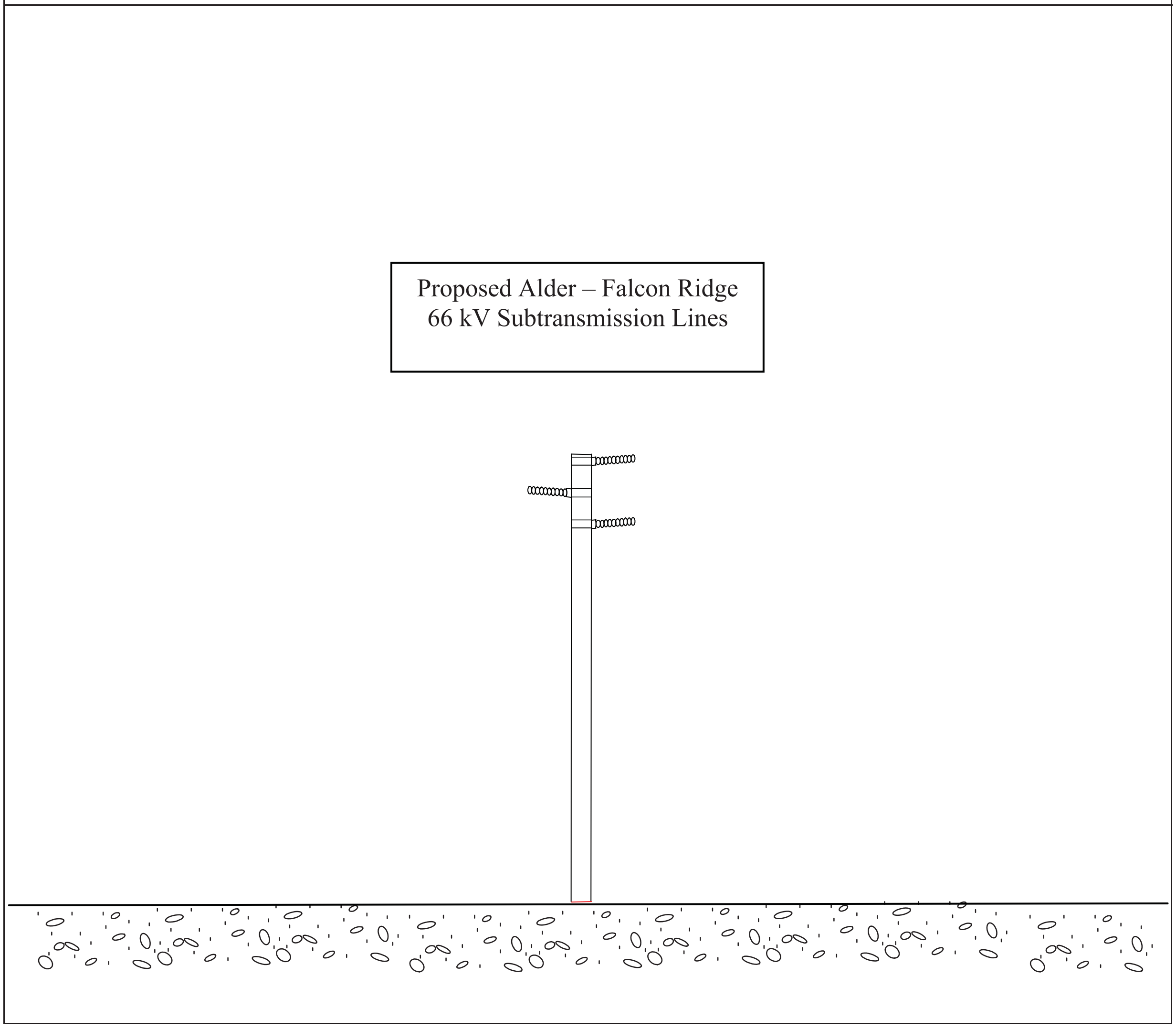
Alder 66 kV Source Line (Alder – Falcon Ridge 66 kV line)

Figure 13 shows the typical design of the Alder 66 kV source line. It will be constructed mostly on single-circuit structures. Based on preliminary designs, the LWS poles would be at least 75 feet in height (65 feet above ground), and TSPs would range between 70 to 100 feet in height. The structures will be located along Locust Avenue, Casmalia Street, and the future Mango Avenue extension in existing or future street ROW . For EMF analysis, calculated field levels were evaluated at 10 feet from the C/L of the structure for a single circuit. There are commercial/industrial areas along the Alder 66 kV source line route.

No-Cost Field Reduction Measures: The proposed design for Alder Source Line includes the following no-cost field reduction measure:

1. Utilizing structure heights that meet or exceed SCE’s EMF preferred design criteria.
2. Utilizing subtransmission line construction that reduces the space between conductors compared with other designs

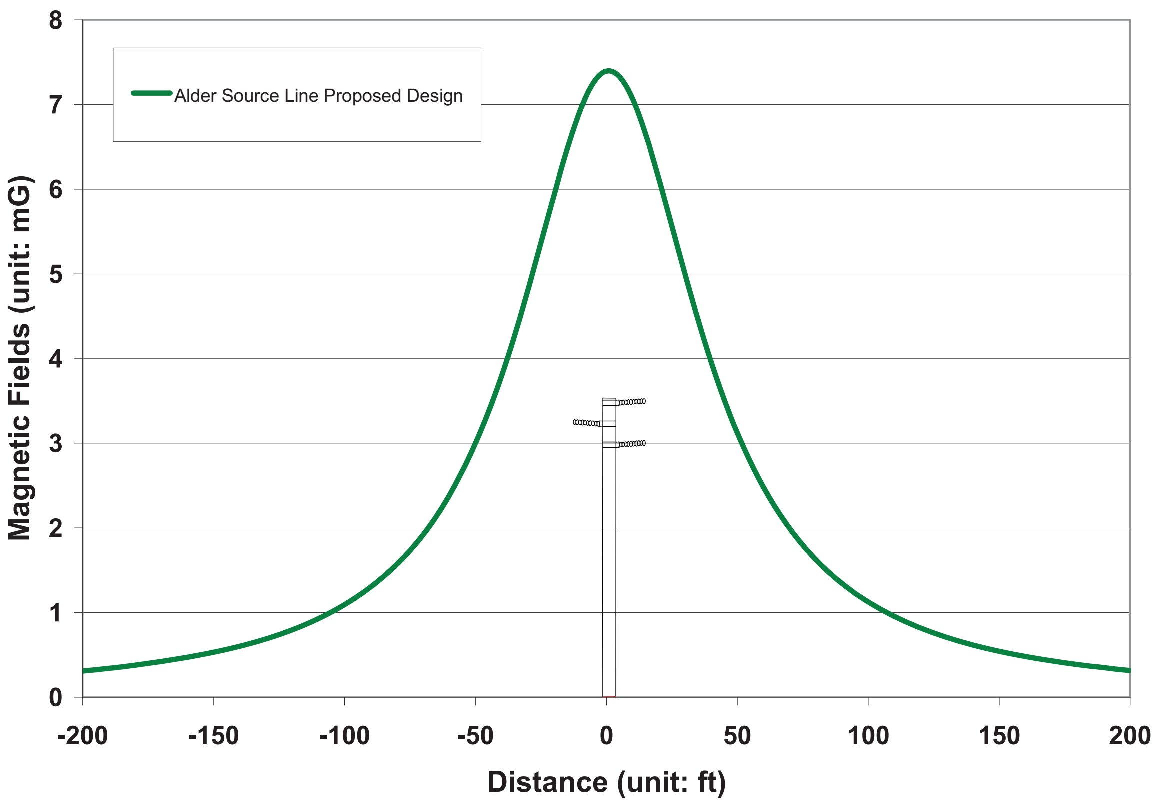
Figure 13. Proposed Alder – Falcon Ridge 66 kV Single-Circuit



Low-Cost Field Reduction Options: Because the proposed design incorporates the above no-cost field reduction measures including structure heights that meet or exceed SCE's EMF preferred design criteria, no further low-cost reduction measures such as utilizing taller structures were considered for this segment.

Magnetic Field Calculations: Figure 14 and Table 7 show the calculated magnetic field levels for proposed design. These calculations were made using the typical proposed structure height of 65 feet above ground.

Figure 14. Calculated Magnetic Field Levels[47] for Proposed Alder – Falcon Ridge 66 kV Line



[47] This table lists calculated magnetic field levels for design comparison only and is not meant to predict actual magnetic field levels.

Table 7. Calculated Magnetic Field Levels[48] for Alder Source Line				
Design Options	10 Feet Left of C/L (mG)	% Reduction	10 Feet Right of C/L (mG)	% Reduction
Proposed Design	6.9	N/A	7.1	N/A

Recommendations for Alder Source Line: *Because the proposed design already incorporates structures with heights meeting or exceeding SCE's preferred design criteria, no further low-cost field reduction measures are recommended.*

Part 2: Proposed Falcon Ridge 66/12 kV Substation

Generally, magnetic field values along the substation perimeter are low compared to the substation interior because of the distance from the perimeter to the energized equipment. Normally, the highest magnetic field values around the perimeter of a substation result from overhead power lines and underground duct banks entering and leaving the substation, and are not caused by substation equipment. Therefore, the magnetic field reduction design options generally applicable to a substation project are as follows:

- Site selection for a new substation;
- Setback of substation structures and major substation equipment (such as bus, transformers, and underground cable duct banks, etc.) from perimeter;
- Field reduction for transmission lines and subtransmission lines entering and exiting the substation.

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48 This table lists calculated magnetic field levels for design comparison only and is not meant to predict actual magnetic field levels.

The Substation Checklist, as shown in Table 8, is used for evaluating the no-cost and low-cost design options considered for the substation project, the design options adopted, and reasons that certain design options were not adopted if applicable.

Table 8. Substation Checklist for Examining No-cost and Low-cost Magnetic Field Reduction Design Options			
No.	**No-Cost and Low-Cost Magnetic Field Reduction Design Options Evaluated for a Substation Project**	**Design Options Adopted? (Yes/No)**	**Reason(s) if not Adopted**
1	Are 66 kV rated transformer(s) 15 feet from the substation property line?	Yes	
2	Are 66 kV rated switch-racks, capacitor banks & bus 8 feet (or more) from the substation property line?	Yes	
3	Are 66kV rated transfer & operating buses configured with the transfer bus facing the nearest property line?	Yes	
4	Are underground cable duct banks greater than 12 feet from side of property line?	Yes	

Part 3: Project Alternatives

This FMP includes only "no-cost and low-cost" magnetic field reduction design options for SCE's proposed routes and Proposed Substation site. SCE's Proponent's Environmental Assessment (PEA) contains various alternative line routes and substation site(s). Comparable "no-cost and low-cost" magnetic field reduction options for the Proposed Project can be applied to all alternative subtransmission routes and substation sites. A Final FMP will be prepared should an alternative route be approved.

VI. FINAL RECOMMENDATIONS FOR IMPLEMENTING "NO-COST AND LOW-COST" MAGNETIC FIELD REDUCTION DESIGN OPTIONS

In accordance with the "EMF Design Guidelines", filed with the CPUC in compliance with CPUC Decisions 93-11-013 and 06-01-042, SCE would implement the following "no-cost and low-cost" magnetic field reduction design options for Proposed Project:

For Proposed Segment 1 - Etiwanda 66 kV Source Line:

- Utilizing structure heights that meet or exceeds SCE's EMF preferred design criteria
- Utilizing subtransmission line construction that reduces the space between conductors compared with other designs
- Arranging conductors of proposed subtransmission line for magnetic field reduction
    - Proposed phasing arrangement: C-B-A (top to bottom, with two conductors facing the existing Lugo – Mira Loma No. 2 and No.3 T/Ls)

For Proposed Segment 2 - Etiwanda 66 kV Source Line:

- Utilizing structure heights that meet or exceeds SCE's EMF preferred design criteria
- Utilizing subtransmission line construction that reduces the space between conductors compared with other designs
- Arranging conductors of proposed subtransmission line for magnetic field reduction
    - Proposed phasing arrangement: A-B-C (top to bottom, with two conductors facing the existing Lugo – Mira Loma No. 2 and No.3 T/Ls)

For Proposed Segment 3 - Etiwanda 66 kV Source Line:

- Utilizing structure heights that meet or exceeds SCE’s EMF preferred design criteria
- Arranging conductors of proposed subtransmission line for magnetic field reduction
    - Proposed phasing arrangement: B-C-A (top to bottom, with three conductors facing the existing Lugo – Mira Loma No.3 T/L)

For Proposed Segment 4 - Etiwanda 66 kV Source Line:

- Utilizing structure heights that meet or exceeds SCE’s EMF preferred design criteria
- Arranging conductors of proposed subtransmission line for magnetic field reduction
    - Proposed phasing arrangement: B-C-A (top to bottom, with three conductors facing the existing Lugo – Mira Loma No.3 T/L)

For Proposed Segment 5 - Etiwanda 66 kV Source Line:

- Utilizing structure heights that meet or exceeds SCE’s EMF preferred design criteria
- Utilizing subtransmission line construction that reduces the space between conductors compared with other designs

For Proposed Alder 66 kV Source Line:

- Utilizing structure heights that meet or exceeds SCE's EMF preferred design criteria
- Utilizing subtransmission line construction that reduces the space between conductors compared with other designs

For Proposed Falcon Ridge 66/12 kV Substation:

- Place major substation electrical equipment (such as transformers, switchracks, buses and underground duct banks) away from the substation property lines
- Configure the transfer and operating buses with the transfer bus closest to the nearest property line

The recommended "no-cost and low-cost" magnetic field reduction design options listed above are based upon preliminary engineering designs, and therefore, they are subject to change during the final engineering designs. If the final engineering designs are different than preliminary engineering designs, SCE would implement comparable "no-cost and low-cost" magnetic field reduction design options. If the final engineering designs are significantly different (in the context of evaluating and implementing CPUC's "no-cost and low-cost" EMF Policy) than the preliminary designs, a Final FMP will be prepared.

SCE's plan for applying the above "no-cost and low-cost" magnetic field reduction design options uniformly for the Proposed Project is consistent with the CPUC's EMF Decisions No. 93-11-013 and No. 06-01-042, and also with recommendations made by the U.S. NIEHS. Furthermore, the recommendations above meet the CPUC approved EMF Design Guidelines as well as all applicable national and state safety standards for new electrical facilities.

VII. APPENDIX A: TWO-DIMENTIONAL MODEL ASSUMPTIONS AND YEAR 2014 FORECASTED LOADING CONDITIONS

Magnetic Field Assumptions:

SCE uses a computer program titled "MFields"[49] to model the magnetic field characteristics of various transmission designs options. All magnetic field models and the calculated results of magnetic field levels presented in this document are intended only for purposes of identifying the relative differences in magnetic field levels among various subtransmission line and subtransmission line design alternatives under a specific set of modeling assumptions and determining whether particular design alternatives can achieve magnetic field level reductions of 15 percent or more. The calculated results are not intended to be predictors of the actual magnetic field levels at any given time or at any specific location if and when the project is constructed.

Typical two-dimensional magnetic field modeling assumptions include:

- All subtransmission lines were modeled using forecasted peak loads (see Table 9 and 10 below)
- All conductors were assumed to be straight and infinitely long
- Average conductor heights accounted for line sag used in the calculation for the proposed Etiwanda – Falcon Ridge and Alder – Falcon Ridge 66 kV subtransmission lines and existing Lugo – Mira Loma No. 2 and No. 3 T/Ls
- Magnetic field strength was calculated at a height of three feet above ground
- Resultant magnetic fields values were presented in this FMP
- All line currents were assumed to be balanced (i.e. neutral or ground currents are not considered)
- Terrain was assumed to be flat
- Project dominant power flow directions were used.

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49 SCE, MFields for Excel, Version 2.0, 2007.

Table 9. Year 2014 Forecasted Loading Conditions for Proposed 66 kV Subtransmission Lines	
Circuit Name	**Current (Amp)**
Proposed Etiwanda – Falcon Ridge 66 kV subtransmission line	500
Proposed Alder – Falcon Ridge 66 kV subtransmission line	250

Table 10. Existing Lugo – Mira Loma No. 2 and No. 3 T/L Loads	
Circuit Name	**Current (Amp)**
Existing Lugo – Mira Loma No. 2 500 kV T/L	2200
Existing Lugo – Mira Loma No. 3 500 kV T/L	2100

Notes:

1. Forecasted loading data is based upon scenarios representing load forecasts for the operating year of 2014. The forecasting data is subject to change depending upon availability of generations, load increase, changes in load demand, and by many other factors.
2. All existing line loading data is derived from historical data.
3. Load flow of the proposed Etiwanda – Falcon Ridge 66 kV and the existing Lugo – Mira Loma No. 2 and No. 3 T/Ls are assumed to be in the opposite directions

APPENDIX C
Air Quality Calculations

APPENDIX C
Air Quality Calculations

Introduction

This Appendix includes Southern California Edison (SCE)'s air pollutant and greenhouse gas emissions estimates for construction and operational activities that would be associated with the Project and Alternative 1 (identified by SCE as Alternative 2Bi). SCE's emission estimates associated with the Project were submitted to the CPUC on December 29, 2010, with its Proponent's Environmental Assessment as Appendix C, and SCE's emissions estimates associated with the proposed Alder Subtransmission Source Line Route and Alternative 1 were submitted to the CPUC on October 27, 2011.

SCE's emissions estimates were peer reviewed by CPUC's environmental consultant, Environmental Science Associates (ESA). After conducting its review, ESA determined that the SCE emission estimates for several sources were underestimated. Therefore, in addition to the SCE emission estimates, this appendix includes several emission estimate revisions and supplements to SCE's emission estimates. The appendix is organized as follows:

- Revisions to SCE's emission estimates presented in Table 5, Construction Emissions Localized Significance Threshold Analysis;
- Revisions to SCE's GHG Emission Estimates;
- SCE's Emission Estimates for the Project (PEA Appendix C); and
- SCE's Emission Estimates for the proposed Alder Subtransmission Source Line Route and Alternative 1 (identified by SCE as Alternative 2Bi).

Revisions to SCE Emission Estimates Table 5

In addition to accounting for the distances to sensitive receptors, the LST analysis prepared by SCE also included evaluation for commercial facilities relative to CO and NO_x emissions. However, for the purposes of the CEQA review, the LST analysis is used to evaluate the potential for the Project to result in exposure of sensitive receptors to substantial criteria pollutant concentrations. Therefore, SCE's LST analysis has been revised to include review of only sensitive receptors. In addition, the distances used for residential receptors relative to the Falcon Ridge Substation site and the distribution getaway vault sites were adjusted to more accurately represent the distances from those Project components to the nearest residences.

REVISED Table 5, below, includes the changes (**underlined and bolded**) that have been made to SCE's Table 5 relative to the subtransmission source line construction and the telecommunications construction. As indicated in the table, the revisions do not result in an exceedance of any of the allowable emissions.

REVISED Table 5
Construction Emissions
Localized Significance Threshold Analysis

Pollutant	Daily onsite Emissions (lb/lbs)	Receptor Distance (m)	Allowable Emissions Interpolation					Allowable Exceeded ?
			Distance 1 (m)	Emissions 1 (lb/day)	Distance 2 (m)	Emissions 2 (lb/day)	Interpolated Emissions (lb/day)	
Substation Construction								
CO	20	**200**	**100**	**2,738**	**250**	**6,346**	**5,143**	No
NOx	36	**200**	**100**	**263**	**250**	**378**	**340**	No
PM10	50	**200**	100	42	**250**	83	**69**	No
PM2.5	10	**200**	100	12	**250**	26	**21**	No
Alder Substation Modification Construction								
CO	17	**500**	**500**	**21,708**	**500**	**21,708**	**21,708**	No
NOx	15	**500**	**500**	**652**	**500**	**652**	**652**	No
PM10	1	500	500	196	500	196	196	No
PM2.5	1	500	500	98	500	98	98	No
Etiwanda Substation Modification Construction								
CO	10	**500**	**500**	**21,708**	**500**	**21,708**	**21,708**	No
NOx	12	**500**	**500**	**652**	**500**	**652**	**652**	No
PM10	1	500	500	196	500	196	196	No
PM2.5	1	500	500	98	500	98	98	No
Subtransmission Source Line Construction								
CO	9	25	25	667	25	667	667	No
NOx	22	25	25	118	25	118	118	No
PM10	2	25	25	4	25	4	4	No
PM2.5	1	25	25	3	25	3	3	No
Telecommunications Construction								
CO	10	25	25	667	25	667	667	No
NOx	26	25	25	118	25	118	118	No

PM10	2	25	25	4	25	4	4	No
PM2.5	1	25	25	3	25	3	3	No
Distribution Getaways Construction								
CO	10	**60**	**50**	**1,059**	**100**	**2,141**	**1,275**	No
NOx	17	**60**	**50**	**148**	**100**	**211**	**161**	No
PM10	1	**60**	**50**	**13**	**100**	**33**	**17**	No
PM2.5	1	**60**	**50**	**5**	**100**	**9**	**6**	No
Distribution – Existing Facilities Relocation								
CO	3	25	25	667	25	667	667	No
NOx	7	25	25	118	25	118	118	No
PM10	1	25	25	4	25	4	4	No
PM2.5	0	25	25	3	25	3	3	No

SCE's LST emission estimates for construction of the subtransmission source line do not include emissions associated with road or right-of-way clearing because these activities would not be at fixed locations. However, given that the roadwork activities would result in relatively high emissions of PM10 and PM2.5, it is appropriate for the LST analysis to account for a portion of the road work emissions. Based on the number of days (i.e., 4 days; see SCE Table 35) that it would take to construct approximately 6.7 miles of Project access roads, approximately 1.7 miles of roadwork would occur each day. Assuming 208.7 linear feet (i.e., square root of 43,560 square feet or 1 acre) of roadwork would occur within the vicinity of the sensitive receptors, the total on-site values for PM10 and PM2.5 roadwork (see SCE Table 35) were divided by 42.4 for PM10 and PM2.5 LST emissions values for roadwork of less than 1 pound each. Therefore, although SCE did not consider roadwork for the LST values, the roadwork would not be the maximum LST values and are not used in this analysis.

Revisions to SCE's GHG Emission Estimates

SF_6 Emissions

For the annual onsite greenhouse gas (GHG) emissions estimate for fugitive SF_6, SCE assumed an SF_6 circuit breaker leak rate of 0.5 percent, but included no information to substantiate that leak rate. Therefore, a USEPA recommended emission leak rate of 1.0 percent was used to revise Project-related SF_6 emissions. In addition, SCE used an SF_6 global warming potential (GWP) factor from an older version (i.e., 2008) of the California Climate Action Registry (CCAR) general reporting protocol that is slightly lower than what is presented in a more recent CCAR general reporting protocol (i.e., 2009). Therefore, the SF_6 leakage part of SCE's Table 58 has been replaced with the data presented below.

SF_6 for 115 kV circuit breakers (pounds)	**SF_6 GWP**	**Leak Factor**	**$C0_2e$ metric tons**
248	23,900	0.01	26.9

Sources: For pounds of SF6: SCE, 2010; for SF6 GWP: CCAR, 2009.

For leak rate: U.S. Environmental Protection Agency (USEPA), 2006. SF6 Leak Rates from High Voltage Circuit Breakers –
U.S. EPA Investigates Potential Greenhouse Gas Emissions Source. IEEE Power Engineering Society General Meeting, Montreal,
Quebec, Canada, June 2006

Electricity Usage Indirect Emissions

As indicated in Project Description Sections 2.7.4 and 2.8.15, the Project would require the use of a 12 kV distribution circuit to serve as a power source during construction and water would be used during construction to minimize fugitive dust. However, SCE's short-term construction GHG emissions estimates for the Project do not include estimated indirect emissions that would be associated with the temporary power source or the water use. Therefore, SCE's emissions estimates have been supplemented with estimates for indirect short-term electricity usage-related GHG emissions associated with the use of the 12 kV distribution circuit and the water use for dust control activities as follows.

Project Water Demand

8.1	Short-term construction demand (million gallons/Project). Estimate is based on the size of the Project (in terms of construction GHG emissions) relative to SCE's Lakeview Substation Project, which SCE estimates would require 32,000 gallons per day.

Use and Emission Factors

Water energy use factor* (CEC, 2005)

10,200 kW-hr/MG

Electricity use emission factors (CCAR, 2009)

	CO2	CH4	N2O
lbs/MW-hr	724.12	0.0302	0.0081

Project Indirect Electricity Usage for Water Consumption

83.0	MW-hr/year

Project Electricity Demand for Construction Activities

45.1	Short-term construction demand (MW-hr/Project). Assumes 12 kV would be consumed 12 hours per day, six days a week, for one year.

Total Indirect and Direct Electricity Usage

128.0	Short-term construction demand (MW-hr/Project)

Indirect Emission Assoc. with Electricity Use (metric tons/year)

	CO2	CH4	N2O	**CO2e**
Emissions	42.050	0.002	0.000	**42.233**

Notes: Global Warming Potential for CH4 = 25; GWP for N2O = 296.

* Water energy use factor includes supply, conveyance, treatment, and distribution.

Construction water demand assumes a daily use of 26,000 gallons.

References:

California Energy Commission (CEC), 2005. California's Water - Energy Relationship Prepared in Support of the 2005 Integrated Energy Policy Report Proceeding (04-IEPR-01E), November 2005 (Table 1-3, page 11).

California Climate Action Registry, 2009. General Reporting Protocol, Reporting Entity-Wide Greenhouse Gas Emissions, Version 3.1, January 2009.Tables C.4 and C.7.

Appendix C Air Quality Calculations

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Tables

This appendix describes the procedures used to analyze potential air quality impacts for the Falcon Ridge Substation Project Proponent's Environmental Assessment (PEA).

1.0 ANALYSIS OVERVIEW

The following analyses of potential air quality impacts were conducted:

- Total peak daily emissions of criteria pollutants and precursors (volatile organic compounds [VOC], carbon monoxide [CO], nitrogen oxides [NOx], sulfur oxides [SOx], particulate matter smaller than 10 microns aerodynamic diameter [PM_{10}] and particulate matter smaller than 2.5 microns aerodynamic diameter [$PM_{2.5}$]) during construction (including construction of the Proposed Substation, Proposed Distribution Getaways, Proposed Subtransmission Source Line Routes, and Proposed Telecommunication Facilities, and modifications to the Alder and Etiwanda Substations) and operation of the Proposed Project were calculated and compared with California Environmental Quality Act (CEQA) significance thresholds for regional air quality impacts adopted by the South Coast Air Quality Management District (SCAQMD)

- On-site peak daily emissions of CO, NOx, PM_{10} and $PM_{2.5}$ during construction of the Proposed Project were calculated and analyzed to evaluate potential localized impacts

- Total greenhouse gas (GHG) emissions during construction and operation of the Proposed Project were calculated to evaluate potential cumulative impacts from GHG emissions

Section 2.0 of this appendix describes the emission calculation procedures for the types of activities that are anticipated to generate emissions during construction and operation of the Proposed Project. Section 3.0 describes the calculation of peak daily emissions. Section 4.0 describes the calculation of total GHG emissions, and Section 5.0 describes the analysis of potential localized impacts. References are provided in Section 6.0. The associated calculations are provided in the attached tables.

2.0 EMISSION CALCULATIONS

2.1 Emission Sources

Construction and operational emissions can be distinguished as either on site or off site. On-site emissions principally consist of exhaust emissions (CO, VOC, NOx, SOx, PM_{10}, $PM_{2.5}$ and GHG) from construction equipment and motor vehicles, entrained PM_{10} and $PM_{2.5}$ from vehicles traveling on paved and unpaved surfaces, fugitive dust (PM_{10} and $PM_{2.5}$) from grading and excavation, VOC from asphaltic paving, and GHG from leakage of equipment containing sulfur hexafluoride (SF_6). Off-site emissions during the construction and operation phases consist of exhaust emissions and entrained paved and unpaved road dust from motor vehicles.

2.2 Construction Equipment Exhaust Emission Calculations

The combustion of fuel to provide power for the operation of construction equipment results in the generation of exhaust emissions. The following equation was used to calculate daily exhaust emissions from each type of construction equipment used during each construction phase for the Proposed Project:

$$E_{i,j} = EF_{i,j} \times H_j \times N_j \qquad \text{(Eq. 1)}$$

where:

$E_{i,j}$ = Emissions of pollutant i from equipment type j (pounds/day)

$EF_{i,j}$ = Emission factor for pollutant i from equipment type j (pounds/operating hour)

H_j = Daily operating time for equipment type j (hours/day)

N_j = Number of pieces of equipment of type j

The exhaust emission factors, $EF_{i,j}$, used for the calculations for diesel-fueled equipment are composite horsepower-based off-road emission factors for 2013, the year construction is anticipated to begin, developed for the SCAQMD by the California Air Resources Board (CARB) from its OFFROAD 2007 Model (SCAQMD, 2008a). The composite off-road emission factors were derived based on equipment type (e.g., tractor, dozer,), and average equipment age and horsepower rating within horsepower ranges for the year.

The emission factors developed by CARB for the SCAQMD are listed in Table 59 in the attached tables. They include emission factors for VOC, CO, NOx, SOx and PM_{10}, as well as two GHGs (carbon dioxide [CO_2] and methane [CH_4]). $PM_{2.5}$ emission factors were calculated by multiplying the PM_{10} emission factors by the $PM_{2.5}$ fraction of PM_{10} in construction equipment engine exhaust (SCAQMD, 2006).

Some aerial lifts to be used during construction of the Proposed Project are anticipated to be propane fueled. Since the emission factors available from the SCAQMD are only for diesel-fueled equipment, AECOM used the CARB OFFROAD 2007 Model to calculate total daily emissions and total daily operating hours for natural gas-fueled[1] aerial lifts during 2013 in the SCAQMD's jurisdiction. Total daily emissions by equipment horsepower range were then divided by total daily operating hours to calculate hourly emission factors. The resulting emission factors are listed in Table 59 in the attached tables.

[1] The OFFROAD 2007 Model does not calculate emissions from propane-fueled equipment. Therefore, emissions from natural gas-fueled equipment were used to estimate emissions from propane-fueled equipment.

The following equation was used to calculate total GHG emissions from each type of construction equipment during each construction phase:

$E_{GHG,j} = (E_{CO2,j} + 21 \times E_{CH4,j}) \times D_j \times 4.536 \times 10^{-4}$ (Eq. 2)

where:

$E_{GHG,j}$ = Total GHG emissions from equipment type j (metric tons [1,000 kilograms] CO_2 equivalent)

$E_{CO2,j}$ = Daily CO2 emissions from equipment type j (pounds/day)

21 = Global warming potential for CH_4 relative to CO_2

$E_{CH4,j}$ = Daily CH_4 emissions from equipment type j (pounds/day)

D_j = Days equipment of type j are used during the construction phase

4.536×10^{-4} = Metric tons per pound unit conversion

Table 3.6, Construction Equipment and Workforce Estimates, in Chapter 3, Project Description, of the PEA provided the types, number, daily operating hours and total operating days for construction equipment anticipated to be used during each construction phase for the Proposed Project. Horsepower ratings for the equipment were estimated from typical horsepower ratings for the types of equipment anticipated to be used. All construction equipment exhaust emissions were anticipated to occur on site.

Daily VOC, CO, NOx, SOx, PM_{10}, $PM_{2.5}$ and total GHG construction equipment exhaust emissions calculations for each construction phase are provided in Tables 7 through 57 in the attached tables.

2.3 Motor Vehicle Exhaust Emission Calculations

The combustion of fuel in motor vehicle engines results in the generation of exhaust emissions. The following equation was used to calculate daily exhaust emissions from each type of motor vehicle used during each construction phase and during operation of the Proposed Project:

$E_{i,j} = EF_{i,j} \times VMT_j \times N_j$ (Eq. 3)

where:

$E_{i,j}$ = Emissions of pollutant i from motor vehicle type j (pounds/day)

$EF_{i,j}$ = Emission factor for pollutant from motor vehicle type j (pounds/vehicle-mile traveled [VMT])

VMT_j = Daily (VMT by motor vehicle type j (miles/day)

N_j = Number of motor vehicles of type j

The SCAQMD (2007a) has derived motor vehicle emission factors using CARB's EMFAC 2007 (v2.3) BURDEN model. The emission factors were derived by dividing the total daily district-wide emissions by total daily VMT to obtain emission factors in pounds per mile traveled. Emission factors were derived for gasoline-fueled passenger sized, light-duty vehicles and diesel-fueled medium sized, heavy-duty vehicles by taking the weighted average of vehicle types and simplifying them into two categories – passenger sized, light-duty and medium sized, heavy-duty vehicles (e.g., delivery trucks). Emission factors were also derived for heavy sized, heavy-duty diesel-fueled trucks, which have a vehicle weight ranging between 33,001 and 60,000 pounds.

The emission factors developed by the SCAQMD (2007a) are listed in Tables 59 and 60 in the attached tables. They include emission factors for VOC, CO, NOx, SOx, PM_{10}, CO_2 and CH_4. $PM_{2.5}$ emission factors were calculated by multiplying the PM_{10} emission factors by the $PM_{2.5}$ fraction of PM_{10} in motor vehicle exhaust (SCAQMD, 2006).

The following equation was used to calculate total GHG emissions from each type of vehicle during each construction phase and during operation of the Proposed Project:

$$E_{GHG,j} = (E_{CO2,j} + 21 \times E_{CH4,j}) \times D_j \times 4.536 \times 10^{-4} \qquad \text{(Eq. 2)}$$

where:

$E_{GHG,j}$ = Total GHG emissions from vehicle type j (metric tons CO_2 equivalent)

$E_{CO2,j}$ = Daily CO_2 emissions from vehicle type j (pounds/day)

21 = Global warming potential for CH_4 relative to CO_2

$E_{CH4,j}$ = Daily CH_4 emissions from vehicle type j (pounds/day)

D_j = Days vehicles of type j are used during the construction phase

4.536×10^{-4} = Metric tons per pound unit conversion

The types of vehicles, the vehicle categories used to assign emission factors, the number of vehicles used and the basis for estimating the number of vehicles during each construction phase and during operation of the Proposed Project are listed in Table C-1, Motor Vehicle Categories and Numbers. The daily on-site and off-site VMT for each type of vehicle and the basis for the VMT estimates during each construction phase and operation of the Proposed Project are listed in Table C-2, Motor Vehicle Daily Vehicle-Miles Traveled. Table C-2 also lists estimated VMT for travel on paved and unpaved roads and surfaces. Although exhaust emissions are independent of the type of surface, entrained fugitive particulate matter emission factors, as discussed in Section 2.4, Motor Vehicle Entrained Particulate Matter Calculations, are different for travel on paved and unpaved surfaces.

Daily motor vehicle exhaust emission calculations from construction and operation are provided in Tables 7 through 58 in the attached tables.

Table C-1 Motor Vehicle Categories and Numbers

Vehicle	Category[1]	Number	Basis for Number[2]
Substation Survey			
Survey Truck	Passenger	2	Table 3.6
Worker Commute	Passenger	4	Table 3.6
Substation Temporary Power Pole Installation			
Work Truck	Passenger	1	Table 3.6
Worker Commute	Passenger	2	Table 3.6
Substation Grading			
Water Truck	HHDT	1	Table 3.6
Tool Truck	Passenger	1	Table 3.6
Pickup 4x4	Passenger	1	Table 3.6
Worker Commute	Passenger	8	Table 3.6
Substation Soil Import/Export			
Dump Truck - Import	HHDT	45	Based on 5,000 CY import (Table 3.1) over 8 days and 14 CY/truck: 5,000 / 8 / 14 = 44.6
Dump Truck - Export	HHDT	18	Based on 2,000 CY export (Table 3.1) over 8 days and 14 CY/truck: 2,000 / 8 / 14 = 17.9
Substation Fencing			
Flatbed Truck	Delivery	1	Table 3.6
Crewcab Truck	Passenger	1	Table 3.6
Worker Commute	Passenger	6	Table 3.6
Substation Civil			
Dump Truck	HHDT	7	Based on 455 CY excavated (Table 3.1) over 5 days and 14 CY/truck = 455 / 5 / 14 = 6.5
Water Truck	HHDT	1	Table 3.6
Tool Truck	Passenger	1	Table 3.6
Concrete Truck	HHDT	10	Based on 455 CY concrete poured (Table 3.1) over 5 days and 10 CY/truck: 455 / 5 / 10 = 9.1
Worker Commute	Passenger	10	Table 3.6
Substation MEER			
Carry-all Truck	Delivery	1	Table 3.6
Stake Truck	Delivery	1	Table 3.6

Table C-1 Motor Vehicle Categories and Numbers

Vehicle	Category[1]	Number	Basis for Number[2]
Worker Commute	Passenger	6	Table 3.6
Substation Electrical			
Crew Truck	Passenger	2	Table 3.6
Worker Commute	Passenger	10	Table 3.6
Substation Wiring			
Worker Commute	Passenger	6	Table 3.6
Substation Transformers			
Crew Truck	Passenger	2	Table 3.6
Low Bed Truck	HHDT	1	Table 3.6
Worker Commute	Passenger	4	Table 3.6
Substation Maintenance Crew Equipment Check			
Maintenance Truck	Passenger	2	Table 3.6
Worker Commute	Passenger	4	Table 3.6
Substation Testing			
Crew Truck	Passenger	1	Table 3.6
Worker Commute	Passenger	2	Table 3.6
Substation Asphalting			
Stake Truck	HHDT	1	Table 3.6
Dump Truck	HHDT	1	Table 3.6
Crew Truck	Passenger	2	Table 3.6
Asphalt Delivery Truck	HHDT	5	Based on 465 CY (Table 3.1) over 10 days and 10 CY/truck = 465 / 10 / 10 = 4.7
Aggregate Base Delivery Truck	HHDT	6	Based on 610 CY (Table 3.1) over 10 days and 10 CY/truck = 610 / 10 / 10 = 6.1
Worker Commute	Passenger	8	Table 3.6
Substation Landscaping			
Dump Truck	HHDT	1	Table 3.6
Crushed Rock Delivery Truck	HHDT	4	Based on 1,230 CY (Table 3.1) over 30 days and 10 CY/truck = 1,230 / 30 / 10 = 4.1
Worker Commute	Passenger	8	Table 3.6
Alder Substation Modification Fencing			
Flatbed Truck	Delivery	1	Table 3.6
Crewcab Truck	Passenger	1	Table 3.6

Table C-1 Motor Vehicle Categories and Numbers

Vehicle	Category[1]	Number	Basis for Number[2]
Worker Commute	Passenger	2	Table 3.6
Alder Substation Modification Civil			
Dump Truck	HHDT	1	Table 3.6
Water Truck	HHDT	1	Table 3.6
Tool Truck	Passenger	1	Table 3.6
Concrete Truck	HHDT	1	Table 3.6
Worker Commute	Passenger	4	Table 3.6
Alder Substation Modification Electrical			
Worker Commute	Passenger	4	Table 3.6
Alder Substation Modification Wiring			
Worker Commute	Passenger	2	Table 3.6
Alder Substation Modification Maintenance Crew Equipment Check			
Maintenance Trucks	Passenger	2	Table 3.6
Worker Commute	Passenger	2	Table 3.6
Alder Substation Modification Testing			
Crew Truck	Passenger	1	Table 3.6
Worker Commute	Passenger	2	Table 3.
Alder Substation Modification Asphalting			
Stake Truck	Delivery	1	Table 3.6
Dump Truck	HHDT	1	Table 3.6
Crew Truck	Passenger	2	Table 3.6
Asphalt Delivery Truck	HHDT	1	Table 3.6
Worker Commute	Passenger	5	Table 3.6
Etiwanda Substation Modification Civil			
Dump Truck	HHDT	1	Table 3.6
Water Truck	HHDT	1	Table 3.6
Tool Truck	Passenger	1	Table 3.6
Concrete Truck	HHDT	1	Table 3.5
Worker Commute	Passenger	4	Table 3.6
Etiwanda Substation Modification Electrical			
Crew Truck	Passenger	2	Table 3.6
Worker Commute	Passenger	4	Table 3.6

Table C-1 Motor Vehicle Categories and Numbers

Vehicle	Category[1]	Number	Basis for Number[2]
Etiwanda Substation Modification: Wiring			
Worker Commute	Passenger	2	Table 3.6
Etiwanda Substation Modification Maintenance Crew Equipment Check			
Maintenance Trucks	Passenger	2	Table 3.6
Worker Commute	Passenger	2	Table 3.6
Etiwanda Substation Modification Testing			
Crew Truck	Passenger	1	Table 3.6
Worker Commute	Passenger	2	Table 3.6
Subtransmission Source Line Survey			
1-Ton Truck, 4X4	Passenger	1	Table 3.6
Worker Commute	Passenger	4	Table 3.6
Subtransmission Source Line Staging Area			
1-Ton Crew Cab, 4X4	Delivery	1	Table 3.6
Truck, Semi Tractor	HHDT	1	Table 3.6
Worker Commute	Passenger	4	Table 3.6
Subtransmission Source Line Road Work			
Water Truck	HHDT	1	Table 3.6
1-Ton Crew Cab 4X4	Delivery	1	Table 3.6
Lowboy Truck/Trailer	HHDT	1	Table 3.6
Worker Commute	Passenger	5	Table 3.6
Subtransmission Source Line Guard Structure Installations			
3/4-Ton Truck, 4X4	Passenger	1	Table 3.6
1-Ton Crew Cab, 4X4	Delivery	1	Table 3.6
Extendable Flat Bed Pole Truck	HHDT	1	Table 3.6
Auger Truck	HHDT	1	Table 3.6
Bucket Truck	HHDT	1	Table 3.6
Boom/Crane Truck	HHDT	1	Table 3.6
Worker Commute	Passenger	6	Table 3.6
Subtransmission Source Line Wood/LWS Pole Removal			
1-Ton Crew Cab, 4X4	Delivery	1	Table 3.6
Bucket Truck	HHDT	1	Table 3.6
Flat Bed Pole Truck	HHDT	1	Table 3.6

Table C-1 Motor Vehicle Categories and Numbers

Vehicle	Category[1]	Number	Basis for Number[2]
Boom/Crane Truck	HHDT	1	Table 3.6
Worker Commute	Passenger	6	Table 3.6
Subtransmission Source Line Install TSP Foundations			
Water Truck	HHDT	1	Table 3.6
1-Ton Crew Cab, 4X4	Delivery	1	Table 3.6
Dump Truck	HHDT	2	Based on 40 CY per foundation (Table. 3.2), 50 foundations total (Table 3.5) and 14 CY/truck over 90 days = 40 x 50 / 14 / 90 = 1.6
Concrete Truck	HHDT	3	Based on 40 CY per foundation (Table. 3.2), 50 foundations total (Table 3.5) and 10 CY/truck over 90 days = 40 x 50 / 10 / 90 = 2.2
Boom/Crane Truck	HHDT	1	Table 3.6
Auger Truck	HHDT	1	Table 3.6
Worker Commute	Passenger	7	Table 3.6
Subtransmission Source Line TSP Haul			
3/4–Ton Truck, 4X4	Passenger	1	Table 3.6
Boom/Crane Truck	HHDT	1	Table 3.6
Flat Bed Pole Truck	HHDT	1	Table 3.6
Worker Commute	Passenger	4	Table 3.6
Subtransmission Source Line TSP Assembly			
3/4–Ton Truck, 4X4	Passenger	2	Table 3.6
1 Ton Crew Cab, 4X4	Delivery	2	Table 3.6
Boom/Crane Truck	HHDT	1	Table 3.6
Worker Commute	Passenger	15	Table 3.6
Subtransmission Source Line TSP Erection			
3/4–Ton Truck, 4X4	Passenger	1	Table 3.6
1 Ton Crew Cab, 4X4	Delivery	1	Table 3.6
Worker Commute	Passenger	15	Table 3.6
Subtransmission Source Line Install Wood/LWS Poles			
Augur Truck	HHDT	1	Table 3.6
Bucket Truck	HHDT	1	Table 3.6
Boom/Crane Truck	HHDT	1	Table 3.6
1-Ton Crew Cab, 4x4	Delivery	1	Table 3.6

Table C-1 Motor Vehicle Categories and Numbers

Vehicle	Category[1]	Number	Basis for Number[2]
Extendable Flat Bed Pole Truck	Delivery	1	Table 3.6
Worker Commute	Passenger	15	Table 3.6
Subtransmission Source Line Install Conductor			
1-Ton Crew Cab,4X4	Delivery	3	Table 3.6
Bucket Truck	HHDT	4	Table 3.6
Boom/Crane Truck	HHDT	1	Table 3.6
Wire Truck/Trailer	HHDT	2	Table 3.6
Dump Truck	HHDT	1	Table 3.6
3 Drum Sock Line Puller	HHDT	1	Table 3.6
Bull Wheel Puller	HHDT	1	Table 3.6
Static Truck/Tensioner	HHDT	1	Table 3.6
Lowboy Truck Trailer	HHDT	2	Table 3.6
Worker Commute	Passenger	20	Table 3.6
Subtransmission Source Line Guard Structure Removal			
3/4-Ton Truck, 4X4	Passenger	1	Table 3.6
1-Ton Crew Cab, 4X4	Delivery	1	Table 3.6
Bucket Truck	HHDT	1	Table 3.6
Boom/Crane Truck	HHDT	1	Table 3.6
Extendable Flat Bed Pole Truck	HHDT	1	Table 3.6
Worker Commute	Passenger	6	Table 3.6
Subtransmission Source Line Restoration			
1-Ton Crew Cab, 4X4	Delivery	2	Table 3.6
Water Truck	HHDT	1	Table 3.6
Low-boy Truck/Trailer	HHDT	1	Table 3.6
Worker Commute	Passenger	7	Table 3.6
Subtransmission Source Line Vault Installation			
1 Ton Crew-Cab, 4X4	Delivery	2	Table 3.5
Dump Truck	HHDT	2	Based on 4 vaults (Table 3.5) 20 ft. x 10 ft. x 9.5 ft.(Section 3.2.4.4) plus 10% extra and 14 CY truck over 12 days = 4 x 20 x 14 x 9.5 x 1.1 / 27 / 14 / 12 = 1.8
Water Truck	HHDT	1	Table 3.6

Table C-1 Motor Vehicle Categories and Numbers

Vehicle	Category[1]	Number	Basis for Number[2]
165-Ton Crane Truck	HHDT	1	Table 3.6
Concrete Mixer Truck	HHDT	3	Table 3.6
Low-Boy Truck/Trailer	HHDT	1	Table 3.6
Flat Bed Truck/Trailer	Delivery	3	Table 3.6
Worker Commute	Passenger	6	Table 3.6
Subtransmission Source Line Duct Bank Installation			
1-Ton Crew-Cab, 4X4	Delivery	1	Table 3.6
Dump Truck	HHDT	6	Based on 600 CY and 14 CY/truck over 8 days = 600 / 14 / 8 = 5.4
Pipe Truck/Trailer	HHDT	1	Table 3.6
Water Truck	HHDT	1	Table 3.6
Concrete Mixer Truck	HHDT	3	Based on duct bank 21 in. x 20 in x 1,800 ft. - volume of 6, 5.563 in. OD PVC over 6 days and 10 CY/truck = (21 x 20 - 6 x π x $(5.563)^2$ / 4) / 144 x 1,800 / 27 / 10 / 6 days = 2.1
Low-Boy Truck/Trailer	HHDT	1	Table 3.6
Worker Commute	Passenger	6	Table 3.6
Telecommunications Cable Construction			
Bucket Truck	HHDT	2	Table 3.6
Pick-up Truck	Delivery	1	Table 3.6
Splicing Truck	Delivery	2	Table 3.6
Worker Commute	Passenger	5	Table 3.6
Telecommunications Vault and Duct Bank Installations			
Foreman Truck	Delivery	1	Table 3.6
Concrete Truck	HHDT	3	Based on filling bottom 1 ft. of 1 ft. wide trench (Section 3.2.6), 3,825 ft. long (Table 3.5) over 5 days and 10 CY/truck:= 1 x 1 x 3,825 / 27 / 10 / 20 = 2.8
Dump Truck	HHDT	1	Based on hauling bottom 1 ft. of 1 ft. wide trench (Section 3.2.6), 3,825 ft. long (Table 3.5) over 20 days and 14 CY/truck:= 1 x 1 x 3,825 / 27 / 14 / 20 = 0.5
Water Truck	HHDT	1	Table 3.6
Crew Cab Truck	Delivery	1	Table 3.6
Worker Commute	Passenger	6	Table 3.6
Distribution Gateways Vault Installation			

Table C-1 Motor Vehicle Categories and Numbers

Vehicle	Category[1]	Number	Basis for Number[2]
Dump Truck	HHDT	4	Based on hauling 470 CY (Table 3.1) over 10 days and 14 CY/truck = 470 / 14 / 10 = 3.4
Precaster Boom Truck	HHDT	1	Table 3.6
Concrete Truck	HHDT	4	Concrete trucks based on backfilling excavation with sand slurry mix over 3 days and 10 CY/truck. Excavated volume = 470 CY. Vault volume = 5 vaults (Table 3.5) x 10 ft. wide x 20 ft. long x 9.5 ft. deep (Section 3.2.4.4) / 27 cu. ft./CY = 352 CY. Number trucks = (470 CY - 352 CY) / 10 CY/truck / 3 days = 3.9
Crew Pickup Truck	Passenger	1	Table 3.6
Worker Commute	Passenger	5	Table 3.6
Distribution Gateways Trenching			
Dump Truck	HHDT	7	Dump trucks based on hauling 865 CY over 10 days (Table 3.1) and 14 CY/truck = 865 / 14 / 10 = 6.2
Water Truck	HHDT	1	Table 3.6
Gang Truck	HHDT	1	Table 3.6
Conduit Vendor Truck	HHDT	1	Table 3.6
Concrete Truck	HHDT	9	Assumed same as dump trucks.
Crew Pickup Truck	Delivery	1	Table 3.6
Worker Commute	Passenger	9	Table 3.6
Distribution Relocation of Existing Facilities, Location 1			
Line Truck	HHDT	1	Table 3.6
Pick-up Truck	Delivery	1	Table 3.6
Worker Commute	Passenger	4	Table 3.6
Distribution Relocation of Existing Facilities, Location 2			
Line Truck	HHDT	1	Table 3.6
Pick-up Truck	Delivery	1	Table 3.6
Worker Commute	Passenger	4	Table 3.6
Distribution Relocation of Existing Facilities, Location 3			
Line Truck	HHDT	2	Table 3.6
Pick-up Truck	Delivery	2	Table 3.6
Worker Commute	Passenger	8	Table 3.6
Distribution Relocation of Existing Facilities, Location 4			

Table C-1 Motor Vehicle Categories and Numbers

Vehicle	Category[1]	Number	Basis for Number[2]
Line Truck	HHDT	1	Table 3.6
Pick-up Truck	Delivery	1	Table 3.6
Worker Commute	Passenger	4	Table 3.6
Distribution Relocation of Existing Facilities, Location 5			
Rodder Truck	HHDT	1	Table 3.6
Reel Truck	HHDT	1	Table 3.6
Line Truck	HHDT	2	Table 3.6
Pick-up Truck	Delivery	3	Table 3.6
Worker Commute	Passenger	5	Table 3.6
Distribution Relocation of Existing Facilities, Location 6			
Rodder Truck	HHDT	1	Table 3.6
Reel Truck	HHDT	1	Table 3.6
Line Truck	HHDT	2	Table 3.6
Pick-up Truck	Delivery	2	Table 3.6
Concrete Truck	HHDT	1	Table 3.6
Dump Truck	HHDT	1	Table 3.6
Worker Commute	Passenger	7	Table 3.6
Operations			
Subtransmission Line Inspection	Passenger	1	Section 3.12
Substation Site Visit	Passenger	1	Section 3.12

Notes:
CY = cubic yards; MEER = Mechanical and Electrical Equipment Room; TSP = Tubular Steel Pole; ft. = feet; in. = inch, OD = outside diameter; PVC = polyvinyl chloride

[1] Category is used to assign emission factors. 'Passenger' is passenger vehicles in Table 58 in the attached tables, and is used for all gasoline-fueled vehicles. 'Delivery' is delivery vehicles in Table 58 in the attached tables, and is used for diesel-fueled vehicles except for heavy, heavy duty diesel-fueled trucks. 'HHDT' is heavy, heavy-duty diesel-fueled trucks in Table 59 in attached tables.

[2] Table and section numbers refer to tables and sections in PEA Chapter 3, Project Description.

Table C-2 Motor Vehicle Daily Vehicle-Miles Traveled

Vehicle	On-site Daily VMT (mi)[1]	Off-site Daily VMT (mi)			Notes
		P[2]	U[2]	T[2]	
Substation Survey					
Survey Truck	1	60	0	60	Survey company assumed to be within 30 mi of substation
Worker Commute	0	60	0	60	Workers assumed to be located within 30 mi
Substation Temporary Power Pole Installation					
Work Truck	0.5	0	0	0.5	Work truck stays on site
Worker Commute	0	60	0	60	Workers assumed to be located within 30 mi
Substation Grading					
Water Truck	2	10	0	10	Water supply within 5 mi
Tool Truck	1	0.2	0	0.2	Travel from staging area # 3
Pickup 4x4	1	0.2	0	0.2	Travel from staging area # 3
Worker Commute	0	60	0	60	Workers assumed to be located within 30 mi
Substation Soil Import/Export					
Dump Truck - Import	0.1	10	0	10.1	Soil supply within 10 mi
Dump Truck - Export	0.1	2	0	2	Export to Rialto Landfill
Substation Fencing					
Flatbed Truck	2	0.2	0	0.2	Travel from staging area # 3
Crewcab Truck	1	0.2	0	0.2	Travel from staging area # 3
Worker Commute	0	60	0	60	Workers assumed to be located within 30 mi
Substation Civil					
Dump Truck	1	60	0	60	Borrow/disposal sites within 30 mi
Water Truck	1	10	0	10	Water supply within 5 mi
Tool Truck	1	0.2	0	0.2	Travel from staging area # 3
Concrete Truck	0.1	60	0	60	Concrete supplier within 30 mi
Worker Commute	0	60	0	60	Workers assumed to be located within 30 mi
Substation MEER					
Carry-all Truck	0.2	0.2	0	0.2	Travel from staging area # 3
Stake Truck	0.2	0.2	0	0.2	Travel from staging area # 3
Worker Commute	0	60	0	60	Workers assumed to be located within 30 mi
Substation Electrical					

Table C-2 Motor Vehicle Daily Vehicle-Miles Traveled

Vehicle	On-site Daily VMT (mi)[1]	Off-site Daily VMT (mi)			Notes
		P[2]	U[2]	T[2]	
Crew Truck	0.2	0.2	0	0.2	Travel from staging area # 3
Worker Commute	0	60	0	60	Workers assumed to be located within 30 mi
Substation Wiring					
Worker Commute	0	60	0	60	Workers assumed to be located within 30 mi
Substation Transformers					
Crew Truck	0.2	0.2	0	0.2	Travel from staging area # 3
Low Bed Truck	0.2	0.2	0	0.2	Travel from staging area # 3
Worker Commute	0	60	0	60	Workers assumed to be located within 30 mi
Substation Maintenance Crew Equipment Check					
Maintenance Truck	0.5	0.2	0	0.2	Travel from staging area # 3
Worker Commute	0	60	0	60	Workers assumed to be located within 30 mi
Substation Testing					
Crew Truck	0.5	0.2	0	0.2	Travel from staging area # 3
Worker Commute	0	60	0	60	Workers assumed to be located within 30 mi
Substation Asphalting					
Stake Truck	0.5	0	0	0	Stake truck stays on site
Dump Truck	0.5	0	0	0	Dump truck stays on site
Crew Truck	0.5	0.2	0	0.2	Travel from staging area # 3
Asphalt Delivery Truck	0.1	60	0	60	Asphalt supplier within 30 mi
Aggregate Base Delivery Truck	0.1	60	0	60	Aggregate supplier within 30 mi
Worker Commute	0	60	0	60	Workers assumed to be located within 30 mi
Substation Landscaping					
Dump Truck	0.2	0	0	0	Dump truck stays on site
Crushed Rock Delivery Truck	0.2	60	0	60	Crushed rock supply within 30 mi
Worker Commute	0	60	0	60	Workers assumed to be located within 30 mi
Alder Substation Modification Fencing					
Flatbed Truck	0.2	12	0	12	Assumed 6 mi from staging area
Crewcab Truck	0.2	12	0	12	Assumed 6 mi from staging area
Worker Commute	0	60	0	60	Workers assumed to be located within 30 mi

Table C-2 Motor Vehicle Daily Vehicle-Miles Traveled

Vehicle	On-site Daily VMT (mi)[1]	Off-site Daily VMT (mi)			Notes
		P[2]	U[2]	T[2]	
Alder Substation Modification Civil					
Dump Truck	0.2	60	0	60	Borrow/disposal sites within 30 mi
Water Truck	0.2	10	0	10	Water supply within 5 mi
Tool Truck	0.2	12	0	12	Assumed 6 mi from staging area
Concrete Truck	0.2	60	0	60	Concrete supplier within 30 mi
Worker Commute	0	60	0	60	Workers assumed to be located within 30 mi
Alder Substation Modification Electrical					
Worker Commute	0	60	0	60	Workers assumed to be located within 30 mi
Alder Substation Modification Wiring					
Worker Commute	0	60	0	60	Workers assumed to be located within 30 mi
Alder Substation Modification Maintenance Crew Equipment Check					
Maintenance Trucks	0.5	12	0	12	Assumed 6 mi from staging area
Worker Commute	0	60	0	60	Workers assumed to be located within 30 mi
Alder Substation Modification Testing					
Crew Truck	0.1	12	0	12	Assumed 6 mi from staging area
Worker Commute	0	60	0	60	Workers assumed to be located within 30 mi
Alder Substation Modification Asphalting					
Stake Truck	0.1	0	0	0	Stake truck stays on site
Dump Truck	0.1	0	0	0	Dump truck stays on site
Crew Truck	0.1	12	0	12	Assumed 6 mi from staging area
Asphalt Delivery Truck	0.1	60	0	60	Asphalt supplier within 30 mi
Worker Commute	0	60	0	60	Workers assumed to be located within 30 mi
Etiwanda Substation Modification Civil					
Dump Truck	0.1	60	0	60	Borrow/disposal sites within 30 mi
Water Truck	0.1	10	0	10	Water supply within 5 mi
Tool Truck	0.2	4	0	4	Assumed 2 mi from staging area
Concrete Truck	0.2	60	0	60	Concrete supplier within 30 mi
Worker Commute	0	60	0	60	Workers assumed to be located within 30 mi
Etiwanda Substation Modification Electrical					
Crew Truck	0.2	4	0	4	Assumed 2 mi from staging area

Table C-2 Motor Vehicle Daily Vehicle-Miles Traveled

Vehicle	On-site Daily VMT (mi)[1]	Off-site Daily VMT (mi)			Notes
		P[2]	U[2]	T[2]	
Worker Commute	0	60	0	60	Workers assumed to be located within 30 mi
Etiwanda Substation Modification Wiring					
Worker Commute	0	60	0	60	Workers assumed to be located within 30 mi
Etiwanda Substation Modification Maintenance Crew Equipment Check					
Maintenance Trucks	0.5	4	0	4	Travel from staging area # 6
Worker Commute	0	60	0	60	Workers assumed to be located within 30 mi
Etiwanda Substation Modification Testing					
Crew Truck	0.5	4	0	4	Assumed 2 mi from staging area
Worker Commute	0	60	0	60	Workers assumed to be located within 30 mi
Subtransmission Source Line Survey					
1-Ton Truck, 4X4	0	24	4	28	Assumed 12 mi from staging area; 4 mi/day in ROW
Worker Commute	0	60	0	60	Workers assumed to be located within 30 mi
Subtransmission Source Line Staging Area					
1-Ton Crewcab, 4X4	10	0	0	0	Traveling on site 25% of 4 hr/day at 10 mph
Truck, Semi Tractor	5	0	0	0	Traveling on site 25% of 2 hr/day at 10 mph
Worker Commute	0	60	0	60	Workers assumed to be located within 30 mi
Subtransmission Source Line Road Work					
Water Truck	1	10	4	14	Assumed 5 mi from water supply; 4 mi/day in ROW
1-Ton Crewcab, 4X4	0	14	4	18	Assumed 7 mi from staging area; 4 mi/day in ROW
Lowboy Truck/Trailer	0	14	4	18	Assumed 7 mi from staging area; 4 mi/day in ROW
Worker Commute	0	60	0	60	Workers assumed to be located within 30 mi
Subtransmission Source Line Guard Structure Installations					
3/4-Ton Truck, 4X4	0	14	1	15	Assumed 7 mi from staging area; 1 mi/day in ROW
1-Ton Crewcab, 4X4	0	14	1	15	Assumed 7 mi from staging area; 1 mi/day in ROW
Extendable Flat Bed Pole Truck	0	14	1	15	Assumed 7 mi from staging area; 1 mi/day in ROW

Table C-2 Motor Vehicle Daily Vehicle-Miles Traveled

Vehicle	On-site Daily VMT (mi)[1]	Off-site Daily VMT (mi)			Notes
		P[2]	U[2]	T[2]	
Auger Truck	0	14	1	15	Assumed 7 mi from staging area; 1 mi/day in ROW
Bucket Truck	0	14	1	15	Assumed 7 mi from staging area; 1 mi/day in ROW
Boom/Crane Truck	0	14	1	15	Assumed 7 mi from staging area; 1 mi/day in ROW
Worker Commute	0	60	0	60	Workers assumed to be located within 30 mi
Subtransmission Source Line Wood/LWS Pole Removal					
1-Ton Crewcab, 4X4	0	14	4	18	Assumed 7 mi from staging area; 4 mi/day in ROW
Bucket Truck	0	14	4	18	Assumed 7 mi from staging area; 4 mi/day in ROW
Flat Bed Pole Truck	0	14	4	18	Assumed 7 mi from staging area; 4 mi/day in ROW
Boom/Crane Truck	0	14	4	18	Assumed 7 mi from staging area; 4 mi/day in ROW
Worker Commute	0	60	0	60	Workers assumed to be located within 30 mi
Subtransmission Source Line Install TSP Foundations					
Water Truck	0	10	4	14	Assumed 5 mi from water supply; 4 mi/day in ROW
1-Ton Crewcab, 4X4	0	14	4	18	Assumed 7 mi from staging area; 4 mi/day in ROW
Dump Truck	0	60	4	64	Assumed disposal site 30 mi away; 4 mi/day in ROW
Concrete Truck	0	60	4	64	Assumed concrete supplier 30 mi away; 4 mi/day in ROW
Boom/Crane Truck	0	14	4	18	Assumed 7 mi from staging area; 4 mi/day in ROW
Auger Truck	0	14	4	18	Assumed 7 mi from staging area; 4 mi/day in ROW
Worker Commute	0	60	0	60	Workers assumed to be located within 30 mi
Subtransmission Source Line TSP Haul					
3/4–Ton Truck, 4X4	0	14	4	18	Assumed 7 mi from staging area; 4 mi/day in ROW
Boom/Crane Truck	0	14	4	18	Assumed 7 mi from staging area; 4 mi/day in ROW

Table C-2 Motor Vehicle Daily Vehicle-Miles Traveled

Vehicle	On-site Daily VMT (mi)[1]	Off-site Daily VMT (mi)			Notes
		P[2]	U[2]	T[2]	
Flat Bed Pole Truck	0	14	4	18	Assumed 7 mi from staging area; 4 mi/day in ROW
Worker Commute	0	60	0	60	Workers assumed to be located within 30 mi
Subtransmission Source Line TSP Assembly					
3/4–Ton Truck, 4X4	0	14	4	18	Assumed 7 mi from staging area; 4 mi/day in ROW
1-Ton Crewcab, 4X4	0	14	4	18	Assumed 7 mi from staging area; 4 mi/day in ROW
Boom/Crane Truck	0	14	4	18	Assumed 7 mi from staging area; 4 mi/day in ROW
Worker Commute	0	60	0	60	Workers assumed to be located within 30 mi
Subtransmission Source Line TSP Erection					
3/4-Ton Truck, 4X4	0	14	4	18	Assumed 7 mi from staging area; 4 mi/day in ROW
1-Ton Crewcab, 4X4	0	14	4	18	Assumed 7 mi from staging area; 4 mi/day in ROW
Worker Commute	0	60	0	60	Workers assumed to be located within 30 mi
Subtransmission Source Line Install Wood/LWS Poles					
Auger Truck	0	14	4	18	Assumed 7 mi from staging area; 4 mi/day in ROW
Bucket Truck	0	14	4	18	Assumed 7 mi from staging area; 4 mi/day in ROW
Boom/Crane Truck	0	14	4	18	Assumed 7 mi from staging area; 4 mi/day in ROW
1-Ton Crewcab	0	14	4	18	Assumed 7 mi from staging area; 4 mi/day in ROW
Extendable Flat Bed Pole Truck	0	14	4	18	Assumed 7 mi from staging area; 4 mi/day in ROW
Worker Commute	0	60	0	60	Workers assumed to be located within 30 mi
Subtransmission Source Line Install Conductor					
1-Ton Crewcab, 4X4	0	14	4	18	Assumed 7 mi from staging area; 4 mi/day in ROW
Bucket Truck	0	14	4	18	Assumed 7 mi from staging area; 4 mi/day in ROW

Table C-2 Motor Vehicle Daily Vehicle-Miles Traveled

Vehicle	On-site Daily VMT (mi)[1]	Off-site Daily VMT (mi)			Notes
		P[2]	U[2]	T[2]	
Boom/Crane Truck	0	14	4	18	Assumed 7 mi from staging area; 4 mi/day in ROW
Wire Truck Trailer	0	14	4	18	Assumed 7 mi from staging area; 4 mi/day in ROW
Dump Truck	0	60	4	64	Assumed disposal site 30 mi away; 4 mi/day in ROW
3 Drum Sock Line Puller	0	14	4	18	Assumed 7 mi from staging area; 4 mi/day in ROW
Bull Wheel Puller	0	14	4	18	Assumed 7 mi from staging area; 4 mi/day in ROW
Static/Truck Tensioner	0	14	4	18	Assumed 7 mi from staging area; 4 mi/day in ROW
Lowboy Truck/Trailer	0	14	4	18	Assumed 7 mi from staging area; 4 mi/day in ROW
Worker Commute	0	60	0	60	Workers assumed to be located within 30 mi
Subtransmission Source Line Guard Structure Removal					
3/4-Ton Truck, 4X4	0	14	4	18	Assumed 7 mi from staging area; 4 mi/day in ROW
1-Ton Crewcab, 4X4	0	14	4	18	Assumed 7 mi from staging area; 4 mi/day in ROW
Bucket Truck	0	14	4	18	Assumed 7 mi from staging area; 4 mi/day in ROW
Boom/Crane Truck	0	14	4	18	Assumed 7 mi from staging area; 4 mi/day in ROW
Extendable Flat Bed Pole Truck	0	14	4	18	Assumed 7 mi from staging area; 4 mi/day in ROW
Worker Commute	0	60	0	60	Workers assumed to be located within 30 mi
Subtransmission Source Line Restoration					
1-Ton Crewcab, 4X4	0	14	4	18	Assumed 7 mi from staging area; 4 mi/day in ROW
Water Truck	0	10	4	14	Assumed 5 mi from water supply; 4 mi/day in ROW
Lowboy Truck/Trailer	0	14	4	18	Assumed 7 mi from staging area; 4 mi/day in ROW
Worker Commute	0	60	0	60	Workers assumed to be located within 30 mi
Subtransmission Source Line Vault Installation					

Table C-2 Motor Vehicle Daily Vehicle-Miles Traveled

Vehicle	On-site Daily VMT (mi)[1]	Off-site Daily VMT (mi)			Notes
		P[2]	U[2]	T[2]	
1-Ton Crewcab, 4X4	0	14	4	18	Assumed 7 mi from staging area; 4 mi/day in ROW
Dump Truck	0	60	4	64	Assumed disposal site 30 mi away; 4 mi/day in ROW
Water Truck	1	10	4	14	Assumed 5 mi from water supply; 4 mi/day in ROW
165-Ton Crane Truck	1	0	1	1	Assumed crane truck stays on site; 1 mi/day travel in ROW
Concrete Mixer Truck	0	60	4	64	Assumed concrete supplier 30 mi away; 4 mi/day in ROW
Lowboy Truck/Trailer	4	14	4	18	Assumed 7 mi from staging area; 4 mi/day in ROW
Flatbed Truck/Trailer	4	14	4	18	Assumed 7 mi from staging area; 4 mi/day in ROW
Worker Commute	0	60	0	60	Workers assumed to be located within 30 mi
Subtransmission Source Line Duct Bank Installation					
1-Ton Crewcab, 4X4	0	14	4	18	Assumed 7 mi from staging area; 4 mi/day in ROW
Dump Truck	0	60	4	64	Assumed disposal site 30 mi away; 4 mi/day in ROW
Pipe Truck/Trailer	0	14	4	18	Assumed 7 mi from staging area; 4 mi/day in ROW
Water Truck	0	10	4	14	Assumed 5 mi from water supply; 4 mi/day in ROW
Concrete Mixer Truck	0	60	4	64	Assumed concrete supplier 30 mi away; 4 mi/day in ROW
Lowboy Truck/Trailer	0	14	4	18	Assumed 7 mi from staging area; 4 mi/day in ROW
Worker Commute	0	60	0	60	Workers assumed to be located within 30 mi
Telecommunications Cable Construction					
Bucket Truck	0	14	4	18	Assumed 7 mi from staging area; 4 mi/day in ROW
Pick-up Truck	0	14	4	18	Assumed 7 mi from staging area; 4 mi/day in ROW
Splicing Truck	0	14	4	18	Assumed 7 mi from staging area; 4 mi/day in ROW

Table C-2 Motor Vehicle Daily Vehicle-Miles Traveled

Vehicle	On-site Daily VMT (mi)[1]	Off-site Daily VMT (mi)			Notes
		P[2]	U[2]	T[2]	
Worker Commute	0	60	0	60	Workers assumed to be located within 30 mi
Telecommunications Vault and Duct Bank Installations					
Foreman Truck	0	14	4	18	Assumed 7 mi from staging area; 4 mi/day in ROW
Concrete Truck	0	60	4	64	Assumed concrete supplier 30 mi away; 4 mi/day in ROW
Dump Truck	0	60	4	64	Assumed disposal site 30 mi away; 4 mi/day in ROW
Water Truck	0	10	4	14	Assumed 5 mi from water supply; 4 mi/day in ROW
Crewcab Truck	0	14	4	18	Assumed 7 mi from staging area; 4 mi/day in ROW
Worker Commute	0	60	0	60	Workers assumed to be located within 30 mi
Distribution Gateways Vault Installation					
Dump Truck	0	60	1	61	Assumed disposal site 30 mi away; 0.5 mi unpaved to work area
Precaster Boom Truck	0	60	1	61	Assumed supplier 30 mi away; 0.5 mi unpaved to work area
Concrete Truck	0	60	1	61	Assumed supplier 30 mi away; 0.5 mi unpaved to work area
Crew Pickup Truck	0	14	1	14	Assumed 7 mi from staging area; 0.5 mi unpaved to work area
Worker Commute	0	60	0	60	Workers assumed to be located within 30 mi
Distribution Gateways Trenching					
Dump Truck	0	60	1	61	Assumed disposal site 30 mi away; 0.5 mi unpaved to work area
Water Truck	0	10	1	11	Assumed 5 mi from water supply; 0.5 mi unpaved to work area
Gang Truck	0	14	4	18	Assumed 7 mi from staging area; 0.5 mi unpaved to work area
Conduit Vendor Truck	0	14	4	18	Assumed 7 mi from staging area; 0.5 mi unpaved to work area
Concrete Truck	0	60	1	61	Assumed supplier 30 mi away; 0.5 mi unpaved to work area
Crew Pickup Truck	0	14	0	14	Assumed 7 mi from staging area; 0.5 mi unpaved to work area

Table C-2 Motor Vehicle Daily Vehicle-Miles Traveled

Vehicle	On-site Daily VMT (mi)[1]	Off-site Daily VMT (mi)			Notes
		P[2]	U[2]	T[2]	
Worker Commute	0	60	0	60	Workers assumed to be located within 30 mi
Distribution Relocation of Existing Facilities, Location 1					
Line Truck	0	14	0	14	Assumed 7 mi from staging area
Pick-up Truck	0	14	0	14	Assumed 7 mi from staging area
Worker Commute	0	60	0	60	Workers assumed to be located within 30 mi
Distribution Relocation of Existing Facilities, Location 2					
Line Truck	0	14	0	14	Assumed 7 mi from staging area
Pick-up Truck	0	14	0	14	Assumed 7 mi from staging area
Worker Commute	0	60	0	60	Workers assumed to be located within 30 mi
Distribution Relocation of Existing Facilities, Location 3					
Line Truck	0	14	0	14	Assumed 7 mi from staging area
Pick-up Truck	0	14	0	14	Assumed 7 mi from staging area
Worker Commute	0	60	0	60	Workers assumed to be located within 30 mi
Distribution Relocation of Existing Facilities, Location 4					
Line Truck	0	14	0	14	Assumed 7 mi from staging area
Pick-up Truck	0	14	0	14	Assumed 7 mi from staging area
Worker Commute	0	60	0	60	Workers assumed to be located within 30 mi
Distribution Relocation of Existing Facilities, Location 5					
Rodder Truck	0	14	0	14	Assumed 7 mi from staging area
Reel Truck	0	14	0	14	Assumed 7 mi from staging area
Line Truck	0	14	0	14	Assumed 7 mi from staging area
Pick-up Truck	0	14	0	14	Assumed 7 mi from staging area
Worker Commute	0	60	0	60	Workers assumed to be located within 30 mi
Distribution Relocation of Existing Facilities, Location 6					
Rodder Truck	0	14	0	14	Assumed 7 mi from staging area
Reel Truck	0	14	0	14	Assumed 7 mi from staging area
Line Truck	0	14	0	14	Assumed 7 mi from staging area
Pick-up Truck	0	14	0	14	Assumed 7 mi from staging area
Concrete Truck	0	60	0	60	Assumed supplier 30 mi away
Dump Truck	0	60	0	60	Assumed disposal site 30 mi away

Table C-2 Motor Vehicle Daily Vehicle-Miles Traveled

Vehicle	On-site Daily VMT (mi)[1]	Off-site Daily VMT (mi)			Notes
		P[2]	U[2]	T[2]	
Worker Commute	0	60	0	60	Workers assumed to be located within 30 mi
Operations					
Subtransmission Line Inspection	0	60	12	72	Trip origin within 30 mi; roundtrip along entire Subtransmission Source Line Routes (unpaved)
Substation Site Visit	0	60	0	60	Trip origin within 30 mi

Notes:
hr/day = hours per day; MEER = Mechanical and Electrical Equipment Room; mi = miles; mph = miles per hour; ROW = rights-of-way; TSP = Tubular Steel Poles; LWS = Light Weight Steel
[1] On-site travel estimated from site dimensions. All on-site travel is unpaved, except for Alder and Etiwanda Substations and subtransmission source line staging area
[2] P = off-site paved road/surface VMT; U = off-site unpaved road/surface VMT; T = total off-site VMT

2.4 Motor Vehicle Entrained Particulate Matter Emission Calculations

Motor vehicles entrain particulate matter from the surfaces on which they travel. The following equation was used to calculate daily entrained particulate matter emissions from each type of motor vehicle used during each construction phase and during operation for the Proposed Project:

$$E_{i,j,k} = EF_{i,j,k} \times VMT_{j,k} \times N_j \quad \text{(Eq. 4)}$$

where:

$E_{i,j,k}$ = Emissions of pollutant i (PM_{10} or $PM_{2.5}$) from motor vehicle type j traveling on surface type k (paved or unpaved) (pounds/day)

$EF_{i,j,k}$ = Emission factor for pollutant i from motor vehicle type j on surface type k (pounds/VMT)

$VMT_{j,k}$ = Daily VMT by motor vehicle type j on surface type k (miles/day)

N_j = Number of motor vehicles of type j

The following equation (EPA, 2006a) was used to calculate the emission factors for motor vehicles traveling on paved roads and surfaces:

$$EFi_{i,j,P} = k_{i,p} \times (sL / 2)^{0.65} \times (W_j/3)^{1.5} - C \quad \text{(Eq. 5)}$$

where:

$EF_{i,j,P}$ = Emission factor for pollutant i (PM_{10} or $PM_{2.5}$) from motor vehicle type j traveling on paved surfaces (pounds/VMT)

$k_{i,P}$ = Particle size multiplier for pollutant i

= 0.016 for PM_{10}

= 0.0024 for $PM_{2.5}$

sL = Surface silt loading (grams/square meter)

W_j = Average weight of vehicles traveling on the paved surface (tons)

C = Exhaust, brake wear and tire wear adjustment (pounds/VMT)

= 0.0047 for PM_{10}

= 0.00036 for $PM_{2.5}$

The paved road silt loading of 0.035 grams/square meter and the average on-road vehicle weight of 3.4 tons in San Bernardino County from CARB (1997) were used for the calculations.

The following equation (EPA, 2006b) was used to calculate the emission factors for motor vehicles traveling on unpaved roads and surfaces:

$$EF_{i,i,U} = k_{i,u} \text{ x } (s / 12)^{0.9} \text{ x } (W_j/3)^{0.45} \text{ x } (1 - CE_U / 100) \qquad \text{(Eq. 6)}$$

where:

$EF_{i,j,U}$ = Emission factor for pollutant i (PM_{10} or $PM_{2.5}$) from motor vehicle type j traveling on unpaved surfaces (pounds/VMT)

$k_{i,u}$ = Particle size multiplier for pollutant i

= 1.5 for PM_{10}

= 0.15 for $PM_{2.5}$

s = Silt content of the unpaved surface (percent by weight)

W_j = Average weight of vehicles traveling on the unpaved surface (tons)

CE_U = Control efficiency for entrained particulate matter emissions from unpaved surfaces (percent)

The unpaved road silt content of 7.5 percent for overburden from the SCAQMD CEQA Handbook, (SCAQMD, 1993), Table A9-9-E-1, was used. Vehicle weights were estimated from the type of vehicle. The control efficiency of 57 percent from limiting speeds on unpaved roads to 15 miles per hour (SCAQMD, 2007b) was used for the calculations.

Entrained particulate matter emission factors by type of vehicle and surface are provided in Table 62 in the attached tables. Estimated daily VMT on paved and unpaved surfaces by type of vehicle during each construction phase and during operation of the Proposed Project are listed in Table C-2, Motor Vehicle Daily Vehicle-Miles Traveled.

Motor vehicle entrained particulate matter emission calculations for construction and operation are provided in Tables 7 through 58 in the attached tables.

2.5 Earthwork Fugitive Particulate Matter Emission Calculations

Handling soil during excavation and grading generates fugitive particulate matter from soil dropping during transfers, wind erosion of temporary storage piles, and bulldozing, scraping and grading.

The following equation was used to calculate daily emissions from soil dropping during construction of the Proposed Project:

$$E_i = EF_i \times V_S \qquad \text{(Eq. 7)}$$

where:

E_i = Emissions of pollutant i (PM_{10} or $PM_{2.5}$) from soil dropping (pounds/day)

EF_i = Emission factor for pollutant i from soil dropping (pounds/cubic yard)

V_S = Volume of soil dropped (cubic yards/day)

The following equation (EPA, 2006c) was used to calculate the emission factor for fugitive particulate matter emissions from soil dropping:

$$EF_i = f_i \times 0.011 \times (WS / 5)^{1.3} / (M / 2)^{1.4} \times N_S \times D_S \times (1 - CE / 100) \qquad \text{(Eq. 8)}$$

where:

EF_i = Emission factor for fugitive particulate matter emissions from soil dropping

f_i = Mass fraction of pollutant i (PM_{10} or $PM_{2.5}$) in PM_{10} emissions from soil dropping

= 1 for PM_{10}

= 0.208 for $PM_{2.5}$ from SCAQMD (2006)

WS = Mean wind speed (miles/hour)

= 12 miles/hour from SCAQMD CEQA Air Quality Handbook (1993), Table 9-9-G

M = Soil moisture content (percent by weight)

= 3.7 percent average of near-surface soil samples from Proposed Substation Site geotechnical investigation

N_S = Number of times each cubic yard is dropped (number/day)

= 4 (assumption)

D_S = Soil density (tons/cubic yard)

= 1.47 tons/cubic yard average of near-surface soil samples from Proposed Substation Site preliminary geotechnical investigation

CE = Control efficiency (percent)

= 61 percent from watering three times per day from SCAQMD (2007c)

The following equation was used to calculate daily emissions from storage pile wind erosion during construction of the Proposed Project:

$$E_i = EF_i \times A_S \qquad \text{(Eq. 9)}$$

where:

E_i = Emissions of pollutant i (PM_{10} or $PM_{2.5}$) from storage pile wind erosion (pounds/day)

EF_i = Emission factor for pollutant i from storage pile wind erosion (pounds/acre-day)

A_S = Exposed storage pile surface area (acres)

The following equation from the SCAQMD CEQA Air Quality Handbook (SCAQMD, 1993), Table 9-9-E, was used to calculate the emission factor for fugitive particulate matter emissions from storage pile wind erosion:

$$EF_i = f_i \times 0.85 \times (s / 1.5) \times (365 / 235) \times (P_W / 15) \times (1 - CE / 100) \qquad \text{(Eq. 10)}$$

where:

EF_i = Emission factor for fugitive particulate matter emissions from storage pile wind erosion

f_i = Mass fraction of pollutant i (PM_{10} or $PM_{2.5}$) in PM_{10} emissions from storage pile wind erosion

= 1 for PM_{10}

= 0.208 for $PM_{2.5}$ from SCAQMD (2006)

s = Storage pile silt content (weight percent)

= 11.2 percent average of near-surface soil samples from Proposed Substation Site geotechnical investigation

P_W = Percent of time unobstructed wind speed exceeds 12 miles/hour

= 100 percent (conservative assumption)

CE = Control efficiency (percent)

= 90 percent from watering storage pile by hand at a rate of 1.4 gallons/hour-square yard (SCAQMD, 2007b)

The following equation was used to calculate daily emissions from bulldozing, scraping and grading during construction of the Proposed Project:

$$E_i = EF_i \times H_G \qquad \text{(Eq. 11)}$$

where:

E_i = Emissions of pollutant i (PM_{10} or $PM_{2.5}$) from bulldozing, scraping and grading (pounds/day)

EF_i = Emission factor for pollutant i from bulldozing, scraping and grading [pounds/hour]

H_G = Daily bulldozing, scraping and grading duration (hours/day)

The following equation (EPA, 1998) was used to calculate the emission factor for fugitive particulate matter emissions from bulldozing, scraping and grading:

$$EF_i = f_i \times 0.75 \times s^{1.5} / M^{1.4} \times (1 - CE / 100) \qquad \text{(Eq. 12)}$$

where:

EF_i = Emission factor for fugitive particulate matter emissions from bulldozing, scraping and grading

f_i = Mass fraction of pollutant i (PM_{10} or $PM_{2.5}$) in PM_{10} emissions from bulldozing, scraping and grading

= 1 for PM_{10}

= 0.208 for $PM_{2.5}$ from SCAQMD (2006) s = Material silt content (weight percent)

= 11.2 percent average of near-surface soil samples from Proposed Substation Site geotechnical investigation

M = Material moisture content (weight percent)

= 3.7 percent average of near-surface soil samples from Proposed Substation Site geotechnical investigation

CE = Control efficiency (percent)

= 61 percent from watering three times per day from SCAQMD (2007c)

The emission factor calculations are presented in Table 63 in the attached tables.

The daily hours of bulldozing, scraping and grading were calculated from the construction equipment usage estimates provided in Table 3.6, Construction Equipment and Workforce Estimates, in Chapter 3, Project Description, of the PEA. Estimated daily volumes of soil handled and storage pile surface areas during construction phases that involve soil handling and temporary storage piles are listed in Table C-3, Estimated Soil Handling and Storage Pile Surface Areas by Construction Phase.

Earthwork fugitive particulate matter emission calculations for construction are provided in Tables 7 through 57 in the attached tables.

Table C-3 Estimated Soil Handling and Storage Pile Surface Areas by Construction Phase

Construction Phase	Type	Daily Amount	Basis[1]
Substation Grading	Soil Dropping	575 CY	23,000 CY total (Table 3.1) over 40 days
	Storage Piles	0.36 acres	250 CY in each of two cones 7.5 ft. tall x 64 ft. diameter
Substation Civil	Soil Dropping	45.5 CY	455 CY (Table 3.1) over 10 days
Subtransmission Roads	Soil Handling	4,620 CY	Excavating or backfilling and grading of 18 ft. wide x 18,480 ft. long x 1.5 ft. deep (Table 3.5) over 4 days
Subtransmission TSP Foundations Installation	Soil handling	22 CY	50 TSPs (Table 3.5) x 40 CY/TSP (Table 3.2) over 90 days
Subtransmission Wood Pole Installation	Soil Handling	13 CY	Excavate 250 poles Table 3.5), 4 ft. diameter x 10 ft. deep (Table 3.2) over 90 days
Subtransmission Vault	Soil	26 CY	4 vaults (Table 3.5), 20 ft. x 10 ft .x 9.5ft.

Table C-3 Estimated Soil Handling and Storage Pile Surface Areas by Construction Phase

Construction Phase	Type	Daily Amount	Basis[1]
Installation	Handling		(Section 3.2.4.4) plus 10 percent extra over 12 days
Subtransmission Duct Bank Installation	Soil Handling	75 CY	Excavate 600 CY over 8 days
Telecommunications Vault and Duct Bank Installation	Soil Handling	21 CY	Excavate 12 in. x 36 in. (Section 3.2.6) x 3,825 ft. (Table 3.5) over 20 days
Distribution Getaways Vault Installation	Soil Handling	94 CY	Excavate 470 CY (Table 3.1) over 5 days
Distribution Getaways Trenching	Soil Handling	43 CY	Excavate 865 CY (Table 3.1) over 20 days
Existing Facilities Relocation, Location 5	Soil Handling	111 CY	Excavate 20 in. wide x 54 in. deep x 800 ft. long (Section 3.2.7) over 2 days

Notes:
CY = cubic yards; TSP = Tubular Steel Poles; ft. = feet; in. = inches
[1] Table and section numbers refer to PEA Chapter 3, Project Description

2.6 Asphaltic Paving VOC Emission Calculations

Asphaltic paving generates VOC emissions as the asphalt cures. The following equation was used to calculate daily VOC emissions from asphaltic paving:

$$E = EF \times A_P \qquad \text{(Eq. 13)}$$

where:

E = VOC emissions from asphaltic paving (pounds/day)

EF = Emission factor for VOC from asphaltic paving (pounds/acre)

= 2.62 pounds/acre from URBEMIS 2007 User's Guide, Appendix A (URBEMIS, 2007)

A_P =Area paved (acres/day)

A total of 37,600 square feet (0.86 acres) would be paved over 10 days for the Proposed Substation and external driveway (see PEA Chapter 3, Project Description, Table 3.1, Substation Ground Improvements and Material Volumes), so the maximum area paved in a single day would be 0.086 acres. VOC emissions from asphaltic paving are calculated in Table 19 in the attached tables.

2.7 Equipment SF_6 Leakage GHG Emission Calculations

New circuit breakers installed at the Proposed Substation, the Alder Substation and the Etiwanda Substation and gas switches installed in the Proposed Distribution Getaways would be insulated with SF_6, which is a GHG. Leakage of SF_6 from the circuit breakers during operation of the Proposed Project would generate GHG emissions. The following equation was used to calculate GHG emissions from SF_6 leakage:

$$E = L / 100 \times M_{SF6} \times 23{,}200 \times 4.536 \times 10^{-4} \qquad \text{(Eq. 14)}$$

where:

E = GHG emissions from SF_6 leakage (metric tons CO_2 equivalent/year)

L = SF_6 leakage rate (percent/year)

= 0.5 percent/year estimated by Southern California Edison (SCE)

M_{SF6} = SF_6 in new circuit breakers (pounds)

= 248 pounds, estimated by SCE

23,200 = SF_6 global warming potential

4.536×10^{-4} = Metric tons/pound conversion factor

GHG emissions from SF_6 leakage are calculated in Table 58 in the attached tables.

3.0 PEAK DAILY EMISSIONS CALCULATIONS

Peak daily emissions of VOC, CO, NOx, SOx, PM_{10} and $PM_{2.5}$ during construction and operation of the Proposed Project were calculated for comparison with the SCAQMD's mass emissions CEQA significance thresholds.

3.1 Peak Daily Construction Emission Calculations

The following steps were used to estimate peak daily emissions during construction of the Proposed Project:

- Daily emissions during each of the construction phases in Table 3.6, Construction Equipment and Workforce Estimates, in Chapter 3, Project Description, of the PEA were calculated using the procedures in Section 2, Emission Calculations. The calculations are provided in Tables 7 through 57 in the attached tables, and total daily emissions for each construction phase are listed in Table 1 in the attached tables.

- The maximum daily emissions that may occur during construction of each component of the Proposed Project (Proposed Substation, modifications to the

Alder and Etiwanda Substations, Proposed Subtransmission Source Line Routes, Proposed Telecommunication Facilities, Proposed Distribution Getaways and the Proposed relocation of existing facilities) were estimated as follows:

- Daily emissions during the construction phases for each component of the Proposed Project that may overlap were added together to estimate daily emissions during overlapping construction phases. Construction phases that may overlap are listed in Table C-4, Possible Overlapping Construction Phases.

- The highest daily emissions among the overlapping and non-overlapping construction phases for each component of the Proposed Project were then determined.

- Construction of the components of the Proposed Project may all occur at the same time. Therefore, peak daily emissions during simultaneous construction of the Proposed Project components were estimated by adding together the maximum daily emissions during construction of the individual components estimated in the previous step.

The peak daily construction emissions calculations are provided in Table 2 in the attached tables.

Table C-4 Possible Overlapping Construction Phases

Project Component	**Overlapping Construction Phases**
Substation Construction	Survey
	Temporary Power Pole Installation
	Grading, Soil Import/Export
	Fencing
	Civil
	MEER, Electrical, Wiring, Transformers
	Equipment Check, Testing
	Asphalting, Landscaping
Alder Substation Modifications	Civil
	Fencing, Electrical, Wiring, Asphalting
	Equipment Check, Testing
Etiwanda Substation Modifications	Civil
	Electrical, Wiring
	Equipment Check, Testing
Subtransmission Source Line Construction	Staging Area, Survey, Road Work, Install Wood/LWS Poles

Project Component	Overlapping Construction Phases
	Staging Area, Install TSP Foundations, TSP Haul, TSP Assembly, TSP Erection, Install Wood/LWS Poles, Vault Installation
	Staging Area, TSP Erection, Duct Bank Installation
	Staging Area, Guard Structure Installation
	Staging Area, Install Conductor
	Staging Area, Wood/LWS Pole Removal, Guard Structure Removal
	Staging Area, Restoration
Telecommunication Facilities Construction	Cable Construction, Vault and Duct Bank Installation
Distribution Getaways Construction	Vault Installation, Trenching
Distribution - Existing Facilities Relocation	Location 1, Location 2, Location 3, Location 4, Location 5, Location 6

Notes:

MEER = Mechanical and Electrical Equipment Room; LWS = Light Weight Steel;
TSP = Tubular Steel Poles

3.2 Peak Daily Operational Emission Calculations

During operation of the Proposed Project, motor vehicle exhaust and entrained paved road particulate matter emissions would be generated by motor vehicle travel for inspections of the Proposed Substation and Proposed Subtransmission Source Line Routes. Emissions from these activities were calculated using the procedures described in Section 2.2, Construction Equipment Exhaust Emission Calculations, and Section 2.3, Motor Vehicle Exhaust Emission Calculations. The calculations of peak daily emissions considered visits to inspect both the Proposed Substation and the Proposed Subtransmission Source Line Routes on the same day, to ensure that emissions were not underestimated. The peak daily operational emission calculations are provided in Table 58 in the attached tables.

4.0 TOTAL GREENHOUSE GAS EMISSION CALCULATIONS

GHG emissions during each construction phase and during operation of the Proposed Project were calculated using the procedures described in Section 2.2, Construction Equipment Exhaust Emission Calculations, Section 2.3, Motor Vehicle Exhaust Emission Calculations, and Section 2.7, Equipment SF_6 Leakage GHG Emission Calculations. The calculations are provided in Tables 7 through 58 in the attached tables. Total GHG emissions during construction and during each construction phase are listed in Table 6 in the attached Tables, and GHG emissions during project operation are in Table 58.

5.0 LOCALIZED IMPACTS ANALYSIS

The SCAQMD (2008b) has developed look-up tables that can be used to evaluate the potential for construction emissions to cause localized exceedances of the ambient air quality CEQA significance thresholds. This localized significance thresholds (LST) analysis consists of comparing maximum daily on-site CO, NOx, PM_{10}, and $PM_{2.5}$ emissions at individual locations with maximum allowable emissions obtained from the look-up tables. The maximum allowable emissions in the tables depend on the location within the South Coast Air Basin, the size (disturbed area) of the construction activities, and the distance from the construction site boundary to the nearest receptor. Receptors for the analysis include residences for PM_{10} and $PM_{2.5}$ and either residences or commercial locations for CO and NOx.

Daily on-site emissions during each construction phase were calculated using the procedures described in Section 2.0, Emission Calculations, for use in the LST analysis for impacts during construction of the Proposed Project. All construction equipment usage and fugitive particulate matter emissions from earthwork were assumed to occur on site. On-site motor vehicle travel estimates used to calculate on-site vehicle exhaust and entrained particulate matter emissions are listed in Table C-2, Motor Vehicle Daily Vehicle-Miles Traveled. Daily on-site construction emissions calculations are provided in Tables 7 through 57 in the attached tables, and total daily on-site emissions are listed by construction phase in Table 3 in the attached tables.

Maximum daily on-site emissions that could occur at a single location during construction of each of the components of the Proposed Project were used in the LST analysis. On-site emissions during construction of each of components of the Proposed Project except for construction of the Proposed Subtransmission Source Line Routes were assumed to occur at a single location each day. On-site emissions during construction of the Proposed Subtransmission Source Line Routes were divided by the number of separate locations at which construction activities for that phase of construction would occur during one day to calculate the emissions used in the analyses. The following information was used for this analysis:

- Guard Structure Installation: 5 structures per day (5 locations)
- Wood/Light Weight Steel (LWS) Pole Removal: 1 pole per day (1 location)
- Tubular Steel Pole (TSP) Foundations Installation: 1 foundation per day (1 location)
- LWS Pole Installation: 4 poles per day (4 locations)
- TSP Haul: 4 locations per day (4 locations)
- TSP Assembly: 1 pole per day (1 location)
- TSP Erection: 1 pole per day (1 location)

- Conductor Installation: 1 pull and 1 tension site per day (2 locations)
- Guard Structure Removal: 7 structures per day (7 locations)
- Vault Installation: 1 vault per day (1 location)
- Duct Bank Installation: 1 location per day

Emissions generated during Proposed Subtransmission Source Line Routes road work and restoration were not included in the analyses, since these emissions would occur over distances of approximately one mile each day, rather than at fixed locations. Daily on-site emissions at a single location for each construction phase and maximum daily on-site emissions during construction of each Proposed Project component are listed in Table 4 in the attached tables.

The SCAQMD look-up tables for the LST analysis list maximum daily allowable on-site emissions that will not cause LSTs to be exceeded for 1-, 2- and 5-acre construction sites and for receptor distances from the boundary of 25, 50, 100, 200 and 500 meters. The values for a 2-acre site were used for the analyses for the Proposed Substation construction, and the values for a 1-acre site were used for construction of the other Proposed Project components. Linear interpolation of the emissions in the look-up tables was used to calculate the maximum allowable emissions corresponding to the actual receptor distances. The analyses are shown in Table 5 in the attached tables.

Emissions during operation of the Proposed Project would be solely from motor vehicle travel to visit the Proposed Substation Site and to inspect the Proposed Subtransmission Source Lines. Since these emissions would not occur at a single location each day, they would not cause the localized significance thresholds to be exceeded.

6.0 REFERENCES

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Construction Emissions Summary
Total Daily Criteria Pollutant Emissions by Construction Phase

Phase	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)
Substation Construction						
Survey	0.27	2.57	0.26	0.00	1.26	0.11
Temporary Power Pole Installation	0.61	2.80	3.16	0.00	0.66	0.28
Grading	4.90	23.03	36.78	0.05	39.45	8.55
Soil Import/Export	2.45	11.76	26.15	0.04	13.13	2.68
Fencing	0.45	3.69	1.60	0.01	2.84	0.35
Civil	3.63	20.81	31.03	0.05	10.96	2.40
Substation MEER	0.27	2.56	0.27	0.00	0.73	0.06
Electrical	0.83	12.31	3.01	0.01	0.98	0.20
Wiring	0.29	2.60	0.35	0.00	0.37	0.03
Transformers	0.68	4.07	3.84	0.01	0.87	0.26
Maintenance Crew Equipment Check	0.18	1.71	0.17	0.00	0.97	0.09
Testing	0.09	0.86	0.09	0.00	0.39	0.03
Asphalting	4.57	18.09	29.88	0.05	5.38	1.76
Landscaping	1.31	7.17	9.47	0.02	2.34	0.55
Alder Substation Modifications Construction						
Fencing	0.30	2.21	1.59	0.00	0.25	0.10
Civil	2.03	12.70	15.47	0.03	1.35	0.90
Electrical	0.59	9.72	4.26	0.01	0.40	0.16
Wiring	0.09	0.85	0.09	0.00	0.12	0.01
Maintenance Crew Equipment Check	0.11	1.03	0.10	0.00	0.15	0.01
Testing	0.10	0.94	0.09	0.00	0.13	0.01
Asphalting	2.73	10.80	11.62	0.02	1.55	0.77
Etiwanda Substation Modifications Construction						
Civil	2.02	12.64	15.46	0.03	1.34	0.90
Electrical	0.36	8.85	1.20	0.00	0.32	0.08
Wiring	0.09	0.85	0.09	0.00	0.12	0.01
Maintenance Crew Equipment Check	0.10	0.91	0.09	0.00	0.13	0.01
Testing	0.09	0.88	0.09	0.00	0.13	0.01
Subtransmission Source Line Construction						
Survey	0.20	1.90	0.19	0.00	2.39	0.23
Staging Area	0.86	3.92	6.48	0.01	0.47	0.21
Road Work	3.25	13.22	27.51	0.04	42.13	8.36
Guard Structure Installation	2.70	11.98	23.49	0.04	6.02	1.32
Wood/LWS Pole Removal	2.16	9.65	18.68	0.03	14.37	2.03
Install TSP Foundations	2.86	13.52	25.28	0.05	33.53	4.17
TSP Haul	1.20	5.34	9.71	0.01	9.81	1.26
TSP Assembly	2.07	11.79	12.26	0.02	13.04	1.70
TSP Erection	1.72	11.34	7.89	0.02	9.27	1.27
Install Wood/ LWS Poles	3.21	16.76	24.78	0.05	18.85	2.62
Install Conductor	5.84	27.37	52.71	0.09	53.96	6.82
Guard Structure Removal	2.18	9.78	18.69	0.03	16.17	2.21
Restoration	2.22	9.84	18.07	0.03	25.17	4.19
Vault Installation	3.33	16.41	28.02	0.04	41.42	5.20
Duct Bank Installation	2.09	10.67	19.31	0.03	46.97	5.44
Telecommunications Construction						
Cable Construction	2.08	9.76	23.49	0.04	15.59	2.12
Vault and Duct Bank Installation	1.53	9.58	9.96	0.02	24.86	2.90
Distribution Getaways Construction						
Vault Installation	2.76	12.23	25.90	0.04	11.19	2.09
Trench	3.61	18.20	34.33	0.06	21.09	3.42

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Construction Emissions Summary
Total Daily Criteria Pollutant Emissions by Construction Phase

Phase	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)
Distribution - Existing Facilities Relocation						
Location 1	0.24	2.03	0.78	0.00	0.30	0.04
Location 2	0.24	2.03	0.78	0.00	0.30	0.04
Location 3	0.48	4.06	1.55	0.01	0.59	0.07
Location 4	0.24	2.03	0.78	0.00	0.30	0.04
Location 5	1.37	6.64	9.82	0.02	1.09	0.43
Location 6	1.12	6.98	6.70	0.01	1.05	0.42

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
MEER = mechanical and electrical equipment room

Table 2
Construction Emissions Summary
Total Daily Criteria Pollutant Emissions for Overlapping Construction Phases

Group[a]	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)
Substation Construction						
Survey	0.3	2.6	0.3	0.0	1.3	0.1
Temporary Power Pole Installation	0.6	2.8	3.2	0.0	0.7	0.3
Grading, Soil Import/Export	7.3	34.8	62.9	0.1	52.6	11.2
Fencing	0.4	3.7	1.6	0.0	2.8	0.3
Civil	3.6	20.8	31.0	0.1	11.0	2.4
MEER, Electrical, Wiring, Transformers	2.1	21.6	7.5	0.0	2.9	0.5
Equipment Check, Testing	0.3	2.6	0.3	0.0	1.4	0.1
Asphalting, Landscaping	5.9	25.3	39.4	0.1	7.7	2.3
Maximum	**7.3**	**34.8**	**62.9**	**0.1**	**52.6**	**11.2**
Alder Substation Modifications Construction						
Civil	2.0	12.7	15.5	0.0	1.4	0.9
Fencing, Electrical, Wiring, Asphalting	3.7	23.6	17.6	0.0	2.3	1.0
Equipment Check, Testing	0.2	2.0	0.2	0.0	0.3	0.0
Maximum	**3.7**	**23.6**	**17.6**	**0.0**	**2.3**	**1.0**
Etiwanda Substation Modifications Construction						
Civil	2.0	12.6	15.5	0.0	1.3	0.9
Electrical, Wiring	0.4	9.7	1.3	0.0	0.4	0.1
Equipment Check, Testing	0.2	1.8	0.2	0.0	0.3	0.0
Maximum	**2.0**	**12.6**	**15.5**	**0.0**	**1.3**	**0.9**
Subtransmission Source Line Construction						
Staging Area, Survey, Road Work, Install Wood/LWS Poles	7.5	35.8	59.0	0.1	63.8	11.4
Staging Area, Install TSP Foundations, TSP Haul, TSP Assembly, TSP Erection, Install Wood/LWS Poles, Vault Installation	15.3	79.1	114.4	0.2	126.4	16.4
Staging Area, TSP Erection, Duct Bank Installation	4.7	25.9	33.7	0.1	56.7	6.9
Staging Area, Guard Structure Installation	3.6	15.9	30.0	0.1	6.5	1.5
Staging Area, Install Conductor	6.7	31.3	59.2	0.1	54.4	7.0
Staging Area, Wood/LWS Pole Removal, Guard Structure Removal	5.2	23.4	43.9	0.1	31.0	4.5
Staging Area, Restoration	3.1	13.8	24.5	0.0	25.6	4.4
Maximum	**15.3**	**79.1**	**114.4**	**0.2**	**126.4**	**16.4**
Telecommunications Construction						
Cable Construction, Vault and Duct Bank Installation	3.6	19.3	33.4	0.1	40.5	5.0
Maximum	**3.6**	**19.3**	**33.4**	**0.1**	**40.5**	**5.0**
Distribution Getaways Construction						
Vault Installation, Trenching	6.4	30.4	60.2	0.1	32.3	5.5
Maximum	**6.4**	**30.4**	**60.2**	**0.1**	**32.3**	**5.5**
Distribution - Existing Facilities Relocation						
Location 1, Location 2, Location 3, Location 4, Location 5, Location6	3.7	23.8	20.4	0.0	3.6	1.0
Maximum	**3.7**	**23.8**	**20.4**	**0.0**	**3.6**	**1.0**
PEAK DAILY[b]	**42.0**	**223.6**	**324.4**	**0.6**	**259.0**	**41.2**

[a] The construction phases within a group could all occur at the same time.

[b] Peak daily emissions are the sum of the maximum daily emissions during construction of the Substation, modifications to the Alder and Etiwanda Substations, Subtransmission Source Lines, Telecommunication Facilities, Distribution Getaways and Distribution Facilities Relocation.

Table 3
Construction Emissions Summary
Onsite Daily Criteria Pollutant Emissions by Construction Phase

Phase	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)
Substation Construction						
Survey	0.00	0.01	0.00	0.00	0.89	0.09
Temporary Power Pole Installation	0.52	1.95	3.07	0.00	0.54	0.28
Grading	4.52	19.53	36.17	0.04	38.95	8.51
Soil Import/Export	0.01	0.06	0.17	0.00	10.59	1.58
Fencing	0.18	1.13	1.34	0.00	2.48	0.33
Civil	1.77	10.74	13.48	0.02	8.95	1.65
Substation MEER	0.00	0.01	0.01	0.00	0.37	0.04
Electrical	0.38	8.05	2.58	0.00	0.37	0.16
Wiring	0.02	0.05	0.09	0.00	0.01	0.00
Transformers	0.50	2.37	3.67	0.00	0.62	0.25
Maintenance Crew Equipment Check	0.00	0.01	0.00	0.00	0.73	0.07
Testing	0.00	0.00	0.00	0.00	0.27	0.03
Asphalting	2.59	7.97	9.79	0.01	3.27	0.91
Landscaping	0.27	0.97	0.90	0.00	1.18	0.18
Alder Substation Modifications Construction						
Fencing	0.17	1.10	1.31	0.00	0.10	0.09
Civil	1.54	9.70	11.73	0.02	0.80	0.74
Electrical	0.41	8.02	4.09	0.01	0.16	0.14
Wiring	0.00	0.00	0.00	0.00	0.00	0.00
Maintenance Crew Equipment Check	0.00	0.01	0.00	0.00	0.00	0.00
Testing	0.00	0.00	0.00	0.00	0.00	0.00
Asphalting	2.36	7.95	9.74	0.01	1.09	0.69
Etiwanda Substation Modifications Construction						
Civil	1.54	9.69	11.72	0.02	0.80	0.74
Electrical	0.17	7.09	1.03	0.00	0.07	0.06
Wiring	0.00	0.00	0.00	0.00	0.00	0.00
Maintenance Crew Equipment Check	0.00	0.00	0.00	0.00	0.00	0.00
Testing	0.00	0.00	0.00	0.00	0.00	0.00
Subtransmission Source Line Construction						
Survey	0.00	0.00	0.00	0.00	0.00	0.00
Staging Area	0.68	2.21	6.31	0.01	0.23	0.20
Road Work	2.92	10.55	26.16	0.03	32.23	7.35
Guard Structure Installation	2.25	8.55	21.35	0.03	0.82	0.75
Wood/LWS Pole Removal	1.74	6.34	16.66	0.02	0.67	0.62
Install TSP Foundations	1.67	6.84	14.55	0.03	0.64	0.54
TSP Haul	0.93	3.18	8.54	0.01	0.31	0.29
TSP Assembly	1.26	4.48	10.53	0.01	0.49	0.45
TSP Erection	0.95	4.19	6.66	0.01	0.45	0.41
Install Wood/ LWS Poles	2.34	9.37	22.09	0.03	0.90	0.80
Install Conductor	4.24	15.65	43.82	0.06	1.48	1.36
Guard Structure Removal	1.74	6.34	16.66	0.02	0.67	0.62
Restoration	1.76	6.05	16.32	0.02	13.00	2.95
Vault Installation	2.07	9.30	16.66	0.02	1.84	0.89
Duct Bank Installation	0.47	2.37	3.07	0.00	0.45	0.27
Telecomminications Construction						
Cable Construction	1.67	6.54	21.43	0.03	0.63	0.58
Vault and Duct Bank Installation	0.63	3.17	4.12	0.01	1.31	0.41
Distribution Construction-Gateways						
Vault Installation	1.28	4.89	10.62	0.01	0.81	0.56
Trench	0.90	4.72	6.21	0.01	0.60	0.46
Distribution - Existing Facilities Relocation						
Location 1	0.00	0.00	0.00	0.00	0.00	0.00
Location 2	0.00	0.00	0.00	0.00	0.00	0.00
Location 3	0.00	0.00	0.00	0.00	0.00	0.00
Location 4	0.00	0.00	0.00	0.00	0.00	0.00

Table 3
Construction Emissions Summary
Onsite Daily Criteria Pollutant Emissions by Construction Phase

Phase	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)
Location 5	0.93	3.40	7.40	0.01	0.60	0.33
Location 6	0.56	2.82	3.65	0.00	0.31	0.28

Table 4
Construction Emissions Summary
Total Daily Onsite Criteria Pollutant Emissions for Overlapping Construction Phases

Group[a]	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)
Substation Construction						
Survey	0.00	0.01	0.00	0.00	0.89	0.09
Temporary Power Pole Installation	0.52	1.95	3.07	0.00	0.54	0.28
Grading	4.53	19.59	36.34	0.04	49.54	10.09
Fencing	0.18	1.13	1.34	0.00	2.48	0.33
Civil	1.77	10.74	13.48	0.02	8.95	1.65
MEER, Electrical, Wiring, Transformers	0.90	10.48	6.35	0.01	1.37	0.45
Equipment Check, Testing	0.00	0.01	0.00	0.00	0.99	0.10
Asphalting, Landscaping	2.86	8.94	10.69	0.01	4.45	1.08
Maximum	**4.53**	**19.59**	**36.34**	**0.04**	**49.54**	**10.09**
Alder Substation Modifications Construction						
Civil	1.54	9.70	11.73	0.02	0.80	0.74
Fencing, Electrical, Wiring, Asphalting	2.94	17.07	15.14	0.02	1.34	0.92
Equipment Check, Testing	0.00	0.01	0.00	0.00	0.00	0.00
Maximum	**2.94**	**17.07**	**15.14**	**0.02**	**1.34**	**0.92**
Etiwanda Substation Modifications Construction						
Civil	1.54	9.69	11.72	0.02	0.80	0.74
Electrical, Wiring	0.17	7.09	1.03	0.00	0.07	0.06
Equipment Check, Testing	0.00	0.00	0.00	0.00	0.00	0.00
Maximum	**1.54**	**9.69**	**11.72**	**0.02**	**0.80**	**0.74**
Subtransmission Source Line Construction						
Survey	0.00	0.00	0.00	0.00	0.00	0.00
Staging Area	0.68	2.21	6.31	0.01	0.23	0.20
Guard Structure Installation	0.45	1.71	4.27	0.01	0.16	0.15
Wood/LWS Pole Removal	1.74	6.34	16.66	0.02	0.67	0.62
Install TSP Foundations	1.67	6.84	14.55	0.03	0.64	0.54
TSP Haul	0.23	0.79	2.13	0.00	0.08	0.07
TSP Assembly	1.26	4.48	10.53	0.01	0.49	0.45
TSP Erection	0.95	4.19	6.66	0.01	0.45	0.41
Install Wood/ LWS Poles	0.59	2.34	5.52	0.01	0.23	0.20
Install Conductor	2.12	7.83	21.91	0.03	0.74	0.68
Guard Structure Removal	0.25	0.91	2.38	0.00	0.10	0.09
Vault Installation	2.07	9.30	16.66	0.02	1.84	0.89
Duct Bank Installation	0.47	2.37	3.07	0.00	0.45	0.27
Maximum	**2.12**	**9.30**	**21.91**	**0.03**	**1.84**	**0.89**
Telecommunications Construction						
Cable Construction, Vault and Duct Bank Installation	2.30	9.71	25.56	0.04	1.94	0.98
Maximum	**2.30**	**9.71**	**25.56**	**0.04**	**1.94**	**0.98**
Distribution Getaways Construction						
Vault Installation, Trench	2.18	9.60	16.82	0.02	1.41	1.02

Table 4
Construction Emissions Summary
Total Daily Onsite Criteria Pollutant Emissions for Overlapping Construction Phases

Group[a]	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)
Distribution - Existing Facilities Relocation	**2.18**	**9.60**	**16.82**	**0.02**	**1.41**	**1.02**
Location 1	0.00	0.00	0.00	0.00	0.00	0.00
Location 2	0.00	0.00	0.00	0.00	0.00	0.00
Location 3	0.00	0.00	0.00	0.00	0.00	0.00
Location 4	0.00	0.00	0.00	0.00	0.00	0.00
Location 5	0.93	3.40	7.40	0.01	0.60	0.33
Location 6	0.56	2.82	3.65	0.00	0.31	0.28
Maximum	**0.93**	**3.40**	**7.40**	**0.01**	**0.60**	**0.33**

[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: 1 pole per day
TSP Foundations Installation: 1 foundation per day
LWS Pole Installation: 4 poles per day
TSP Haul: 4 locations per day
TSP Assembly: 1 pole per day
TSP Erection: 1 pole 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] Road work and restoration were excluded from the LST analysis because these activities would occur over a distance of approximately 1 mile along the Proposed Subtransmission Source Line Route, instead of at a single location, each day.

Table 5
Construction Emissions
Localized Significance Threshold Analysis

Pollutant	Maximum Daily Onsite Emissions	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 Construction[c]								
CO	20	38	25	972	50	1,463	1,227	No
NOx	36	38	25	170	50	200	186	No
PM10	50	152	100	42	200	83	63	No
PM2.5	10	152	100	12	200	26	19	No
Alder Substation Modification Construction[d]								
CO	17	235	200	5,356	500	21,708	7,264	No
NOx	15	235	200	334	500	652	371	No
PM10	1	500	500	196	500	196	196	No
PM2.5	1	500	500	98	500	98	98	No
Etiwanda Substation Modification Construction[d]								
CO	10	232	200	5,356	500	21,708	7,100	No
NOx	12	232	200	334	500	652	368	No
PM10	1	500	500	196	500	196	196	No
PM2.5	1	500	500	98	500	98	98	No
Subtransmission Source Line Construction[e]								
CO	9	25	25	667	25	667	667	No
NOx	22	25	25	118	25	118	118	No
PM10	2	25	25	4	25	4	4	No
PM2.5	1	25	25	3	25	3	3	No
Telecommunications Construction[e]								
CO	10	25	25	667	25	667	667	No
NOx	26	25	25	118	25	118	118	No
PM10	2	25	25	4	25	4	4	No
PM2.5	1	25	25	3	25	3	3	No
Distribution Getaways Construction[d]								
CO	10	127	100	2,141	200	5,356	3,009	No
NOx	17	127	100	211	200	334	244	No
PM10	1	206	200	74	500	196	76	No
PM2.5	1	206	200	23	500	98	25	No
Distribution - Existing Facilities Relocation[e]								
CO	3	25	25	667	25	667	667	No
NOx	7	25	25	118	25	118	118	No
PM10	1	25	25	4	25	4	4	No
PM2.5	0	25	25	3	25	3	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 receptor for CO and NOx is commercial. Closest receptor for PM10 and PM2.5 is a residence. Allowable emissions are for a 2 acre site
[d] Closest receptor for CO and NOx is commercial. Closest receptor for PM10 and PM2.5 is a residence. Allowable emissions are for a 1 acre site
[e] Closest receptor is a residence. 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	
Survey	0.27
Temporary Power Pole Installation	2.88
Grading	84.28
Soil Import/Export	22.82
Fencing	3.66
Civil	73.73
Substation MEER	5.43
Electrical	35.04
Wiring	7.40
Transformers	8.86
Maintenance Crew Equipment Check	3.62
Testing	4.83
Asphalting	20.49
Landscaping	25.73
Alder Substation Modifications	
Fencing	0.48
Civil	16.14
Electrical	5.67
Wiring	0.30
Maintenance Crew Equipment Check	0.36
Testing	0.66
Asphalting	0.70
Etiwanda Substation Modifications	
Civil	23.59
Electrical	3.78
Wiring	0.60
Maintenance Crew Equipment Check	0.52
Testing	0.93
Subtransmission Source Line Construction	
Survey	1.47
Staging Area	188.35
Road Work	6.81
Guard Structure Installation	22.19
Wood/LWS Pole Removal	7.61
Install TSP Foundations	198.89
TSP Haul	8.27
TSP Assembly	50.59
TSP Erection	36.82
Install Wood/ LWS Poles	133.15
Install Conductor	204.66
Guard Structure Removal	10.22
Restoration	13.98
Vault Installation	22.91
Duct Bank Installation	11.20
Telecomminications Construction	
Cable Construction	37.72
Vault and Duct Bank Installation	12.81
Distribution Construction-Gateways	

Table 6
Construction Emissions Summary
Total Greenhouse Gas Emissions by Construction Phase

Phase	CO2e (MT)
Vault Installation	10.00
Trench	26.93
Distribution Construction- Relocation of Existing Facilities	
Location 1	0.16
Location 2	0.16
Location 3	0.99
Location 4	0.16
Location 5	1.68
Location 6	1.13
TOTAL	**1,361.66**

Table 7
Substation 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	0.01	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.89	0.09	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
Onsite Total	**0.00**	**0.01**	**0.00**	**0.00**	**0.89**	**0.09**	**0.0**
Offsite Motor Vehicle Exhaust	0.27	2.55	0.26	0.00	0.03	0.02	1.1
Offsite Motor Vehicle Fugitive PM	--	--	--	--	0.33	0.00	
Offsite Total	**0.27**	**2.55**	**0.26**	**0.00**	**0.36**	**0.02**	**1.1**
Total	**0.27**	**2.57**	**0.26**	**0.00**	**1.26**	**0.11**	**1.1**

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]	Category
None		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

a From Table 59

[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 59

[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				
Survey Truck	2	6	N/A	1
Offsite				
Survey Truck	2	6	N/A	60
Worker Commute	4	6	N/A	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]
Onsite									
Survey Truck	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	9.07E-05	5.83E-05	1.10E+00	6.71E-05
Offsite									
Survey Truck	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	9.07E-05	5.83E-05	1.10E+00	6.71E-05
Worker Commute	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	9.07E-05	5.83E-05	1.10E+00	6.71E-05

a From Table 60 or Table 61

Table 7
Substation 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						
Survey Truck	0.00	0.01	0.00	0.00	0.00	0.00
Onsite Total	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**
Offsite						
Survey Truck	0.09	0.85	0.09	0.00	0.01	0.01
Worker Commute	0.18	1.70	0.17	0.00	0.02	0.01
Offsite Total	**0.27**	**2.55**	**0.26**	**0.00**	**0.03**	**0.02**
Total	**0.27**	**2.57**	**0.26**	**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			
Survey Truck	0.0	0.0	0.0
Onsite Total	**0.0**	**0.0**	**0.0**
Offsite			
Survey Truck	0.4	0.0	0.4
Worker Commute	0.7	0.0	0.7
Offsite Total	**1.1**	**0.0**	**1.1**
Total	**1.1**	**0.0**	**1.1**

[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 60 and Table 61

[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							
Survey Truck	2	Unpaved	1	0.447	0.045	0.89	0.09
Onsite Total						**0.89**	**0.09**
Offsite							
Survey Truck	2	Paved	60	0.001	0.000	0.11	0.00
Worker Commute	4	Paved	60	0.001	0.000	0.22	0.00
Offsite Total						**0.33**	**0.00**
Total						**1.23**	**0.09**

a From Table 62
[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		2.75E-03	5.72E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		1.756	0.365	0.00	0.00
Storage Pile Wind Erosion	acres		6.6	1.37	0.00	0.00
Total					**0.00**	**0.00**

a From Table 63
[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 8
Substation Construction Emissions
Temporary Power Pole 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	0.52	1.94	3.07	0.00	0.27	0.25	0.5
Onsite Motor Vehicle Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.27	0.03	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
Onsite Total	**0.52**	**1.95**	**3.07**	**0.00**	**0.54**	**0.28**	**0.5**
Offsite Motor Vehicle Exhaust	0.09	0.85	0.09	0.00	0.01	0.01	2.4
Offsite Motor Vehicle Fugitive PM	--	--	--	--	0.11	0.00	
Offsite Total	**0.09**	**0.85**	**0.09**	**0.00**	**0.12**	**0.01**	**2.4**
Total	**0.61**	**2.80**	**3.16**	**0.00**	**0.66**	**0.28**	**2.9**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Auger	75	1	4	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
Auger	75	0.129	0.486	0.769	0.001	0.068	0.062	65.811	0.012	Crawler Tractors

a From Table 59

[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]
Auger	0.52	1.94	3.07	0.00	0.27	0.25
Total	**0.52**	**1.94**	**3.07**	**0.00**	**0.27**	**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]
Auger	0.5	0.0	0.5
Total	**0.5**	**0.0**	**0.5**

[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 59

[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 8
Substation Construction Emissions
Temporary Power Pole Installation

Motor Vehicle Usage

Vehicle	Number[a]	Days Used	Hours Used/ Day	Miles/ Day/ Veh.
Onsite				
Work Truck	1	4	N/A	0.5
Offsite				
Worker Commute	2	40	N/A	60

[a] Dump trucks based on approx 5,000 CY import and 2,000 CY export over 40 days and 10 CY/truck = 7,000 / 40 / 10 = 17.5

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									
Work Truck	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	9.07E-05	5.83E-05	1.10E+00	6.71E-05
Offsite									
Worker Commute	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	9.07E-05	5.83E-05	1.10E+00	6.71E-05

a From Table 60 or Table 61

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						
Work Truck	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						
Worker Commute	0.09	0.85	0.09	0.00	0.01	0.01
Offsite Total	**0.09**	**0.85**	**0.09**	**0.00**	**0.01**	**0.01**
Total	**0.09**	**0.85**	**0.09**	**0.00**	**0.01**	**0.01**

[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			
Work Truck	0.0	0.0	0.0
Onsite Total	**0.0**	**0.0**	**0.0**
Offsite			
Worker Commute	2.4	0.0	2.4
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 60 and Table 61

[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 8
Substation Construction Emissions
Temporary Power Pole Installation

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							
Work Truck	1	Unpaved	0.5	0.532	0.053	0.27	0.03
Onsite Total						**0.27**	**0.03**
Offsite							
Worker Commute	2	Paved	60	0.001	0.000	0.11	0.00
Offsite Total						**0.11**	**0.00**
Total						**0.38**	**0.03**

a From Table 62
[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		2.75E-03	5.72E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		1.756	0.365	0.00	0.00
Storage Pile Wind Erosion	acres		6.6	1.37	0.00	0.00
Total					**0.00**	**0.00**

a From Table 63
[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 9
Substation Construction Emissions
Grading

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	4.50	19.44	35.94	0.04	1.86	1.71	73.6
Onsite Motor Vehicle Exhaust	0.02	0.09	0.23	0.00	0.01	0.01	0.3
Onsite Motor Vehicle Fugitive PM	--	--	--	--	8.55	0.85	
Earthwork Fugitive PM	--	--	--	--	28.53	5.93	
Onsite Total	**4.52**	**19.53**	**36.17**	**0.04**	**38.95**	**8.51**	**73.9**
Offsite Motor Vehicle Exhaust	0.38	3.50	0.62	0.01	0.06	0.04	10.4
Offsite Motor Vehicle Fugitive PM	--	--	--	--	0.45	0.00	
Offsite Total	**0.38**	**3.50**	**0.62**	**0.01**	**0.51**	**0.04**	**10.4**
Total	**4.90**	**23.03**	**36.78**	**0.05**	**39.45**	**8.55**	**84.3**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Dozer	305	1	40	4
Loader	147	2	40	4
Scraper	267	1	40	4
Grader	110	1	40	6
4x4 Backhoe	79	2	40	2
4x4 Tamper	174	1	40	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
Dozer	305	0.254	0.950	2.239	0.003	0.087	0.080	259.229	0.023	Crawler Tractors
Loader	147	0.124	0.627	0.950	0.001	0.054	0.049	106.315	0.011	Rubber Tired Loaders
Scraper	267	0.319	1.211	2.829	0.003	0.110	0.101	321.429	0.029	Scrapers
Grader	110	0.125	0.531	0.773	0.001	0.068	0.062	74.965	0.011	Graders
4x4 Backhoe	79	0.069	0.353	0.456	0.001	0.038	0.035	51.728	0.006	Tractors/Loaders/Backhoes
4x4 Tamper	174	0.094	0.587	0.801	0.001	0.042	0.039	106.516	0.008	Other Construction Equipment

a From Table 59
[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]
Dozer	1.02	3.80	8.96	0.01	0.35	0.32
Loader	0.99	5.02	7.60	0.01	0.43	0.39
Scraper	1.27	4.85	11.32	0.01	0.44	0.40
Grader	0.75	3.19	4.64	0.01	0.41	0.37
4x4 Backhoe	0.28	1.41	1.83	0.00	0.15	0.14
4x4 Tamper	0.19	1.17	1.60	0.00	0.08	0.08
Total	**4.50**	**19.44**	**35.94**	**0.04**	**1.86**	**1.71**

[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]
Dozer	18.8	0.0	18.8
Loader	15.4	0.0	15.5
Scraper	23.3	0.0	23.4
Grader	8.2	0.0	8.2
4x4 Backhoe	7.7	0.0	7.7
4x4 Tamper	0.0	0.0	0.0
Total	**73.5**	**0.0**	**73.6**

[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 59
[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 9
Substation Construction Emissions
Grading

Motor Vehicle Usage

Vehicle	Number[a]	Days Used	Hours Used/ Day	Miles/ Day/ Veh.
Onsite				
Water Truck	1	40	N/A	2
Tool Truck	1	40	N/A	1
Pickup 4x4	1	40	N/A	1
Dump Truck	63	8	N/A	0.1
Offsite				
Water Truck	1	40	N/A	10
Tool Truck	1	40	N/A	0.2
Pickup 4x4	1	40	N/A	0.2
Worker Commute	8	40	N/A	60

[a] Dump trucks based on approx 5,000 CY import and 2,000 CY export over 40 days and 10 CY/truck = 7,000 / 40 / 10 = 17.5

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	2.26E-03	9.32E-03	2.74E-02	4.09E-05	1.34E-03	1.15E-03	4.22E+00	1.04E-04
Tool Truck	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	9.07E-05	5.83E-05	1.10E+00	6.71E-05
Pickup 4x4	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	9.07E-05	5.83E-05	1.10E+00	6.71E-05
Dump Truck	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	1.34E-03	1.15E-03	4.22E+00	1.04E-04
Offsite									
Water Truck	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	1.34E-03	1.15E-03	4.22E+00	1.04E-04
Tool Truck	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	9.07E-05	5.83E-05	1.10E+00	6.71E-05
Worker Commute	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	9.07E-05	5.83E-05	1.10E+00	6.71E-05

a From Table 60 or Table 61

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	0.02	0.05	0.00	0.00	0.00
Tool Truck	0.00	0.01	0.00	0.00	0.00	0.00
Pickup 4x4	0.00	0.01	0.00	0.00	0.00	0.00
Dump Truck	0.01	0.06	0.17	0.00	0.01	0.01
Onsite Total	**0.02**	**0.09**	**0.23**	**0.00**	**0.01**	**0.01**
Offsite						
Water Truck	0.02	0.09	0.27	0.00	0.01	0.01
Tool Truck	0.00	0.00	0.00	0.00	0.00	0.00
Pickup 4x4	0.00	0.00	0.00	0.00	0.00	0.00
Worker Commute	0.36	3.40	0.34	0.01	0.04	0.03
Offsite Total	**0.38**	**3.50**	**0.62**	**0.01**	**0.06**	**0.04**
Total	**0.40**	**3.59**	**0.85**	**0.01**	**0.07**	**0.05**

[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	0.2	0.0	0.2
Tool Truck	0.0	0.0	0.0
Pickup 4x4	0.0	0.0	0.0
Dump Truck	0.1	0.0	0.1
Onsite Total	**0.3**	**0.0**	**0.3**
Offsite			
Water Truck	0.8	0.0	0.8
Tool Truck	0.0	0.0	0.0
Pickup 4x4	0.0	0.0	0.0
Worker Commute	9.6	0.0	9.6
Offsite Total	**10.4**	**0.0**	**10.4**
Total	**10.6**	**0.0**	**10.7**

[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 60 and Table 61

[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 9
Substation Construction Emissions
Grading

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							
Water Truck	1	Unpaved	2	0.922	0.092	1.84	0.18
Tool Truck	1	Unpaved	1	0.447	0.045	0.45	0.04
Pickup 4x4	1	Unpaved	1	0.447	0.045	0.45	0.04
Dump Truck	63	Unpaved	0.1	0.922	0.092	5.81	0.58
Onsite Total						**8.55**	**0.85**
Offsite							
Water Truck	1	Paved	10	0.001	0.000	0.01	0.00
Tool Truck	1	Paved	0.2	0.001	0.000	0.00	0.00
Pickup 4x4	1	Paved	0.2	0.001	0.000	0.00	0.00
Worker Commute	8	Paved	60	0.001	0.000	0.44	0.00
Offsite Total						**0.45**	**0.00**
Total						**9.00**	**0.85**

a From Table 62
[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[c]	CY/day	575	2.75E-03	5.72E-04	1.58	0.33
Bulldozing, Scraping and Grading	hr/day	14	1.756	0.365	24.58	5.11
Storage Pile Wind Erosion[d]	acres	0.36	6.6	1.37	2.37	0.49
Total					**28.53**	**5.93**

a From Table 63
[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]
[c] Peak daily estimated from total of 10,000 CY cut and 13,000 CY fill over 40 days
[d] Based on 250 CY in each of two cones 7.5 ft. tall x 64 ft. diameter

Table 10
Substation Construction Emissions
Soil Import/Export

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	0.01	0.06	0.17	0.00	0.01	0.01	0.1
Onsite Motor Vehicle Fugitive PM	--	--	--	--	5.81	0.58	
Earthwork Fugitive PM	--	--	--	--	4.77	0.99	
Onsite Total	**0.01**	**0.06**	**0.17**	**0.00**	**10.59**	**1.58**	**0.1**
Offsite Motor Vehicle Exhaust	2.43	11.70	25.97	0.04	1.29	1.10	22.7
Offsite Motor Vehicle Fugitive PM	--	--	--	--	1.25	0.00	
Offsite Total	**2.43**	**11.70**	**25.97**	**0.04**	**2.54**	**1.10**	**22.7**
Total	**2.45**	**11.76**	**26.15**	**0.04**	**13.13**	**2.68**	**22.8**

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]	Category
None		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Crawler Tractors

a From Table 59

[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 59

[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 10
Substation Construction Emissions
Soil Import/Export

Motor Vehicle Usage

Vehicle	Number[a]	Days Used	Hours Used/ Day	Miles/ Day/ Veh.
Onsite				
Dump Truck	63	8	N/A	0.1
Offsite				
Dump Truck - Import	45	8	N/A	20
Dump Truck - Export	18	8	N/A	2
Worker Commute	7	40	N/A	60

[a] Import dump trucks based on approx 5,000 CY import over 8 days and 14 CY/truck = 5,000 / 8 / 14 = 44.6
Export dump trucks based on approx 2,000 CY export over 8 days and 14 CY/truck = 2,000 / 8 / 14 = 17.9

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									
Dump Truck	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	1.34E-03	1.15E-03	4.22E+00	1.04E-04
Offsite									
Dump Truck - Import	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	1.34E-03	1.15E-03	4.22E+00	1.04E-04
Dump Truck - Export	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	1.34E-03	1.15E-03	4.22E+00	1.04E-04
Worker Commute	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	9.07E-05	5.83E-05	1.10E+00	6.71E-05

a From Table 60 or Table 61

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						
Dump Truck	0.01	0.06	0.17	0.00	0.01	0.01
Onsite Total	**0.01**	**0.06**	**0.17**	**0.00**	**0.01**	**0.01**
Offsite						
Dump Truck - Import	2.04	8.39	24.69	0.04	1.20	1.03
Dump Truck - Export	0.08	0.34	0.99	0.00	0.05	0.04
Worker Commute	0.31	2.98	0.30	0.00	0.04	0.02
Offsite Total	**2.43**	**11.70**	**25.97**	**0.04**	**1.29**	**1.10**
Total	**2.45**	**11.76**	**26.15**	**0.04**	**1.30**	**1.10**

[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			
Dump Truck	0.1	0.0	0.1
Onsite Total	**0.1**	**0.0**	**0.1**
Offsite			
Dump Truck - Import	13.8	0.0	13.8
Dump Truck - Export	0.6	0.0	0.6
Worker Commute	8.4	0.0	8.4
Offsite Total	**22.7**	**0.0**	**22.7**
Total	**22.8**	**0.0**	**22.8**

[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 60 and Table 61

[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 10
Substation Construction Emissions
Soil Import/Export

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							
Dump Truck	63	Unpaved	0.1	0.922	0.092	5.81	0.58
Onsite Total						**5.81**	**0.58**
Offsite							
Dump Truck - Import	45	Paved	20	0.001	0.000	0.83	0.00
Dump Truck - Export	18	Paved	2	0.001	0.000	0.03	0.00
Worker Commute	7	Paved	60	0.001	0.000	0.39	0.00
Offsite Total						**1.25**	**0.00**
Total						**7.06**	**0.58**

a From Table 62
[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[c]	CY/day	875	2.75E-03	5.72E-04	2.41	0.50
Bulldozing, Scraping and Grading	hr/day		1.756	0.365	0.00	0.00
Storage Pile Wind Erosion[d]	acres	0.36	6.6	1.37	2.37	0.49
Total					**4.77**	**0.99**

a From Table 63
[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]
[c] Peak daily estimated from total of 7,000 CY import/export over 8 days
[d] Based on 250 CY in each of two cones 7.5 ft. tall x 64 ft. diameter

Table 11
Substation Construction Emissions
Fencing

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	0.17	1.10	1.31	0.00	0.10	0.09	1.1
Onsite Motor Vehicle Exhaust	0.00	0.04	0.03	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	2.38	0.24	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
Onsite Total	**0.18**	**1.13**	**1.34**	**0.00**	**2.48**	**0.33**	**1.1**
Offsite Motor Vehicle Exhaust	0.27	2.56	0.26	0.00	0.03	0.02	2.5
Offsite Motor Vehicle Fugitive PM	--	--	--	--	0.33	0.00	
Offsite Total	**0.27**	**2.56**	**0.26**	**0.00**	**0.37**	**0.02**	**2.5**
Total	**0.45**	**3.69**	**1.60**	**0.01**	**2.84**	**0.35**	**3.7**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Bobcat	75	1	14	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
Bobcat	75	0.043	0.275	0.327	0.001	0.024	0.022	42.762	0.004	Skid Steer Loaders

a From Table 59
[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]
Bobcat	0.17	1.10	1.31	0.00	0.10	0.09
Total	**0.17**	**1.10**	**1.31**	**0.00**	**0.10**	**0.09**

[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]
Bobcat	1.1	0.0	1.1
Total	**1.1**	**0.0**	**1.1**

[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 59
[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				
Flatbed Truck	1	14	N/A	2
Crewcab Truck	1	14	N/A	1
Offsite				
Flatbed Truck	1	14	N/A	0.2
Crewcab Truck	1	14	N/A	0.2
Worker Commute	6	14	N/A	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]
Onsite									
Flatbed Truck	Delivery	2.06E-03	1.41E-02	1.58E-02	2.68E-05	6.00E-04	5.02E-04	2.78E+00	9.70E-05
Crewcab Truck	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	9.07E-05	5.83E-05	1.10E+00	6.71E-05
Offsite									
Flatbed Truck	Delivery	2.06E-03	1.41E-02	1.58E-02	2.68E-05	6.00E-04	5.02E-04	2.78E+00	9.70E-05
Crewcab Truck	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	9.07E-05	5.83E-05	1.10E+00	6.71E-05
Worker Commute	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	9.07E-05	5.83E-05	1.10E+00	6.71E-05

a From Table 60 or Table 61

Table 11
Substation Construction Emissions
Fencing

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						
Flatbed Truck	0.00	0.03	0.03	0.00	0.00	0.00
Crewcab Truck	0.00	0.01	0.00	0.00	0.00	0.00
Onsite Total	**0.00**	**0.04**	**0.03**	**0.00**	**0.00**	**0.00**
Offsite						
Flatbed Truck	0.00	0.00	0.00	0.00	0.00	0.00
Crewcab Truck	0.00	0.00	0.00	0.00	0.00	0.00
Worker Commute	0.27	2.55	0.26	0.00	0.03	0.02
Offsite Total	**0.27**	**2.56**	**0.26**	**0.00**	**0.03**	**0.02**
Total	**0.27**	**2.59**	**0.29**	**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			
Flatbed Truck	0.0	0.0	0.0
Crewcab Truck	0.0	0.0	0.0
Onsite Total	**0.0**	**0.0**	**0.0**
Offsite			
Flatbed Truck	0.0	0.0	0.0
Crewcab Truck	0.0	0.0	0.0
Worker Commute	2.5	0.0	2.5
Offsite Total	**2.5**	**0.0**	**2.5**
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 60 and Table 61

[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							
Flatbed Truck	1	Unpaved	2	0.922	0.092	1.84	0.18
Crewcab Truck	1	Unpaved	1	0.532	0.053	0.53	0.05
Onsite Total						**2.38**	**0.24**
Offsite							
Flatbed Truck	1	Paved	0.2	0.001	0.000	0.00	0.00
Crewcab Truck	1	Paved	0.2	0.001	0.000	0.00	0.00
Worker Commute	6	Paved	60	0.001	0.000	0.33	0.00
Offsite Total						**0.33**	**0.00**
Total						**2.71**	**0.24**

a From Table 62
[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		2.75E-03	5.72E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		1.756	0.365	0.00	0.00
Storage Pile Wind Erosion	acres		6.6	1.37	0.00	0.00
Total					**0.00**	**0.00**

a From Table 63
[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 12
Substation Construction Emissions
Civil

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	1.75	10.65	13.26	0.02	0.89	0.82	48.5
Onsite Motor Vehicle Exhaust	0.02	0.08	0.22	0.00	0.01	0.01	0.2
Onsite Motor Vehicle Fugitive PM	--	--	--	--	7.92	0.79	
Earthwork Fugitive PM	--	--	--	--	0.13	0.03	
Onsite Total	**1.77**	**10.74**	**13.48**	**0.02**	**8.95**	**1.65**	**48.7**
Offsite Motor Vehicle Exhaust	1.86	10.07	17.54	0.03	0.89	0.75	25.0
Offsite Motor Vehicle Fugitive PM	--	--	--	--	1.13	0.00	
Offsite Total	**1.86**	**10.07**	**17.54**	**0.03**	**2.02**	**0.75**	**25.0**
Total	**3.63**	**20.81**	**31.03**	**0.05**	**10.96**	**2.40**	**73.7**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Excavator	152	1	60	4
Foundation Auger	79	1	60	4
Backhoe	79	1	60	4
Skip Loader	75	1	60	4
Bobcat Skid Steer	75	2	60	4
Forklift	83	1	60	2
17-Ton Crane	125	1	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
Excavator	152	0.121	0.667	0.893	0.001	0.051	0.047	112.222	0.011	Excavators
Foundation Auger	79	0.045	0.470	0.458	0.001	0.026	0.024	77.122	0.004	Bore/Drill Rigs
Backhoe	79	0.069	0.353	0.456	0.001	0.038	0.035	51.728	0.006	Tractors/Loaders/Backhoes
Skip Loader	75	0.043	0.275	0.327	0.001	0.024	0.022	42.762	0.004	Skid Steer Loaders
Bobcat Skid Steer	75	0.043	0.275	0.327	0.001	0.024	0.022	42.762	0.004	Skid Steer Loaders
Forklift	83	0.044	0.218	0.279	0.000	0.024	0.022	31.225	0.004	Forklifts
17-Ton Crane	125	0.103	0.482	0.777	0.001	0.045	0.041	80.345	0.009	Cranes

a From Table 59
[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]
Excavator	0.48	2.67	3.57	0.01	0.20	0.19
Foundation Auger	0.18	1.88	1.83	0.00	0.10	0.09
Backhoe	0.28	1.41	1.83	0.00	0.15	0.14
Skip Loader	0.17	1.10	1.31	0.00	0.10	0.09
Bobcat Skid Steer	0.34	2.20	2.61	0.00	0.20	0.18
Forklift	0.09	0.44	0.56	0.00	0.05	0.04
17-Ton Crane	0.21	0.96	1.55	0.00	0.09	0.08
Total	**1.75**	**10.65**	**13.26**	**0.02**	**0.89**	**0.82**

[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]
Excavator	12.2	0.0	12.2
Foundation Auger	8.4	0.0	8.4
Backhoe	5.6	0.0	5.6
Skip Loader	4.7	0.0	4.7
Bobcat Skid Steer	17.5	0.0	17.5
Forklift	0.0	0.0	0.0
17-Ton Crane	0.0	0.0	0.0
Total	**48.4**	**0.0**	**48.5**

[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 59
[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 12
Substation Construction Emissions
Civil

Motor Vehicle Usage

Vehicle	Number[a]	Days Used	Hours Used/ Day	Miles/ Day/ Veh.
Onsite				
Dump Truck	7	5	N/A	1
Water Truck	1	60	N/A	1
Tool Truck	1	60	N/A	1
Concrete Truck	1	5	N/A	0.1
Offsite				
Dump Truck	7	5	N/A	2
Water Truck	1	60	N/A	10
Concrete Truck	10	5	N/A	60
Tool Truck	1	60	N/A	0.2
Worker Commute	10	60	N/A	60

[a] Concrete trucks based on 455 CY over 5 days and 10 CY/truck = 455 / 5 / 10 = 9.1

[a] Dump trucks based on 455 CY over 5 days and 14 CY/truck = 451 / 5 / 14 = 6.5

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									
Dump Truck	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	1.34E-03	1.15E-03	4.22E+00	1.04E-04
Water Truck	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	1.34E-03	1.15E-03	4.22E+00	1.04E-04
Tool Truck	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	9.07E-05	5.83E-05	1.10E+00	6.71E-05
Concrete Truck	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	9.07E-05	5.83E-05	1.10E+00	6.71E-05
Offsite									
Dump Truck	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	1.34E-03	1.15E-03	4.22E+00	1.04E-04
Water Truck	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	1.34E-03	1.15E-03	4.22E+00	1.04E-04
Concrete Truck	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	1.34E-03	1.15E-03	4.22E+00	1.04E-04
Tool Truck	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	9.07E-05	5.83E-05	1.10E+00	6.71E-05
Worker Commute	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	9.07E-05	5.83E-05	1.10E+00	6.71E-05

a From Table 60 or Table 61

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						
Dump Truck	0.02	0.07	0.19	0.00	0.01	0.01
Water Truck	0.00	0.01	0.03	0.00	0.00	0.00
Tool Truck	0.00	0.01	0.00	0.00	0.00	0.00
Concrete Truck	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total	**0.02**	**0.08**	**0.22**	**0.00**	**0.01**	**0.01**
Offsite						
Dump Truck	0.03	0.13	0.38	0.00	0.02	0.02
Water Truck	0.02	0.09	0.27	0.00	0.01	0.01
Concrete Truck	1.36	5.59	16.46	0.02	0.80	0.69
Tool Truck	0.00	0.00	0.00	0.00	0.00	0.00
Worker Commute	0.45	4.26	0.43	0.01	0.05	0.04
Offsite Total	**1.86**	**10.07**	**17.54**	**0.03**	**0.89**	**0.75**
Total	**1.88**	**10.15**	**17.76**	**0.03**	**0.90**	**0.76**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Table 12
Substation Construction Emissions
Civil

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			
Dump Truck	0.1	0.0	0.1
Water Truck	0.1	0.0	0.1
Tool Truck	0.0	0.0	0.0
Concrete Truck	0.0	0.0	0.0
Onsite Total	**0.2**	**0.0**	**0.2**
Offsite			
Dump Truck	0.1	0.0	0.1
Water Truck	1.1	0.0	1.1
Concrete Truck	5.7	0.0	5.7
Tool Truck	0.0	0.0	0.0
Worker Commute	18.0	0.0	18.0
Offsite Total	**25.0**	**0.0**	**25.0**
Total	**25.2**	**0.0**	**25.2**

[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 60 and Table 61

[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							
Dump Truck	7	Unpaved	1	0.922	0.092	6.46	0.65
Water Truck	1	Unpaved	1	0.922	0.092	0.92	0.09
Tool Truck	1	Unpaved	1	0.447	0.045	0.45	0.04
Concrete Truck	1	Unpaved	0.1	0.922	0.092	0.09	0.01
Onsite Total						**7.92**	**0.79**
Offsite							
Dump Truck	7	Paved	2	0.001	0.000	0.01	0.00
Water Truck	1	Paved	10	0.001	0.000	0.01	0.00
Concrete Truck	10	Paved	60	0.001	0.000	0.55	0.00
Tool Truck	1	Paved	0.2	0.001	0.000	0.00	0.00
Worker Commute	10	Paved	60	0.001	0.000	0.55	0.00
Offsite Total						**1.13**	**0.00**
Total						**9.05**	**0.79**

a From Table 62
[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[c]	CY/day	46	2.75E-03	5.72E-04	0.13	0.03
Bulldozing, Scraping and Grading	hr/day		1.756	0.365	0.00	0.00
Storage Pile Wind Erosion	acres		6.6	1.37	0.00	0.00
Total					**0.13**	**0.03**

a From Table 63
[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]
[c] Peak daily estimated from total of 455 CY over 10 days

Table 13
Substation Construction Emissions
Substation MEER

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	0.01	0.01	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.37	0.04	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
Onsite Total	**0.00**	**0.01**	**0.01**	**0.00**	**0.37**	**0.04**	**0.0**
Offsite Motor Vehicle Exhaust	0.27	2.56	0.26	0.00	0.03	0.02	5.4
Offsite Motor Vehicle Fugitive PM	--	--	--	--	0.33	0.00	
Offsite Total	**0.27**	**2.56**	**0.26**	**0.00**	**0.37**	**0.02**	**5.4**
Total	**0.27**	**2.56**	**0.27**	**0.00**	**0.73**	**0.06**	**5.4**

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]	Category
None		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

a From Table 59

[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 59

[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				
Carry-all Truck	1	30	N/A	0.2
Stake Truck	1	30	N/A	0.2
Offsite				
Carry-all Truck	1	30	N/A	0.2
Stake Truck	1	30	N/A	0.2
Worker Commute	6	30	N/A	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]
Onsite									
Carry-all Truck	Delivery	2.06E-03	1.41E-02	1.58E-02	2.68E-05	6.00E-04	5.02E-04	2.78E+00	9.70E-05
Stake Truck	Delivery	2.06E-03	1.41E-02	1.58E-02	2.68E-05	6.00E-04	5.02E-04	2.78E+00	9.70E-05
Offsite									
Carry-all Truck	Delivery	2.06E-03	1.41E-02	1.58E-02	2.68E-05	6.00E-04	5.02E-04	2.78E+00	9.70E-05
Stake Truck	Delivery	2.06E-03	1.41E-02	1.58E-02	2.68E-05	6.00E-04	5.02E-04	2.78E+00	9.70E-05
Worker Commute	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	9.07E-05	5.83E-05	1.10E+00	6.71E-05

a From Table 60 or Table 61

Table 13
Substation Construction Emissions
Substation MEER

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						
Carry-all Truck	0.00	0.00	0.00	0.00	0.00	0.00
Stake Truck	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total	**0.00**	**0.01**	**0.01**	**0.00**	**0.00**	**0.00**
Offsite						
Carry-all Truck	0.00	0.00	0.00	0.00	0.00	0.00
Stake Truck	0.00	0.00	0.00	0.00	0.00	0.00
Worker Commute	0.27	2.55	0.26	0.00	0.03	0.02
Offsite Total	**0.27**	**2.56**	**0.26**	**0.00**	**0.03**	**0.02**
Total	**0.27**	**2.56**	**0.27**	**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			
Carry-all Truck	0.0	0.0	0.0
Stake Truck	0.0	0.0	0.0
Onsite Total	**0.0**	**0.0**	**0.0**
Offsite			
Carry-all Truck	0.0	0.0	0.0
Stake Truck	0.0	0.0	0.0
Worker Commute	5.4	0.0	5.4
Offsite Total	**5.4**	**0.0**	**5.4**
Total	**5.4**	**0.0**	**5.4**

[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 60 and Table 61

[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							
Carry-all Truck	1	Unpaved	0.2	0.922	0.092	0.18	0.02
Stake Truck	1	Unpaved	0.2	0.922	0.092	0.18	0.02
Onsite Total						**0.37**	**0.04**
Offsite							
Carry-all Truck	1	Paved	0.2	0.001	0.000	0.00	0.00
Stake Truck	1	Paved	0.2	0.001	0.000	0.00	0.00
Worker Commute	6	Paved	60	0.001	0.000	0.33	0.00
Offsite Total						**0.33**	**0.00**
Total						**0.70**	**0.04**

a From Table 62
[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		2.75E-03	5.72E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		1.756	0.365	0.00	0.00
Storage Pile Wind Erosion	acres		6.6	1.37	0.00	0.00
Total					**0.00**	**0.00**

a From Table 63
[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 14
Substation Construction Emissions
Electrical

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	0.38	8.05	2.58	0.00	0.16	0.14	11.0
Onsite Motor Vehicle Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.21	0.02	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
Onsite Total	**0.38**	**8.05**	**2.58**	**0.00**	**0.37**	**0.16**	**11.0**
Offsite Motor Vehicle Exhaust	0.45	4.26	0.43	0.01	0.05	0.04	24.0
Offsite Motor Vehicle Fugitive PM	--	--	--	--	0.55	0.00	
Offsite Total	**0.45**	**4.26**	**0.43**	**0.01**	**0.61**	**0.04**	**24.0**
Total	**0.83**	**12.31**	**3.01**	**0.01**	**0.98**	**0.20**	**35.0**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Scissor Lift	25	1	80	3
Manlift	25	2	80	3
Reach Manlift	25	1	80	3
15-Ton Crane	125	1	80	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
Scissor Lift	25	0.008	2.211	0.061	0.000	0.007	0.006	13.000	0.070	Aerial Lifts-Propane
Manlift	25	0.017	0.050	0.094	0.000	0.005	0.005	10.960	0.002	Aerial Lifts
Reach Manlift	25	0.017	0.050	0.094	0.000	0.005	0.005	10.960	0.002	Aerial Lifts
15-Ton Crane	125	0.103	0.482	0.777	0.001	0.045	0.041	80.345	0.009	Cranes

a From Table 59

[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]
Scissor Lift	0.02	6.63	0.18	0.00	0.02	0.02
Manlift	0.10	0.30	0.56	0.00	0.03	0.03
Reach Manlift	0.05	0.15	0.28	0.00	0.02	0.01
15-Ton Crane	0.21	0.96	1.55	0.00	0.09	0.08
Total	**0.38**	**8.05**	**2.58**	**0.00**	**0.16**	**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]
Scissor Lift	1.4	0.0	1.6
Manlift	2.4	0.0	2.4
Reach Manlift	1.2	0.0	1.2
15-Ton Crane	5.8	0.0	5.8
Total	**10.8**	**0.0**	**11.0**

[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 59

[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				
Crew Truck	2	80	N/A	0.2
Offsite				
Crew Truck	2	80	N/A	0.2
Worker Commute	10	80	N/A	60

Table 14
Substation Construction Emissions
Electrical

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									
Crew Truck	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	9.07E-05	5.83E-05	1.10E+00	6.71E-05
Offsite									
Crew Truck	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	9.07E-05	5.83E-05	1.10E+00	6.71E-05
Worker Commute	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	9.07E-05	5.83E-05	1.10E+00	6.71E-05

a From Table 60 or Table 61

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						
Crew Truck	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	0.00	0.00	0.00	0.00	0.00	0.00
Worker Commute	0.45	4.26	0.43	0.01	0.05	0.04
Offsite Total	**0.45**	**4.26**	**0.43**	**0.01**	**0.05**	**0.04**
Total	**0.45**	**4.26**	**0.43**	**0.01**	**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			
Crew Truck	0.0	0.0	0.0
Onsite Total	**0.0**	**0.0**	**0.0**
Offsite			
Crew Truck	0.0	0.0	0.0
Worker Commute	24.0	0.0	24.0
Offsite Total	**24.0**	**0.0**	**24.0**
Total	**24.0**	**0.0**	**24.0**

[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 60 and Table 61

[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							
Crew Truck	2	Unpaved	0.2	0.532	0.053	0.21	0.02
Onsite Total						**0.21**	**0.02**
Offsite							
Crew Truck	2	Paved	0.2	0.001	0.000	0.00	0.00
Worker Commute	10	Paved	60	0.001	0.000	0.55	0.00
Offsite Total						**0.55**	**0.00**
Total						**0.77**	**0.02**

a From Table 62
[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		2.75E-03	5.72E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		1.756	0.365	0.00	0.00
Storage Pile Wind Erosion	acres		6.6	1.37	0.00	0.00
Total					**0.00**	**0.00**

a From Table 63
[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 15
Substation Construction Emissions
Wiring

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	0.02	0.05	0.09	0.00	0.01	0.00	0.2
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	**0.02**	**0.05**	**0.09**	**0.00**	**0.01**	**0.00**	**0.2**
Offsite Motor Vehicle Exhaust	0.27	2.55	0.26	0.00	0.03	0.02	7.2
Offsite Motor Vehicle Fugitive PM	--	--	--	--	0.33	0.00	
Offsite Total	**0.27**	**2.55**	**0.26**	**0.00**	**0.36**	**0.02**	**7.2**
Total	**0.29**	**2.60**	**0.35**	**0.00**	**0.37**	**0.03**	**7.4**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Manlift	25	1	40	1

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	25	0.017	0.050	0.094	0.000	0.005	0.005	10.960	0.002	Aerial Lifts

a From Table 59

[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	0.02	0.05	0.09	0.00	0.01	0.00
Total	**0.02**	**0.05**	**0.09**	**0.00**	**0.01**	**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]
Manlift	0.2	0.0	0.2
Total	**0.2**	**0.0**	**0.2**

[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 59

[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				
Offsite				
Worker Commute	6	40	N/A	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]
Onsite									
None									
Offsite									
Worker Commute	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	9.07E-05	5.83E-05	1.10E+00	6.71E-05

a From Table 60 or Table 61

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						
Worker Commute	0.27	2.55	0.26	0.00	0.03	0.02
Offsite Total	**0.27**	**2.55**	**0.26**	**0.00**	**0.03**	**0.02**
Total	**0.27**	**2.55**	**0.26**	**0.00**	**0.03**	**0.02**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Table 15
Substation Construction Emissions
Wiring

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			
Worker Commute	7.2	0.0	7.2
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 60 and Table 61

[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							
None							
Onsite Total						**0.00**	**0.00**
Offsite							
Worker Commute	6	Paved	60	0.001	0.000	0.33	0.00
Offsite Total						**0.33**	**0.00**
Total						**0.33**	**0.00**

a From Table 62
[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		2.75E-03	5.72E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		1.756	0.365	0.00	0.00
Storage Pile Wind Erosion	acres		6.6	1.37	0.00	0.00
Total					**0.00**	**0.00**

a From Table 63
[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 16
Substation Construction Emissions
Transformers

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	0.50	2.36	3.67	0.00	0.23	0.21	5.2
Onsite Motor Vehicle Exhaust	0.00	0.00	0.01	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.40	0.04	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
Onsite Total	**0.50**	**2.37**	**3.67**	**0.00**	**0.62**	**0.25**	**5.3**
Offsite Motor Vehicle Exhaust	0.18	1.70	0.17	0.00	0.02	0.01	3.6
Offsite Motor Vehicle Fugitive PM	--	--	--	--	0.22	0.00	
Offsite Total	**0.18**	**1.70**	**0.17**	**0.00**	**0.24**	**0.01**	**3.6**
Total	**0.68**	**4.07**	**3.84**	**0.01**	**0.87**	**0.26**	**8.9**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Crane	125	1	30	4
Forklift	25	1	30	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
Crane	125	0.103	0.482	0.777	0.001	0.045	0.041	80.345	0.009	Cranes
Forklift	83	0.044	0.218	0.279	0.000	0.024	0.022	31.225	0.004	Forklifts

a From Table 59
[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]
Crane	0.41	1.93	3.11	0.00	0.18	0.16
Forklift	0.09	0.44	0.56	0.00	0.05	0.04
Total	**0.50**	**2.36**	**3.67**	**0.00**	**0.23**	**0.21**

[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]
Crane	4.4	0.0	4.4
Forklift	0.8	0.0	0.9
Total	**5.2**	**0.0**	**5.2**

[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 59
[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				
Crew Truck	2	30	N/A	0.2
Low Bed Truck	1	30	N/A	0.2
Offsite				
Crew Truck	2	30	N/A	0.2
Worker Commute	4	30	N/A	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]
Onsite									
Crew Truck	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	9.07E-05	5.83E-05	1.10E+00	6.71E-05
Low Bed Truck	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	1.34E-03	1.15E-03	4.22E+00	1.04E-04
Offsite									
Crew Truck	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	9.07E-05	5.83E-05	1.10E+00	6.71E-05
Worker Commute	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	9.07E-05	5.83E-05	1.10E+00	6.71E-05

a From Table 60 or Table 61

Table 16
Substation Construction Emissions
Transformers

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						
Crew Truck	0.00	0.00	0.00	0.00	0.00	0.00
Low Bed Truck	0.00	0.00	0.01	0.00	0.00	0.00
Onsite Total	**0.00**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**
Offsite						
Crew Truck	0.00	0.00	0.00	0.00	0.00	0.00
Worker Commute	0.18	1.70	0.17	0.00	0.02	0.01
Offsite Total	**0.18**	**1.70**	**0.17**	**0.00**	**0.02**	**0.01**
Total	**0.18**	**1.71**	**0.18**	**0.00**	**0.02**	**0.01**

[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			
Crew Truck	0.0	0.0	0.0
Low Bed Truck	0.0	0.0	0.0
Onsite Total	**0.0**	**0.0**	**0.0**
Offsite			
Crew Truck	0.0	0.0	0.0
Worker Commute	3.6	0.0	3.6
Offsite Total	**3.6**	**0.0**	**3.6**
Total	**3.6**	**0.0**	**3.6**

[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 60 and Table 61
[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							
Crew Truck	2	Unpaved	0.2	0.532	0.053	0.21	0.02
Low Bed Truck	1	Unpaved	0.2	0.922	0.092	0.18	0.02
Onsite Total						**0.40**	**0.04**
Offsite							
Crew Truck	2	Paved	0.2	0.001	0.000	0.00	0.00
Worker Commute	4	Paved	60	0.001	0.000	0.22	0.00
Offsite Total						**0.22**	**0.00**
Total						**0.62**	**0.04**

a From Table 62
[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		2.75E-03	5.72E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		1.756	0.365	0.00	0.00
Storage Pile Wind Erosion	acres		6.6	1.37	0.00	0.00
Total					**0.00**	**0.00**

a From Table 63
[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 17
Substation Construction Emissions
Maintenance Crew Equipment Check

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	0.01	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.73	0.07	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
Onsite Total	**0.00**	**0.01**	**0.00**	**0.00**	**0.73**	**0.07**	**0.0**
Offsite Motor Vehicle Exhaust	0.18	1.70	0.17	0.00	0.02	0.01	3.6
Offsite Motor Vehicle Fugitive PM	--	--	--	--	0.22	0.00	
Offsite Total	**0.18**	**1.70**	**0.17**	**0.00**	**0.24**	**0.01**	**3.6**
Total	**0.18**	**1.71**	**0.17**	**0.00**	**0.97**	**0.09**	**3.6**

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]	Category
None										

a From Table 59
[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 59
[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				
Maintenance Truck	2	30	N/A	0.5
Offsite				
Maintenance Truck	2	30	N/A	0.2
Worker Commute	4	30	N/A	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]
Onsite									
Maintenance Truck	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	9.07E-05	5.83E-05	1.10E+00	6.71E-05
Offsite									
Maintenance Truck	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	9.07E-05	5.83E-05	1.10E+00	6.71E-05
Worker Commute	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	9.07E-05	5.83E-05	1.10E+00	6.71E-05

a From Table 60 or Table 61

Table 17
Substation Construction Emissions
Maintenance Crew Equipment Check

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						
Maintenance Truck	0.00	0.01	0.00	0.00	0.00	0.00
Onsite Total	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**
Offsite						
Maintenance Truck	0.00	0.00	0.00	0.00	0.00	0.00
Worker Commute	0.18	1.70	0.17	0.00	0.02	0.01
Offsite Total	**0.18**	**1.70**	**0.17**	**0.00**	**0.02**	**0.01**
Total	**0.18**	**1.71**	**0.17**	**0.00**	**0.02**	**0.01**

[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			
Maintenance Truck	0.0	0.0	0.0
Onsite Total	**0.0**	**0.0**	**0.0**
Offsite			
Maintenance Truck	0.0	0.0	0.0
Worker Commute	3.6	0.0	3.6
Offsite Total	**3.6**	**0.0**	**3.6**
Total	**3.6**	**0.0**	**3.6**

[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 60 and Table 61

[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							
Maintenance Truck	2	Unpaved	0.5	0.726	0.073	0.73	0.07
Onsite Total						**0.73**	**0.07**
Offsite							
Maintenance Truck	2	Paved	0.2	0.001	0.000	0.00	0.00
Worker Commute	4	Paved	60	0.001	0.000	0.22	0.00
Offsite Total						**0.22**	**0.00**
Total						**0.95**	**0.07**

a From Table 62
[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		2.75E-03	5.72E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		1.756	0.365	0.00	0.00
Storage Pile Wind Erosion	acres		6.6	1.37	0.00	0.00
Total					**0.00**	**0.00**

a From Table 63
[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 18
Substation Construction Emissions
Testing

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	--	--	--	--	0.27	0.03	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
Onsite Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.27**	**0.03**	**0.0**
Offsite Motor Vehicle Exhaust	0.09	0.85	0.09	0.00	0.01	0.01	4.8
Offsite Motor Vehicle Fugitive PM	--	--	--	--	0.11	0.00	
Offsite Total	**0.09**	**0.85**	**0.09**	**0.00**	**0.12**	**0.01**	**4.8**
Total	**0.09**	**0.86**	**0.09**	**0.00**	**0.39**	**0.03**	**4.8**

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]	Category
None										

a From Table 59

[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 59

[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				
Crew Truck	1	80	N/A	0.5
Offsite				
Crew Truck	1	80	N/A	0.2
Worker Commute	2	80	N/A	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]
Onsite									
Crew Truck	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	9.07E-05	5.83E-05	1.10E+00	6.71E-05
Offsite									
Crew Truck	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	9.07E-05	5.83E-05	1.10E+00	6.71E-05
Worker Commute	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	9.07E-05	5.83E-05	1.10E+00	6.71E-05

a From Table 60 or Table 61

Table 18
Substation Construction Emissions
Testing

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						
Crew Truck	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	0.00	0.00	0.00	0.00	0.00	0.00
Worker Commute	0.09	0.85	0.09	0.00	0.01	0.01
Offsite Total	**0.09**	**0.85**	**0.09**	**0.00**	**0.01**	**0.01**
Total	**0.09**	**0.86**	**0.09**	**0.00**	**0.01**	**0.01**

[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			
Crew Truck	0.0	0.0	0.0
Onsite Total	**0.0**	**0.0**	**0.0**
Offsite			
Crew Truck	0.0	0.0	0.0
Worker Commute	4.8	0.0	4.8
Offsite Total	**4.8**	**0.0**	**4.8**
Total	**4.8**	**0.0**	**4.8**

[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 60 and Table 61
[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							
Crew Truck	1	Unpaved	0.5	0.532	0.053	0.27	0.03
Onsite Total						**0.27**	**0.03**
Offsite							
Crew Truck	1	Paved	0.2	0.001	0.000	0.00	0.00
Worker Commute	2	Paved	60	0.001	0.000	0.11	0.00
Offsite Total						**0.11**	**0.00**
Total						**0.38**	**0.03**

a From Table 62
[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		2.75E-03	5.72E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		1.756	0.365	0.00	0.00
Storage Pile Wind Erosion	acres		6.6	1.37	0.00	0.00
Total					**0.00**	**0.00**

a From Table 63
[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 19
Substation Construction Emissions
Asphalting

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	2.35	7.94	9.74	0.01	0.70	0.65	4.3
Onsite Motor Vehicle Exhaust	0.01	0.03	0.06	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	2.56	0.26	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
Asphaltic Paving VOC	0.2	--	--	--	--	--	--
Onsite Total	**2.59**	**7.97**	**9.79**	**0.01**	**3.27**	**0.91**	**4.3**
Offsite Motor Vehicle Exhaust	1.99	10.12	20.09	0.03	1.01	0.85	16.2
Offsite Motor Vehicle Fugitive PM	--	--	--	--	1.11	0.00	
Offsite Total	**1.99**	**10.12**	**20.09**	**0.03**	**2.11**	**0.85**	**16.2**
Total	**4.57**	**18.09**	**29.88**	**0.05**	**5.38**	**1.76**	**20.5**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Paving Roller	46	2	10	4
Asphalt Paver	152	1	10	4
Tractor	45	1	10	4
Asphalt Curb Machine	35	1	10	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
Paving Roller	46	0.102	0.291	0.258	0.000	0.024	0.023	25.983	0.009	Rollers
Asphalt Paver	152	0.178	0.778	1.377	0.001	0.077	0.071	128.285	0.016	Pavers
Tractor	45	0.089	0.320	0.289	0.000	0.024	0.022	30.347	0.008	Tractors/Loaders/Backhoes
Asphalt Curb Machine	35	0.117	0.305	0.251	0.000	0.026	0.024	23.927	0.011	Paving Equipment

a From Table 59

[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]
Paving Roller	0.82	2.33	2.07	0.00	0.20	0.18
Asphalt Paver	0.71	3.11	5.51	0.01	0.31	0.28
Tractor	0.36	1.28	1.16	0.00	0.10	0.09
Asphalt Curb Machine	0.47	1.22	1.01	0.00	0.11	0.10
Total	**2.35**	**7.94**	**9.74**	**0.01**	**0.70**	**0.65**

[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]
Paving Roller	0.9	0.0	0.9
Asphalt Paver	2.3	0.0	2.3
Tractor	0.6	0.0	0.6
Asphalt Curb Machine	0.4	0.0	0.4
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 59

[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 19
Substation Construction Emissions
Asphalting

Motor Vehicle Usage

Vehicle	Number[b]	Days Used	Hours Used/ Day	Miles/ Day/ Veh.[a]
Onsite				
Stake Truck	1	10	N/A	0.5
Dump Truck	1	10	N/A	0.5
Crew Truck	2	10	N/A	0.5
Asphalt Delivery Truck	5	10	N/A	0.1
Aggregate Base Delivery Truck	7	10	N/A	0.1
Offsite				
Crew Truck	2	10	N/A	0.2
Asphalt Delivery Truck	5	10	N/A	60
Aggregate Base Delivery Truck	7	10	N/A	60
Worker Commute	8	10	N/A	60

[a] Asphalt delivery trucks based on 465 CY over 10 days and 10 CY/truck = 465 / 10 / 10 = 4.7
Aggregate base delivery trucks based on 610 CY over 10 days and 10 CY/truck = 610 / 10 / 10 = 6.1

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									
Stake Truck	Delivery	2.06E-03	1.41E-02	1.58E-02	2.68E-05	6.00E-04	5.02E-04	2.78E+00	9.70E-05
Dump Truck	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	1.34E-03	1.15E-03	4.22E+00	1.04E-04
Crew Truck	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	9.07E-05	5.83E-05	1.10E+00	6.71E-05
Asphalt Delivery Truck	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	1.34E-03	1.15E-03	4.22E+00	1.04E-04
Aggregate Base Delivery Truck	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	1.34E-03	1.15E-03	4.22E+00	1.04E-04
Offsite									
Crew Truck	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	9.07E-05	5.83E-05	1.10E+00	6.71E-05
Asphalt Delivery Truck	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	1.34E-03	1.15E-03	4.22E+00	1.04E-04
Aggregate Base Delivery Truck	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	1.34E-03	1.15E-03	4.22E+00	1.04E-04
Worker Commute	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	9.07E-05	5.83E-05	1.10E+00	6.71E-05

a From Table 60 or Table 61

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						
Stake Truck	0.00	0.01	0.01	0.00	0.00	0.00
Dump Truck	0.00	0.00	0.01	0.00	0.00	0.00
Crew Truck	0.00	0.01	0.00	0.00	0.00	0.00
Asphalt Delivery Truck	0.00	0.00	0.01	0.00	0.00	0.00
Aggregate Base Delivery Truck	0.00	0.01	0.02	0.00	0.00	0.00
Onsite Total	**0.01**	**0.03**	**0.06**	**0.00**	**0.00**	**0.00**
Offsite						
Crew Truck	0.00	0.00	0.00	0.00	0.00	0.00
Asphalt Delivery Truck	0.68	2.80	8.23	0.01	0.40	0.34
Aggregate Base Delivery Truck	0.95	3.91	11.52	0.02	0.56	0.48
Worker Commute	0.36	3.40	0.34	0.01	0.04	0.03
Offsite Total	**1.99**	**10.12**	**20.09**	**0.03**	**1.01**	**0.85**
Total	**1.99**	**10.15**	**20.15**	**0.03**	**1.01**	**0.86**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Table 19
Substation Construction Emissions
Asphalting

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			
Stake Truck	0.0	0.0	0.0
Dump Truck	0.0	0.0	0.0
Crew Truck	0.0	0.0	0.0
Asphalt Delivery Truck	0.0	0.0	0.0
Aggregate Base Delivery Truck	0.0	0.0	0.0
Onsite Total	**0.0**	**0.0**	**0.0**
Offsite			
Crew Truck	0.0	0.0	0.0
Asphalt Delivery Truck	5.7	0.0	5.7
Aggregate Base Delivery Truck	8.0	0.0	8.0
Worker Commute	2.4	0.0	2.4
Offsite Total	**16.2**	**0.0**	**16.2**
Total	**16.2**	**0.0**	**16.2**

[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 60 and Table 61

[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							
Stake Truck	1	Unpaved	0.5	0.922	0.092	0.46	0.05
Dump Truck	1	Unpaved	0.5	0.922	0.092	0.46	0.05
Crew Truck	2	Unpaved	0.5	0.532	0.053	0.53	0.05
Asphalt Delivery Truck	5	Unpaved	0.1	0.922	0.092	0.46	0.05
Aggregate Base Delivery Truck	7	Unpaved	0.1	0.922	0.092	0.65	0.06
Onsite Total						**2.56**	**0.26**
Offsite							
Crew Truck	2	Paved	0.2	0.001	0.000	0.00	0.00
Asphalt Delivery Truck	5	Paved	60	0.001	0.000	0.28	0.00
Aggregate Base Delivery Truck	7	Paved	60	0.001	0.000	0.39	0.00
Worker Commute	8	Paved	60	0.001	0.000	0.44	0.00
Offsite Total						**1.11**	**0.00**
Total						**3.67**	**0.26**

a From Table 62
[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		2.75E-03	5.72E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		1.756	0.365	0.00	0.00
Storage Pile Wind Erosion	acres		6.6	1.37	0.00	0.00
Total					**0.00**	**0.00**

a From Table 63
[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Asphaltic Paving VOC Emissions

Area Paved (acre/day)[a]	Emission Factor (lb/acre)[b]	VOC (lb/day)[c]
0.09	2.62	0.2

[a] Assumed 37,600 sq. ft. of area paved in 10 days
[b] From URBEMISS 2007 User's Guide, Appendix A, http://www.urbemis.com/software/download.html
[c] Emissions [lb/day] = Emission factor [lb/acre] x Area paved [acre/day]

Table 20
Substation Construction Emissions
Landscaping

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	0.27	0.96	0.87	0.00	0.07	0.07	1.2
Onsite Motor Vehicle Exhaust	0.00	0.01	0.03	0.00	0.00	0.00	0.1
Onsite Motor Vehicle Fugitive PM	--	--	--	--	1.11	0.11	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
Onsite Total	**0.27**	**0.97**	**0.90**	**0.00**	**1.18**	**0.18**	**1.3**
Offsite Motor Vehicle Exhaust	1.04	6.20	8.57	0.02	0.44	0.37	24.4
Offsite Motor Vehicle Fugitive PM	--	--	--	--	0.72	0.00	
Offsite Total	**1.04**	**6.20**	**8.57**	**0.02**	**1.16**	**0.37**	**24.4**
Total	**1.31**	**7.17**	**9.47**	**0.02**	**2.34**	**0.55**	**25.7**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Tractor	45	1	30	3

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
Tractor	45	0.089	0.320	0.289	0.000	0.024	0.022	30.347	0.008	Tractors/Loaders/Backhoes

a From Table 59

[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]
Tractor	0.27	0.96	0.87	0.00	0.07	0.07
Total	**0.27**	**0.96**	**0.87**	**0.00**	**0.07**	**0.07**

[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]
Tractor	1.2	0.0	1.2
Total	**1.2**	**0.0**	**1.2**

[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 59

[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.
Onsite				
Dump Truck	1	30	N/A	0.2
Crushed Rock Delivery Truck	5	30	N/A	0.2
Offsite				
Crushed Rock Delivery Truck	5	30	N/A	60
Worker Commute	8	30	N/A	60

[a] Crushed rock delivery trucks based on 1,230 CY over 30 days and 10 CY/truck = 1,230 / 30 / 10 = 4.1

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									
Dump Truck	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	1.34E-03	1.15E-03	4.22E+00	1.04E-04
Crushed Rock Delivery Truck	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	1.34E-03	1.15E-03	4.22E+00	1.04E-04
Offsite									
Crushed Rock Delivery Truck	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	1.34E-03	1.15E-03	4.22E+00	1.04E-04
Worker Commute	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	9.07E-05	5.83E-05	1.10E+00	6.71E-05

a From Table 60 or Table 61

Table 20
Substation Construction Emissions
Landscaping

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						
Dump Truck	0.00	0.00	0.01	0.00	0.00	0.00
Crushed Rock Delivery Truck	0.00	0.01	0.03	0.00	0.00	0.00
Onsite Total	**0.00**	**0.01**	**0.03**	**0.00**	**0.00**	**0.00**
Offsite						
Crushed Rock Delivery Truck	0.68	2.80	8.23	0.01	0.40	0.34
Worker Commute	0.36	3.40	0.34	0.01	0.04	0.03
Offsite Total	**1.04**	**6.20**	**8.57**	**0.02**	**0.44**	**0.37**
Total	**1.04**	**6.21**	**8.60**	**0.02**	**0.45**	**0.37**

[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			
Dump Truck	0.0	0.0	0.0
Crushed Rock Delivery Truck	0.1	0.0	0.1
Onsite Total	**0.1**	**0.0**	**0.1**
Offsite			
Crushed Rock Delivery Truck	17.2	0.0	17.2
Worker Commute	7.2	0.0	7.2
Offsite Total	**24.4**	**0.0**	**24.4**
Total	**24.5**	**0.0**	**24.5**

[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 60 and Table 61

[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							
Dump Truck	1	Unpaved	0.2	0.922	0.092	0.18	0.02
Crushed Rock Delivery Truck	5	Unpaved	0.2	0.922	0.092	0.92	0.09
Onsite Total						**1.11**	**0.11**
Offsite							
Crushed Rock Delivery Truck	5	Paved	60	0.001	0.000	0.28	0.00
Worker Commute	8	Paved	60	0.001	0.000	0.44	0.00
Offsite Total						**0.72**	**0.00**
Total						**1.83**	**0.11**

a From Table 62
[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		2.75E-03	5.72E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		1.756	0.365	0.00	0.00
Storage Pile Wind Erosion	acres		6.6	1.37	0.00	0.00
Total					**0.00**	**0.00**

a From Table 63
[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 21
Alder Substation Modification Construction Emissions
Fencing

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	0.17	1.10	1.31	0.00	0.10	0.09	0.2
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	**0.17**	**1.10**	**1.31**	**0.00**	**0.10**	**0.09**	**0.2**
Offsite Motor Vehicle Exhaust	0.12	1.11	0.28	0.00	0.02	0.01	0.2
Offsite Motor Vehicle Fugitive PM	--	--	--	--	0.13	0.00	
Offsite Total	**0.12**	**1.11**	**0.28**	**0.00**	**0.15**	**0.01**	**0.2**
Total	**0.30**	**2.21**	**1.59**	**0.00**	**0.25**	**0.10**	**0.5**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Bobcat	75	1	3	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
Bobcat	75	0.043	0.275	0.327	0.001	0.024	0.022	42.762	0.004	Skid Steer Loaders

a From Table 59

[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]
Bobcat	0.17	1.10	1.31	0.00	0.10	0.09
Total	**0.17**	**1.10**	**1.31**	**0.00**	**0.10**	**0.09**

[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]
Bobcat	0.2	0.0	0.2
Total	**0.2**	**0.0**	**0.2**

[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 59

[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				
Flatbed Truck	1	3	N/A	0.2
Crewcab Truck	1	3	N/A	0.2
Offsite				
Flatbed Truck	1	3	N/A	12
Crewcab Truck	1	3	N/A	12
Worker Commute	2	3	N/A	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]
Onsite									
Flatbed Truck	Delivery	2.06E-03	1.41E-02	1.58E-02	2.68E-05	6.00E-04	5.02E-04	2.78E+00	9.70E-05
Crewcab Truck	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	9.07E-05	5.83E-05	1.10E+00	6.71E-05
Offsite									
Flatbed Truck	Delivery	2.06E-03	1.41E-02	1.58E-02	2.68E-05	6.00E-04	5.02E-04	2.78E+00	9.70E-05
Crewcab Truck	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	9.07E-05	5.83E-05	1.10E+00	6.71E-05
Worker Commute	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	9.07E-05	5.83E-05	1.10E+00	6.71E-05

a From Table 60 or Table 61

Table 21
Alder Substation Modification Construction Emissions
Fencing

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						
Flatbed Truck	0.00	0.00	0.00	0.00	0.00	0.00
Crewcab Truck	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						
Flatbed Truck	0.02	0.17	0.19	0.00	0.01	0.01
Crewcab Truck	0.01	0.09	0.01	0.00	0.00	0.00
Worker Commute	0.09	0.85	0.09	0.00	0.01	0.01
Offsite Total	**0.12**	**1.11**	**0.28**	**0.00**	**0.02**	**0.01**
Total	**0.12**	**1.11**	**0.29**	**0.00**	**0.02**	**0.01**

[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			
Flatbed Truck	0.0	0.0	0.0
Crewcab Truck	0.0	0.0	0.0
Onsite Total	**0.0**	**0.0**	**0.0**
Offsite			
Flatbed Truck	0.0	0.0	0.0
Crewcab Truck	0.0	0.0	0.0
Worker Commute	0.2	0.0	0.2
Offsite Total	**0.2**	**0.0**	**0.2**
Total	**0.2**	**0.0**	**0.2**

[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 60 and Table 61

[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							
Flatbed Truck	1	Paved	0.2	0.001	0.000	0.00	0.00
Crewcab Truck	1	Paved	0.2	0.001	0.000	0.00	0.00
Onsite Total						**0.00**	**0.00**
Offsite							
Flatbed Truck	1	Paved	12	0.001	0.000	0.01	0.00
Crewcab Truck	1	Paved	12	0.001	0.000	0.01	0.00
Worker Commute	2	Paved	60	0.001	0.000	0.11	0.00
Offsite Total						**0.13**	**0.00**
Total						**0.13**	**0.00**

a From Table 62
[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		2.75E-03	5.72E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		1.756	0.365	0.00	0.00
Storage Pile Wind Erosion	acres		6.6	1.37	0.00	0.00
Total					**0.00**	**0.00**

a From Table 63
[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 22
Alder Substation Modification Construction Emissions
Civil

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	1.54	9.69	11.71	0.02	0.80	0.74	10.5
Onsite Motor Vehicle Exhaust	0.00	0.01	0.02	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	**1.54**	**9.70**	**11.73**	**0.02**	**0.80**	**0.74**	**10.5**
Offsite Motor Vehicle Exhaust	0.48	3.00	3.75	0.01	0.20	0.16	5.6
Offsite Motor Vehicle Fugitive PM	--	--	--	--	0.35	0.00	
Offsite Total	**0.48**	**3.00**	**3.75**	**0.01**	**0.55**	**0.16**	**5.6**
Total	**2.03**	**12.70**	**15.47**	**0.03**	**1.35**	**0.90**	**16.1**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Excavator	152	1	15	4
Foundation Auger	79	1	15	4
Backhoe	79	1	15	4
Skip Loader	75	1	15	4
Bobcat Skid Steer	75	2	15	4
Forklift	83	1	15	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
Excavator	152	0.121	0.667	0.893	0.001	0.051	0.047	112.222	0.011	Excavators
Foundation Auger	79	0.045	0.470	0.458	0.001	0.026	0.024	77.122	0.004	Bore/Drill Rigs
Backhoe	79	0.069	0.353	0.456	0.001	0.038	0.035	51.728	0.006	Tractors/Loaders/Backhoes
Skip Loader	75	0.043	0.275	0.327	0.001	0.024	0.022	42.762	0.004	Skid Steer Loaders
Bobcat Skid Steer	75	0.043	0.275	0.327	0.001	0.024	0.022	42.762	0.004	Skid Steer Loaders
Forklift	83	0.044	0.218	0.279	0.000	0.024	0.022	31.225	0.004	Forklifts

a From Table 59
[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]
Excavator	0.48	2.67	3.57	0.01	0.20	0.19
Foundation Auger	0.18	1.88	1.83	0.00	0.10	0.09
Backhoe	0.28	1.41	1.83	0.00	0.15	0.14
Skip Loader	0.17	1.10	1.31	0.00	0.10	0.09
Bobcat Skid Steer	0.34	2.20	2.61	0.00	0.20	0.18
Forklift	0.09	0.44	0.56	0.00	0.05	0.04
Total	**1.54**	**9.69**	**11.71**	**0.02**	**0.80**	**0.74**

[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]
Excavator	3.1	0.0	3.1
Foundation Auger	2.1	0.0	2.1
Backhoe	1.4	0.0	1.4
Skip Loader	1.2	0.0	1.2
Bobcat Skid Steer	2.3	0.0	2.3
Forklift	0.4	0.0	0.4
Total	**10.5**	**0.0**	**10.5**

[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 59
[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 22
Alder Substation Modification Construction Emissions
Civil

Motor Vehicle Usage

Vehicle	Number	Days Used	Hours Used/ Day	Miles/ Day/ Veh.
Onsite				
Dump Truck	1	15	N/A	0.2
Water Truck	1	15	N/A	0.2
Tool Truck	1	15	N/A	0.2
Concrete Truck	1	15	N/A	0.2
Offsite				
Dump Truck	1	15	N/A	60
Water Truck	1	15	N/A	10
Concrete Truck	1	15	N/A	60
Tool Truck	1	15	N/A	12
Worker Commute	4	15	N/A	60

[a] Concrete trucks based on 150 CY over 5 days and 10 CY/truck = 150 / 5 / 10 = 3

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									
Dump Truck	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	1.34E-03	1.15E-03	4.22E+00	1.04E-04
Water Truck	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	1.34E-03	1.15E-03	4.22E+00	1.04E-04
Tool Truck	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	9.07E-05	5.83E-05	1.10E+00	6.71E-05
Concrete Truck	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	1.34E-03	1.15E-03	4.22E+00	1.04E-04
Offsite									
Dump Truck	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	1.34E-03	1.15E-03	4.22E+00	1.04E-04
Water Truck	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	1.34E-03	1.15E-03	4.22E+00	1.04E-04
Concrete Truck	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	1.34E-03	1.15E-03	4.22E+00	1.04E-04
Tool Truck	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	9.07E-05	5.83E-05	1.10E+00	6.71E-05
Worker Commute	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	9.07E-05	5.83E-05	1.10E+00	6.71E-05

a From Table 60 or Table 61

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						
Dump Truck	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
Tool Truck	0.00	0.00	0.00	0.00	0.00	0.00
Concrete Truck	0.00	0.00	0.01	0.00	0.00	0.00
Onsite Total	**0.00**	**0.01**	**0.02**	**0.00**	**0.00**	**0.00**
Offsite						
Dump Truck	0.14	0.56	1.65	0.00	0.08	0.07
Water Truck	0.02	0.09	0.27	0.00	0.01	0.01
Concrete Truck	0.14	0.56	1.65	0.00	0.08	0.07
Tool Truck	0.01	0.09	0.01	0.00	0.00	0.00
Worker Commute	0.18	1.70	0.17	0.00	0.02	0.01
Offsite Total	**0.48**	**3.00**	**3.75**	**0.01**	**0.20**	**0.16**
Total	**0.48**	**3.01**	**3.76**	**0.01**	**0.20**	**0.16**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Table 22
Alder Substation Modification Construction Emissions
Civil

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			
Dump Truck	0.0	0.0	0.0
Water Truck	0.0	0.0	0.0
Tool Truck	0.0	0.0	0.0
Concrete Truck	0.0	0.0	0.0
Onsite Total	**0.0**	**0.0**	**0.0**
Offsite			
Dump Truck	1.7	0.0	1.7
Water Truck	0.3	0.0	0.3
Concrete Truck	1.7	0.0	1.7
Tool Truck	0.1	0.0	0.1
Worker Commute	1.8	0.0	1.8
Offsite Total	**5.6**	**0.0**	**5.6**
Total	**5.6**	**0.0**	**5.6**

[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 60 and Table 61

[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							
Dump Truck	1	Paved	0.2	0.001	0.000	0.00	0.00
Water Truck	1	Paved	0.2	0.001	0.000	0.00	0.00
Tool Truck	1	Paved	0.2	0.001	0.000	0.00	0.00
Concrete Truck	1	Paved	0.2	0.001	0.000	0.00	0.00
Onsite Total						**0.00**	**0.00**
Offsite							
Dump Truck	1	Paved	60	0.001	0.000	0.06	0.00
Water Truck	1	Paved	10	0.001	0.000	0.01	0.00
Concrete Truck	1	Paved	60	0.001	0.000	0.06	0.00
Tool Truck	1	Paved	12	0.001	0.000	0.01	0.00
Worker Commute	4	Paved	60	0.001	0.000	0.22	0.00
Offsite Total						**0.35**	**0.00**
Total						**0.35**	**0.00**

a From Table 62
[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		2.75E-03	5.72E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		1.756	0.365	0.00	0.00
Storage Pile Wind Erosion	acres		6.6	1.37	0.00	0.00
Total					**0.00**	**0.00**

a From Table 63
[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 23
Alder Substation Modification Construction Emissions
Electrical

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	0.41	8.02	4.09	0.01	0.16	0.14	3.9
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	**0.41**	**8.02**	**4.09**	**0.01**	**0.16**	**0.14**	**3.9**
Offsite Motor Vehicle Exhaust	0.18	1.70	0.17	0.00	0.02	0.01	1.8
Offsite Motor Vehicle Fugitive PM	--	--	--	--	0.22	0.00	
Offsite Total	**0.18**	**1.70**	**0.17**	**0.00**	**0.24**	**0.01**	**1.8**
Total	**0.59**	**9.72**	**4.26**	**0.01**	**0.40**	**0.16**	**5.7**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Scissor Lift	25	1	15	3
Manlift	25	2	15	3
Reach Manlift	25	1	15	3
15-Ton Crane	125	1	15	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
Scissor Lift	25	0.008	2.211	0.061	0.000	0.007	0.006	13.000	0.070	Aerial Lifts-Propane
Manlift	25	0.017	0.050	0.094	0.000	0.005	0.005	10.960	0.002	Aerial Lifts
Reach Manlift	25	0.017	0.050	0.094	0.000	0.005	0.005	10.960	0.002	Aerial Lifts
15-Ton Crane	125	0.119	0.467	1.531	0.002	0.045	0.041	212.856	0.011	Aerial Lifts

a From Table 59

[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]
Scissor Lift	0.02	6.63	0.18	0.00	0.02	0.02
Manlift	0.10	0.30	0.56	0.00	0.03	0.03
Reach Manlift	0.05	0.15	0.28	0.00	0.02	0.01
15-Ton Crane	0.24	0.93	3.06	0.00	0.09	0.08
Total	**0.41**	**8.02**	**4.09**	**0.01**	**0.16**	**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]
Scissor Lift	0.3	0.0	0.3
Manlift	0.4	0.0	0.4
Reach Manlift	0.2	0.0	0.2
15-Ton Crane	2.9	0.0	2.9
Total	**3.8**	**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 59

[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				
Offsite				
Worker Commute	4	15	N/A	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]
Onsite									
None									
Offsite									
Worker Commute	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	9.07E-05	5.83E-05	1.10E+00	6.71E-05

a From Table 60 or Table 61

Table 23
Alder Substation Modification Construction Emissions
Electrical

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						
Worker Commute	0.18	1.70	0.17	0.00	0.02	0.01
Offsite Total	**0.18**	**1.70**	**0.17**	**0.00**	**0.02**	**0.01**
Total	**0.18**	**1.70**	**0.17**	**0.00**	**0.02**	**0.01**

[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			
Worker Commute	1.8	0.0	1.8
Offsite Total	**1.8**	**0.0**	**1.8**
Total	**1.8**	**0.0**	**1.8**

[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 60 and Table 61

[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							
None						0.00	0.00
Onsite Total						**0.00**	**0.00**
Offsite							
Worker Commute	4	Paved	60	0.001	0.000	0.22	0.00
Offsite Total						**0.22**	**0.00**
Total						**0.22**	**0.00**

a From Table 62
[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		2.75E-03	5.72E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		1.756	0.365	0.00	0.00
Storage Pile Wind Erosion	acres		6.6	1.37	0.00	0.00
Total					**0.00**	**0.00**

a From Table 63
[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 24
Alder Substation Modification Construction Emissions
Wiring

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	0.09	0.85	0.09	0.00	0.01	0.01	0.3
Offsite Motor Vehicle Fugitive PM	--	--	--	--	0.11	0.00	
Offsite Total	**0.09**	**0.85**	**0.09**	**0.00**	**0.12**	**0.01**	**0.3**
Total	**0.09**	**0.85**	**0.09**	**0.00**	**0.12**	**0.01**	**0.3**

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]	Category
None	0	0.145	0.605	1.166	0.001	0.059	0.055	132.743	0.013	None

a From Table 59

[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 59

[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					
Offsite					
Worker Commute	2	5	N/A	60	based on requirement of 6 people with an avg dist of 30 miles oneway commute

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									
Worker Commute	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	9.07E-05	5.83E-05	1.10E+00	6.71E-05

a From Table 60 or Table 61

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						
Worker Commute	0.09	0.85	0.09	0.00	0.01	0.01
Offsite Total	**0.09**	**0.85**	**0.09**	**0.00**	**0.01**	**0.01**
Total	**0.09**	**0.85**	**0.09**	**0.00**	**0.01**	**0.01**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Table 24
Alder Substation Modification Construction Emissions
Wiring

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			
Worker Commute	0.3	0.0	0.3
Offsite Total	**0.3**	**0.0**	**0.3**
Total	**0.3**	**0.0**	**0.3**

[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 60 and Table 61

[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							
None						0.00	0.00
Onsite Total						**0.00**	**0.00**
Offsite							
Worker Commute	2	Paved	60	0.001	0.000	0.11	0.00
Offsite Total						**0.11**	**0.00**
Total						**0.11**	**0.00**

a From Table 62
[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		2.75E-03	5.72E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		1.756	0.365	0.00	0.00
Storage Pile Wind Erosion	acres		6.6	1.37	0.00	0.00
Total					**0.00**	**0.00**

a From Table 63
[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 25
Alder Substation Modification Construction Emissions
Maintenance Crew Equipment Check

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	0.01	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**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.0**
Offsite Motor Vehicle Exhaust	0.11	1.02	0.10	0.00	0.01	0.01	0.4
Offsite Motor Vehicle Fugitive PM	--	--	--	--	0.13	0.00	
Offsite Total	**0.11**	**1.02**	**0.10**	**0.00**	**0.15**	**0.01**	**0.4**
Total	**0.11**	**1.03**	**0.10**	**0.00**	**0.15**	**0.01**	**0.4**

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]	Category
None										

a From Table 59

[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 59

[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				
Maintenance Truck	2	5	N/A	0.5
Offsite				
Maintenance Truck	2	5	N/A	12
Worker Commute	2	5	N/A	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]
Onsite									
Maintenance Truck	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	9.07E-05	5.83E-05	1.10E+00	6.71E-05
Offsite									
Maintenance Truck	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	9.07E-05	5.83E-05	1.10E+00	6.71E-05
Worker Commute	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	9.07E-05	5.83E-05	1.10E+00	6.71E-05

a From Table 60 or Table 61

Table 25
Alder Substation Modification Construction Emissions
Maintenance Crew Equipment Check

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						
Maintenance Truck	0.00	0.01	0.00	0.00	0.00	0.00
Onsite Total	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**
Offsite						
Maintenance Truck	0.02	0.17	0.02	0.00	0.00	0.00
Worker Commute	0.09	0.85	0.09	0.00	0.01	0.01
Offsite Total	**0.11**	**1.02**	**0.10**	**0.00**	**0.01**	**0.01**
Total	**0.11**	**1.03**	**0.10**	**0.00**	**0.01**	**0.01**

[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			
Maintenance Truck	0.0	0.0	0.0
Onsite Total	**0.0**	**0.0**	**0.0**
Offsite			
Maintenance Truck	0.1	0.0	0.1
Worker Commute	0.3	0.0	0.3
Offsite Total	**0.4**	**0.0**	**0.4**
Total	**0.4**	**0.0**	**0.4**

[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 60 and Table 61
[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							
Maintenance Truck	2	Paved	0.5	0.001	0.000	0.00	0.00
Onsite Total						**0.00**	**0.00**
Offsite							
Maintenance Truck	2	Paved	12	0.001	0.000	0.02	0.00
Worker Commute	2	Paved	60	0.001	0.000	0.11	0.00
Offsite Total						**0.13**	**0.00**
Total						**0.13**	**0.00**

a From Table 62
[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		2.75E-03	5.72E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		1.756	0.365	0.00	0.00
Storage Pile Wind Erosion	acres		6.6	1.37	0.00	0.00
Total					**0.00**	**0.00**

a From Table 63
[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 26
Alder Substation Modification Construction Emissions
Testing

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	0.10	0.94	0.09	0.00	0.01	0.01	0.7
Offsite Motor Vehicle Fugitive PM	--	--	--	--	0.12	0.00	
Offsite Total	**0.10**	**0.94**	**0.09**	**0.00**	**0.13**	**0.01**	**0.7**
Total	**0.10**	**0.94**	**0.09**	**0.00**	**0.13**	**0.01**	**0.7**

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]	Category
None										

a From Table 59

[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 59

[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				
Crew Truck	1	10	N/A	0.1
Offsite				
Crew Truck	1	10	N/A	12
Worker Commute	2	10	N/A	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]
Onsite									
Crew Truck	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	9.07E-05	5.83E-05	1.10E+00	6.71E-05
Offsite									
Crew Truck	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	9.07E-05	5.83E-05	1.10E+00	6.71E-05
Worker Commute	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	9.07E-05	5.83E-05	1.10E+00	6.71E-05

a From Table 60 or Table 61

Table 26
Alder Substation Modification Construction Emissions
Testing

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						
Crew Truck	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	0.01	0.09	0.01	0.00	0.00	0.00
Worker Commute	0.09	0.85	0.09	0.00	0.01	0.01
Offsite Total	**0.10**	**0.94**	**0.09**	**0.00**	**0.01**	**0.01**
Total	**0.10**	**0.94**	**0.09**	**0.00**	**0.01**	**0.01**

[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			
Crew Truck	0.0	0.0	0.0
Onsite Total	**0.0**	**0.0**	**0.0**
Offsite			
Crew Truck	0.1	0.0	0.1
Worker Commute	0.6	0.0	0.6
Offsite Total	**0.7**	**0.0**	**0.7**
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 60 and Table 61

[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							
Crew Truck	1	Paved	0.1	0.001	0.000	0.00	0.00
Onsite Total						**0.00**	**0.00**
Offsite							
Crew Truck	1	Paved	12	0.001	0.000	0.01	0.00
Worker Commute	2	Paved	60	0.001	0.000	0.11	0.00
Offsite Total						**0.12**	**0.00**
Total						**0.12**	**0.00**

a From Table 62
[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		2.75E-03	5.72E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		1.756	0.365	0.00	0.00
Storage Pile Wind Erosion	acres		6.6	1.37	0.00	0.00
Total					**0.00**	**0.00**

a From Table 63
[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 27
Alder Substation Modification Construction Emissions
Asphalting

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	2.35	7.94	9.74	0.01	0.70	0.65	0.4
Onsite Motor Vehicle Exhaust	0.00	0.00	0.01	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.38	0.04	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
Onsite Total	**2.36**	**7.95**	**9.74**	**0.01**	**1.09**	**0.69**	**0.4**
Offsite Motor Vehicle Exhaust	0.38	2.86	1.88	0.01	0.11	0.09	0.3
Offsite Motor Vehicle Fugitive PM	--	--	--	--	0.35	0.00	
Offsite Total	**0.38**	**2.86**	**1.88**	**0.01**	**0.46**	**0.09**	**0.3**
Total	**2.73**	**10.80**	**11.62**	**0.02**	**1.55**	**0.77**	**0.7**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Paving Roller	46	2	1	4
Asphalt Paver	152	1	1	4
Tractor	45	1	1	4
Asphalt Curb Machine	35	1	1	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
Paving Roller	46	0.102	0.291	0.258	0.000	0.024	0.023	25.983	0.009	Rollers
Asphalt Paver	152	0.178	0.778	1.377	0.001	0.077	0.071	128.285	0.016	Pavers
Tractor	45	0.089	0.320	0.289	0.000	0.024	0.022	30.347	0.008	Tractors/Loaders/Backhoes
Asphalt Curb Machine	35	0.117	0.305	0.251	0.000	0.026	0.024	23.927	0.011	Paving Equipment

a From Table 59

[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]
Paving Roller	0.82	2.33	2.07	0.00	0.20	0.18
Asphalt Paver	0.71	3.11	5.51	0.01	0.31	0.28
Tractor	0.36	1.28	1.16	0.00	0.10	0.09
Asphalt Curb Machine	0.47	1.22	1.01	0.00	0.11	0.10
Total	**2.35**	**7.94**	**9.74**	**0.01**	**0.70**	**0.65**

[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]
Paving Roller	0.1	0.0	0.1
Asphalt Paver	0.2	0.0	0.2
Tractor	0.1	0.0	0.1
Asphalt Curb Machine	0.0	0.0	0.0
Total	**0.4**	**0.0**	**0.4**

[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 59

[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 27
Alder Substation Modification Construction Emissions
Asphalting

Motor Vehicle Usage

Vehicle	Number[b]	Days Used	Hours Used/ Day	Miles/ Day/ Veh.
Onsite				
Stake Truck	1	1	N/A	0.1
Dump Truck	1	1	N/A	0.1
Crew Truck	2	1	N/A	0.1
Asphalt Delivery Truck	1	1	N/A	0.1
Offsite				
Crew Truck	2	1	N/A	12
Asphalt Delivery Truck	1	1	N/A	60
Worker Commute	5	1	N/A	60

[b] Asphalt delivery trucks based on 465 CY over 10 days and 10 CY/truck = 465 / 10 / 10 = 4.65~5
Aggregate base delivery trucks based on 610 CY over 10 days and 10 CY/truck = 610 / 10 / 10 = 6.1

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									
Stake Truck	Delivery	2.06E-03	1.41E-02	1.58E-02	2.68E-05	6.00E-04	5.02E-04	2.78E+00	9.70E-05
Dump Truck	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	1.34E-03	1.15E-03	4.22E+00	1.04E-04
Crew Truck	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	9.07E-05	5.83E-05	1.10E+00	6.71E-05
Asphalt Delivery Truck	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	1.34E-03	1.15E-03	4.22E+00	1.04E-04
Offsite									
Crew Truck	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	9.07E-05	5.83E-05	1.10E+00	6.71E-05
Asphalt Delivery Truck	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	1.34E-03	1.15E-03	4.22E+00	1.04E-04
Worker Commute	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	9.07E-05	5.83E-05	1.10E+00	6.71E-05

a From Table 60 or Table 61

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						
Stake Truck	0.00	0.00	0.00	0.00	0.00	0.00
Dump Truck	0.00	0.00	0.00	0.00	0.00	0.00
Crew Truck	0.00	0.00	0.00	0.00	0.00	0.00
Asphalt Delivery Truck	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total	**0.00**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**
Offsite						
Crew Truck	0.02	0.17	0.02	0.00	0.00	0.00
Asphalt Delivery Truck	0.14	0.56	1.65	0.00	0.08	0.07
Worker Commute	0.22	2.13	0.21	0.00	0.03	0.02
Offsite Total	**0.38**	**2.86**	**1.88**	**0.01**	**0.11**	**0.09**
Total	**0.38**	**2.86**	**1.88**	**0.01**	**0.11**	**0.09**

[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			
Stake Truck	0.0	0.0	0.0
Dump Truck	0.0	0.0	0.0
Crew Truck	0.0	0.0	0.0
Asphalt Delivery Truck	0.0	0.0	0.0
Onsite Total	**0.0**	**0.0**	**0.0**
Offsite			
Crew Truck	0.0	0.0	0.0
Asphalt Delivery Truck	0.1	0.0	0.1
Worker Commute	0.1	0.0	0.1
Offsite Total	**0.3**	**0.0**	**0.3**
Total	**0.3**	**0.0**	**0.3**

[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 60 and Table 61

[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 27
Alder Substation Modification Construction Emissions
Asphalting

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							
Stake Truck	1	Unpaved	0.1	0.922	0.092	0.09	0.01
Dump Truck	1	Unpaved	0.1	0.922	0.092	0.09	0.01
Crew Truck	2	Unpaved	0.1	0.532	0.053	0.11	0.01
Asphalt Delivery Truck	1	Unpaved	0.1	0.922	0.092	0.09	0.01
Onsite Total						**0.38**	**0.04**
Offsite							
Crew Truck	2	Paved	12	0.001	0.000	0.02	0.00
Asphalt Delivery Truck	1	Paved	60	0.001	0.000	0.06	0.00
Worker Commute	5	Paved	60	0.001	0.000	0.28	0.00
Offsite Total						**0.35**	**0.00**
Total						**0.74**	**0.04**

a From Table 62
[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		2.75E-03	5.72E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		1.756	0.365	0.00	0.00
Storage Pile Wind Erosion	acres		6.6	1.37	0.00	0.00
Total					**0.00**	**0.00**

a From Table 63
[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 28
Etiwanda Substation Modification Construction Emissions
Civil

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	1.54	9.69	11.71	0.02	0.80	0.74	16.2
Onsite Motor Vehicle Exhaust	0.00	0.00	0.01	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	**1.54**	**9.69**	**11.72**	**0.02**	**0.80**	**0.74**	**16.2**
Offsite Motor Vehicle Exhaust	0.48	2.94	3.74	0.01	0.20	0.16	7.4
Offsite Motor Vehicle Fugitive PM	--	--	--	--	0.34	0.00	
Offsite Total	**0.48**	**2.94**	**3.74**	**0.01**	**0.54**	**0.16**	**7.4**
Total	**2.02**	**12.64**	**15.46**	**0.03**	**1.34**	**0.90**	**23.6**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Excavator	152	1	20	4
Foundation Auger	79	1	20	4
Backhoe	79	1	20	4
Skip Loader	75	1	20	4
Bobcat Skid Steer	75	2	20	4
Forklift	83	1	20	2
17-Ton Crane	125			

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
Excavator	152	0.121	0.667	0.893	0.001	0.051	0.047	112.222	0.011	Excavators
Foundation Auger	79	0.045	0.470	0.458	0.001	0.026	0.024	77.122	0.004	Bore/Drill Rigs
Backhoe	79	0.069	0.353	0.456	0.001	0.038	0.035	51.728	0.006	Tractors/Loaders/Backhoes
Skip Loader	75	0.043	0.275	0.327	0.001	0.024	0.022	42.762	0.004	Skid Steer Loaders
Bobcat Skid Steer	75	0.043	0.275	0.327	0.001	0.024	0.022	42.762	0.004	Skid Steer Loaders
Forklift	83	0.044	0.218	0.279	0.000	0.024	0.022	31.225	0.004	Forklifts
17-Ton Crane	125	0.103	0.482	0.777	0.001	0.045	0.041	80.345	0.009	Cranes

a From Table 59

[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]
Excavator	0.48	2.67	3.57	0.01	0.20	0.19
Foundation Auger	0.18	1.88	1.83	0.00	0.10	0.09
Backhoe	0.28	1.41	1.83	0.00	0.15	0.14
Skip Loader	0.17	1.10	1.31	0.00	0.10	0.09
Bobcat Skid Steer	0.34	2.20	2.61	0.00	0.20	0.18
Forklift	0.09	0.44	0.56	0.00	0.05	0.04
17-Ton Crane	0.00	0.00	0.00	0.00	0.00	0.00
Total	**1.54**	**9.69**	**11.71**	**0.02**	**0.80**	**0.74**

[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]
Excavator	4.1	0.0	4.1
Foundation Auger	2.8	0.0	2.8
Backhoe	1.9	0.0	1.9
Skip Loader	1.6	0.0	1.6
Bobcat Skid Steer	5.8	0.0	5.8
Forklift	0.0	0.0	0.0
17-Ton Crane	0.0	0.0	0.0
Total	**16.1**	**0.0**	**16.2**

[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 59

[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
Etiwanda Substation Modification Construction Emissions
Civil

Motor Vehicle Usage

Vehicle	Number	Days Used	Hours Used/ Day	Miles/ Day/ Veh.
Onsite				
Dump Truck	1	20	N/A	0.1
Water Truck	1	20	N/A	0.1
Tool Truck	1	20	N/A	0.2
Concrete Truck	1	20	N/A	0.2
Offsite				
Dump Truck	1	20	N/A	60
Water Truck	1	20	N/A	10
Concrete Truck	1	20	N/A	60
Tool Truck	1	20	N/A	4
Worker Commute	4	20	N/A	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]
Onsite									
Dump Truck	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	1.34E-03	1.15E-03	4.22E+00	1.04E-04
Water Truck	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	1.34E-03	1.15E-03	4.22E+00	1.04E-04
Tool Truck	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	9.07E-05	5.83E-05	1.10E+00	6.71E-05
Concrete Truck	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	9.07E-05	5.83E-05	1.10E+00	6.71E-05
Offsite									
Dump Truck	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	1.34E-03	1.15E-03	4.22E+00	1.04E-04
Water Truck	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	1.34E-03	1.15E-03	4.22E+00	1.04E-04
Concrete Truck	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	1.34E-03	1.15E-03	4.22E+00	1.04E-04
Tool Truck	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	9.07E-05	5.83E-05	1.10E+00	6.71E-05
Worker Commute	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	9.07E-05	5.83E-05	1.10E+00	6.71E-05

a From Table 60 or Table 61

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						
Dump Truck	0.00	0.00	0.00	0.00	0.00	0.00
Water Truck	0.00	0.00	0.00	0.00	0.00	0.00
Tool Truck	0.00	0.00	0.00	0.00	0.00	0.00
Concrete Truck	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total	**0.00**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**
Offsite						
Dump Truck	0.14	0.56	1.65	0.00	0.08	0.07
Water Truck	0.02	0.09	0.27	0.00	0.01	0.01
Concrete Truck	0.14	0.56	1.65	0.00	0.08	0.07
Tool Truck	0.00	0.03	0.00	0.00	0.00	0.00
Worker Commute	0.18	1.70	0.17	0.00	0.02	0.01
Offsite Total	**0.48**	**2.94**	**3.74**	**0.01**	**0.20**	**0.16**
Total	**0.48**	**2.95**	**3.75**	**0.01**	**0.20**	**0.16**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Table 28
Etiwanda Substation Modification Construction Emissions
Civil

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			
Dump Truck	0.0	0.0	0.0
Water Truck	0.0	0.0	0.0
Tool Truck	0.0	0.0	0.0
Concrete Truck	0.0	0.0	0.0
Onsite Total	**0.0**	**0.0**	**0.0**
Offsite			
Dump Truck	2.3	0.0	2.3
Water Truck	0.4	0.0	0.4
Concrete Truck	2.3	0.0	2.3
Tool Truck	0.0	0.0	0.0
Worker Commute	2.4	0.0	2.4
Offsite Total	**7.4**	**0.0**	**7.4**
Total	**7.4**	**0.0**	**7.4**

[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 60 and Table 61

[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							
Dump Truck	1	Paved	0.1	0.001	0.000	0.00	0.00
Water Truck	1	Paved	0.1	0.001	0.000	0.00	0.00
Tool Truck	1	Paved	0.2	0.001	0.000	0.00	0.00
Concrete Truck	1	Paved	0.2	0.001	0.000	0.00	0.00
Onsite Total						**0.00**	**0.00**
Offsite							
Dump Truck	1	Paved	60	0.001	0.000	0.06	0.00
Water Truck	1	Paved	10	0.001	0.000	0.01	0.00
Concrete Truck	1	Paved	60	0.001	0.000	0.06	0.00
Tool Truck	1	Paved	4	0.001	0.000	0.00	0.00
Worker Commute	4	Paved	60	0.001	0.000	0.22	0.00
Offsite Total						**0.34**	**0.00**
Total						**0.35**	**0.00**

a From Table 62
[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		2.75E-03	5.72E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		1.756	0.365	0.00	0.00
Storage Pile Wind Erosion	acres		6.6	1.37	0.00	0.00
Total					**0.00**	**0.00**

a From Table 63
[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 29
Etiwanda Substation Modification Construction Emissions
Electrical

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	0.17	7.08	1.03	0.00	0.07	0.06	1.3
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	--	--	--	--	0.00	0.00	
Onsite Total	**0.17**	**7.09**	**1.03**	**0.00**	**0.07**	**0.06**	**1.3**
Offsite Motor Vehicle Exhaust	0.18	1.76	0.18	0.00	0.02	0.01	2.5
Offsite Motor Vehicle Fugitive PM	--	--	--	--	0.23	0.00	
Offsite Total	**0.18**	**1.76**	**0.18**	**0.00**	**0.25**	**0.01**	**2.5**
Total	**0.36**	**8.85**	**1.20**	**0.00**	**0.32**	**0.08**	**3.8**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Scissor Lift	25	1	20	3
Manlift	25	2	20	3
Reach Manlift	25	1	20	3
15-Ton Crane	125			

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
Scissor Lift	25	0.008	2.211	0.061	0.000	0.007	0.006	13.000	0.070	Aerial Lifts-Propane
Manlift	25	0.017	0.050	0.094	0.000	0.005	0.005	10.960	0.002	Aerial Lifts
Reach Manlift	25	0.017	0.050	0.094	0.000	0.005	0.005	10.960	0.002	Aerial Lifts
15-Ton Crane	125	0.103	0.482	0.777	0.001	0.045	0.041	80.345	0.009	Cranes

a From Table 59

[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]
Scissor Lift	0.02	6.63	0.18	0.00	0.02	0.02
Manlift	0.10	0.30	0.56	0.00	0.03	0.03
Reach Manlift	0.05	0.15	0.28	0.00	0.02	0.01
15-Ton Crane	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.17**	**7.08**	**1.03**	**0.00**	**0.07**	**0.06**

[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]
Scissor Lift	0.4	0.0	0.4
Manlift	0.6	0.0	0.6
Reach Manlift	0.3	0.0	0.3
15-Ton Crane	0.0	0.0	0.0
Total	**1.2**	**0.0**	**1.3**

[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 59

[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				
Crew Truck	2	20	N/A	0.2
Offsite				
Crew Truck	2	20	N/A	4
Worker Commute	4	20	N/A	60

Table 29
Etiwanda Substation Modification Construction Emissions
Electrical

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									
Crew Truck	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	9.07E-05	5.83E-05	1.10E+00	6.71E-05
Offsite									
Crew Truck	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	9.07E-05	5.83E-05	1.10E+00	6.71E-05
Worker Commute	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	9.07E-05	5.83E-05	1.10E+00	6.71E-05

a From Table 60 or Table 61

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						
Crew Truck	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	0.01	0.06	0.01	0.00	0.00	0.00
Worker Commute	0.18	1.70	0.17	0.00	0.02	0.01
Offsite Total	**0.18**	**1.76**	**0.18**	**0.00**	**0.02**	**0.01**
Total	**0.19**	**1.76**	**0.18**	**0.00**	**0.02**	**0.01**

[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			
Crew Truck	0.0	0.0	0.0
Onsite Total	**0.0**	**0.0**	**0.0**
Offsite			
Crew Truck	0.1	0.0	0.1
Worker Commute	2.4	0.0	2.4
Offsite Total	**2.5**	**0.0**	**2.5**
Total	**2.5**	**0.0**	**2.5**

[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 60 and Table 61

[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							
Crew Truck	2	Paved	0.2	0.001	0.000	0.00	0.00
Onsite Total						**0.00**	**0.00**
Offsite							
Crew Truck	2	Paved	4	0.001	0.000	0.01	0.00
Worker Commute	4	Paved	60	0.001	0.000	0.22	0.00
Offsite Total						**0.23**	**0.00**
Total						**0.23**	**0.00**

a From Table 62
[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		2.75E-03	5.72E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		1.756	0.365	0.00	0.00
Storage Pile Wind Erosion	acres		6.6	1.37	0.00	0.00
Total					**0.00**	**0.00**

a From Table 63
[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 30
Etiwanda Substation Modification Construction Emissions
Wiring

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	0.09	0.85	0.09	0.00	0.01	0.01	0.6
Offsite Motor Vehicle Fugitive PM	--	--	--	--	0.11	0.00	
Offsite Total	**0.09**	**0.85**	**0.09**	**0.00**	**0.12**	**0.01**	**0.6**
Total	**0.09**	**0.85**	**0.09**	**0.00**	**0.12**	**0.01**	**0.6**

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]	Category
None										

a From Table 59

[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 59

[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				
Offsite				
Worker Commute	2	10	N/A	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]
Onsite									
None									
Offsite									
Worker Commute	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	9.07E-05	5.83E-05	1.10E+00	6.71E-05

a From Table 60 or Table 61

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						
Worker Commute	0.09	0.85	0.09	0.00	0.01	0.01
Offsite Total	**0.09**	**0.85**	**0.09**	**0.00**	**0.01**	**0.01**
Total	**0.09**	**0.85**	**0.09**	**0.00**	**0.01**	**0.01**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Table 30
Etiwanda Substation Modification Construction Emissions
Wiring

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			
Worker Commute	0.6	0.0	0.6
Offsite Total	**0.6**	**0.0**	**0.6**
Total	**0.6**	**0.0**	**0.6**

[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 60 and Table 61
[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							
None						0.00	0.00
Onsite Total						**0.00**	**0.00**
Offsite							
Worker Commute	2	Paved	60	0.001	0.000	0.11	0.00
Offsite Total						**0.11**	**0.00**
Total						**0.11**	**0.00**

a From Table 62
[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		2.75E-03	5.72E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		1.756	0.365	0.00	0.00
Storage Pile Wind Erosion	acres		6.6	1.37	0.00	0.00
Total					**0.00**	**0.00**

a From Table 63
[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 31
Etiwanda Substation Modification Construction Emissions
Maintenance Crew Equipment Check

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	0.01	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**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.0**
Offsite Motor Vehicle Exhaust	0.10	0.91	0.09	0.00	0.01	0.01	0.5
Offsite Motor Vehicle Fugitive PM	--	--	--	--	0.12	0.00	
Offsite Total	**0.10**	**0.91**	**0.09**	**0.00**	**0.13**	**0.01**	**0.5**
Total	**0.10**	**0.91**	**0.09**	**0.00**	**0.13**	**0.01**	**0.5**

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]	Category
None										

a From Table 59

[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 59

[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				
Maintenance Truck	2	8	N/A	0.5
Offsite				
Maintenance Truck	2	8	N/A	4
Worker Commute	2	8	N/A	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]
Onsite									
Maintenance Truck	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	9.07E-05	5.83E-05	1.10E+00	6.71E-05
Offsite									
Maintenance Truck	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	9.07E-05	5.83E-05	1.10E+00	6.71E-05
Worker Commute	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	9.07E-05	5.83E-05	1.10E+00	6.71E-05

a From Table 60 or Table 61

Table 31
Etiwanda Substation Modification Construction Emissions
Maintenance Crew Equipment Check

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						
Maintenance Truck	0.00	0.01	0.00	0.00	0.00	0.00
Onsite Total	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**
Offsite						
Maintenance Truck	0.01	0.06	0.01	0.00	0.00	0.00
Worker Commute	0.09	0.85	0.09	0.00	0.01	0.01
Offsite Total	**0.10**	**0.91**	**0.09**	**0.00**	**0.01**	**0.01**
Total	**0.10**	**0.91**	**0.09**	**0.00**	**0.01**	**0.01**

[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			
Maintenance Truck	0.0	0.0	0.0
Onsite Total	**0.0**	**0.0**	**0.0**
Offsite			
Maintenance Truck	0.0	0.0	0.0
Worker Commute	0.5	0.0	0.5
Offsite Total	**0.5**	**0.0**	**0.5**
Total	**0.5**	**0.0**	**0.5**

[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 60 and Table 61

[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							
Maintenance Truck	2	Paved	0.5	0.001	0.000	0.00	0.00
Onsite Total						**0.00**	**0.00**
Offsite							
Maintenance Truck	2	Paved	4	0.001	0.000	0.01	0.00
Worker Commute	2	Paved	60	0.001	0.000	0.11	0.00
Offsite Total						**0.12**	**0.00**
Total						**0.12**	**0.00**

a From Table 62
[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		2.75E-03	5.72E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		1.756	0.365	0.00	0.00
Storage Pile Wind Erosion	acres		6.6	1.37	0.00	0.00
Total					**0.00**	**0.00**

a From Table 63
[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 32
Etiwanda Substation Modification Construction Emissions
Testing

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	0.09	0.88	0.09	0.00	0.01	0.01	0.9
Offsite Motor Vehicle Fugitive PM	--	--	--	--	0.11	0.00	
Offsite Total	**0.09**	**0.88**	**0.09**	**0.00**	**0.13**	**0.01**	**0.9**
Total	**0.09**	**0.88**	**0.09**	**0.00**	**0.13**	**0.01**	**0.9**

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]	Category
None										

a From Table 59

[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 59

[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				
Crew Truck	1	15	N/A	0.5
Offsite				
Crew Truck	1	15	N/A	4
Worker Commute	2	15	N/A	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]
Onsite									
Crew Truck	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	9.07E-05	5.83E-05	1.10E+00	6.71E-05
Offsite									
Crew Truck	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	9.07E-05	5.83E-05	1.10E+00	6.71E-05
Worker Commute	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	9.07E-05	5.83E-05	1.10E+00	6.71E-05

a From Table 60 or Table 61

Table 32
Etiwanda Substation Modification Construction Emissions
Testing

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						
Crew Truck	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	0.00	0.03	0.00	0.00	0.00	0.00
Worker Commute	0.09	0.85	0.09	0.00	0.01	0.01
Offsite Total	**0.09**	**0.88**	**0.09**	**0.00**	**0.01**	**0.01**
Total	**0.09**	**0.88**	**0.09**	**0.00**	**0.01**	**0.01**

[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			
Crew Truck	0.0	0.0	0.0
Onsite Total	**0.0**	**0.0**	**0.0**
Offsite			
Crew Truck	0.0	0.0	0.0
Worker Commute	0.9	0.0	0.9
Offsite Total	**0.9**	**0.0**	**0.9**
Total	**0.9**	**0.0**	**0.9**

[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 60 and Table 61

[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							
Crew Truck	1	Paved	0.5	0.001	0.000	0.00	0.00
Onsite Total						**0.00**	**0.00**
Offsite							
Crew Truck	1	Paved	4	0.001	0.000	0.00	0.00
Worker Commute	2	Paved	60	0.001	0.000	0.11	0.00
Offsite Total						**0.11**	**0.00**
Total						**0.11**	**0.00**

a From Table 62
[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		2.75E-03	5.72E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		1.756	0.365	0.00	0.00
Storage Pile Wind Erosion	acres		6.6	1.37	0.00	0.00
Total					**0.00**	**0.00**

a From Table 63
[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 33
Subtransmission Source 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	0.20	1.90	0.19	0.00	0.02	0.02	1.5
Offsite Motor Vehicle Fugitive PM	--	--	--	--	2.37	0.21	
Offsite Total	**0.20**	**1.90**	**0.19**	**0.00**	**2.39**	**0.23**	**1.5**
Total	**0.20**	**1.90**	**0.19**	**0.00**	**2.39**	**0.23**	**1.5**

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]	Category
None		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

a From Table 59

[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 59

[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				
Offsite				
1-Ton Truck, 4x4	1	11	N/A	28
Worker Commute	4	11	N/A	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]
Onsite									
None	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	9.07E-05	5.83E-05	1.10E+00	6.71E-05
Offsite									
1-Ton Truck, 4x4	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	9.07E-05	5.83E-05	1.10E+00	6.71E-05
Worker Commute	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	9.07E-05	5.83E-05	1.10E+00	6.71E-05

a From Table 60 or Table 61

Table 33
Subtransmission Source 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						
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	0.20	0.02	0.00	0.00	0.00
Worker Commute	0.18	1.70	0.17	0.00	0.02	0.01
Offsite Total	**0.20**	**1.90**	**0.19**	**0.00**	**0.02**	**0.02**
Total	**0.20**	**1.90**	**0.19**	**0.00**	**0.02**	**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			
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
Worker Commute	1.3	0.0	1.3
Offsite Total	**1.5**	**0.0**	**1.5**
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 60 and Table 61

[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							
None						0.00	0.00
Onsite Total						**0.00**	**0.00**
Offsite							
1-Ton Truck, 4x4	1	Paved	24	0.001	0.000	0.02	0.00
1-Ton Truck, 4x4	1	Unpaved	4	0.532	0.053	2.13	0.21
Worker Commute	4	Paved	60	0.001	0.000	0.22	0.00
Offsite Total						**2.37**	**0.21**
Total						**2.37**	**0.21**

a From Table 62
[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		2.75E-03	5.72E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		1.756	0.365	0.00	0.00
Storage Pile Wind Erosion	acres		6.6	1.37	0.00	0.00
Total					**0.00**	**0.00**

a From Table 63
[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 34
Subtransmission Source Line Construction Emissions
Staging Area

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	0.65	2.03	6.01	0.01	0.20	0.19	136.5
Onsite Motor Vehicle Exhaust	0.03	0.19	0.29	0.00	0.01	0.01	8.1
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.01	0.00	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
Onsite Total	**0.68**	**2.21**	**6.31**	**0.01**	**0.23**	**0.20**	**144.6**
Offsite Motor Vehicle Exhaust	0.18	1.70	0.17	0.00	0.02	0.01	43.8
Offsite Motor Vehicle Fugitive PM	--	--	--	--	0.22	0.00	
Offsite Total	**0.18**	**1.70**	**0.17**	**0.00**	**0.24**	**0.01**	**43.8**
Total	**0.86**	**3.92**	**6.48**	**0.01**	**0.47**	**0.21**	**188.4**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Boom/Crane Truck	300	1	365	2
Rough Terrain Forklift	200	1	365	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	300	0.155	0.529	1.423	0.002	0.052	0.048	180.101	0.014	Cranes
Rough Terrain Forklift	200	0.057	0.161	0.528	0.001	0.017	0.015	77.122	0.005	Forklifts

a From Table 59

[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	0.31	1.06	2.85	0.00	0.10	0.10
Rough Terrain Forklift	0.34	0.97	3.17	0.01	0.10	0.09
Total	**0.65**	**2.03**	**6.01**	**0.01**	**0.20**	**0.19**

[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	59.6	0.0	59.7
Rough Terrain Forklift	76.6	0.0	76.7
Total	**136.2**	**0.0**	**136.5**

[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 59

[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 Crew Cab, 4x4	1	365	4	10
Truck, Semi Tractor	1	365	2	5
Offsite				
Worker Commute	4	365	N/A	60

[a] Onsite travel based on 25% use at 10 mph average speed

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 Crew Cab, 4x4	Delivery	2.06E-03	1.41E-02	1.58E-02	2.68E-05	6.00E-04	5.02E-04	2.78E+00	9.70E-05
Truck, Semi Tractor	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	1.34E-03	1.15E-03	4.22E+00	1.04E-04
Offsite									
Worker Commute	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	9.07E-05	5.83E-05	1.10E+00	6.71E-05

a From Table 60 or Table 61

Table 34
Subtransmission Source Line Construction Emissions
Staging Area

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 Crew Cab, 4x4	0.02	0.14	0.16	0.00	0.01	0.01
Truck, Semi Tractor	0.01	0.05	0.14	0.00	0.01	0.01
Onsite Total	**0.03**	**0.19**	**0.29**	**0.00**	**0.01**	**0.01**
Offsite						
Worker Commute	0.18	1.70	0.17	0.00	0.02	0.01
Offsite Total	**0.18**	**1.70**	**0.17**	**0.00**	**0.02**	**0.01**
Total	**0.21**	**1.89**	**0.47**	**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 Crew Cab, 4x4	4.6	0.0	4.6
Truck, Semi Tractor	3.5	0.0	3.5
Onsite Total	**8.1**	**0.0**	**8.1**
Offsite			
Worker Commute	43.7	0.0	43.8
Offsite Total	**43.7**	**0.0**	**43.8**
Total	**51.8**	**0.0**	**51.9**

[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 60 and Table 61

[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 Crew Cab, 4x4	1	Paved	10	0.001	0.000	0.01	0.00
Truck, Semi Tractor	1	Paved	5	0.001	0.000	0.00	0.00
Onsite Total						**0.01**	**0.00**
Offsite							
Worker Commute	4	Paved	60	0.001	0.000	0.22	0.00
Offsite Total						**0.22**	**0.00**
Total						**0.24**	**0.00**

a From Table 62
[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		2.75E-03	5.72E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		1.756	0.365	0.00	0.00
Storage Pile Wind Erosion	acres		6.6	1.37	0.00	0.00
Total					**0.00**	**0.00**

a From Table 63
[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 35
Subtransmission Source Line Construction Emissions
Road 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	2.91	10.54	26.14	0.03	1.05	0.96	5.9
Onsite Motor Vehicle Exhaust	0.00	0.01	0.03	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.92	0.09	
Earthwork Fugitive PM	--	--	--	--	30.26	6.29	
Onsite Total	**2.92**	**10.55**	**26.16**	**0.03**	**32.23**	**7.35**	**5.9**
Offsite Motor Vehicle Exhaust	0.33	2.67	1.35	0.00	0.08	0.06	0.9
Offsite Motor Vehicle Fugitive PM	--	--	--	--	9.82	0.95	
Offsite Total	**0.33**	**2.67**	**1.35**	**0.00**	**9.90**	**1.01**	**0.9**
Total	**3.25**	**13.22**	**27.51**	**0.04**	**42.13**	**8.36**	**6.8**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Road Grader	350	1	4	6
Backhoe/Front Loader	79	1	4	4
Drum Type Compactor	250	1	4	4
Track Type Dozer	350	1	4	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
Road Grader	350	0.186	0.629	1.684	0.002	0.061	0.056	229.484	0.017	Graders
Backhoe/Front Loader	79	0.069	0.353	0.456	0.001	0.038	0.035	51.728	0.006	Tractors/Loaders/Backhoes
Drum Type Compactor	250	0.126	0.389	1.312	0.002	0.045	0.041	153.090	0.011	Rollers
Track Type Dozer	350	0.254	0.950	2.239	0.003	0.087	0.080	259.229	0.023	Crawler Tractors

a From Table 59
[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]
Road Grader	1.11	3.77	10.11	0.01	0.36	0.34
Backhoe/Front Loader	0.28	1.41	1.83	0.00	0.15	0.14
Drum Type Compactor	0.50	1.55	5.25	0.01	0.18	0.17
Track Type Dozer	1.02	3.80	8.96	0.01	0.35	0.32
Total	**2.91**	**10.54**	**26.14**	**0.03**	**1.05**	**0.96**

[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]
Road Grader	2.5	0.0	2.5
Backhoe/Front Loader	0.4	0.0	0.4
Drum Type Compactor	1.1	0.0	1.1
Track Type Dozer	1.9	0.0	1.9
Total	**5.9**	**0.0**	**5.9**

[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 59
[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.
Onsite				
Water Truck	1	4	N/A	1
Offsite				
Water Truck	1	4	N/A	13
1-Ton Crew Cab, 4x4	1	4	N/A	18
Lowboy Truck/Trailer	1	4	N/A	18
Worker Commute	5	4	N/A	60

Table 35
Subtransmission Source Line Construction Emissions
Road Work

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	2.26E-03	9.32E-03	2.74E-02	4.09E-05	1.34E-03	1.15E-03	4.22E+00	1.04E-04
Offsite									
Water Truck	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	1.34E-03	1.15E-03	4.22E+00	1.04E-04
1-Ton Crew Cab, 4x4	Delivery	2.06E-03	1.41E-02	1.58E-02	2.68E-05	6.00E-04	5.02E-04	2.78E+00	9.70E-05
Lowboy Truck/Trailer	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	1.34E-03	1.15E-03	4.22E+00	1.04E-04
Worker Commute	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	9.07E-05	5.83E-05	1.10E+00	6.71E-05

a From Table 60 or Table 61

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	0.03	0.00	0.00	0.00
Onsite Total	**0.00**	**0.01**	**0.03**	**0.00**	**0.00**	**0.00**
Offsite						
Water Truck	0.03	0.12	0.36	0.00	0.02	0.01
1-Ton Crew Cab, 4x4	0.04	0.25	0.28	0.00	0.01	0.01
Lowboy Truck/Trailer	0.04	0.17	0.49	0.00	0.02	0.02
Worker Commute	0.22	2.13	0.21	0.00	0.03	0.02
Offsite Total	**0.33**	**2.67**	**1.35**	**0.00**	**0.08**	**0.06**
Total	**0.33**	**2.68**	**1.38**	**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			
Water Truck	0.0	0.0	0.0
Onsite Total	**0.0**	**0.0**	**0.0**
Offsite			
Water Truck	0.1	0.0	0.1
1-Ton Crew Cab, 4x4	0.1	0.0	0.1
Lowboy Truck/Trailer	0.1	0.0	0.1
Worker Commute	0.6	0.0	0.6
Offsite Total	**0.9**	**0.0**	**0.9**
Total	**0.9**	**0.0**	**0.9**

[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 60 and Table 61

[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							
Water Truck	1	Unpaved	1	0.922	0.092	0.92	0.09
Onsite Total						**0.92**	**0.09**
Offsite							
Water Truck	1	Paved	10	0.001	0.000	0.01	0.00
1-Ton Crew Cab, 4x4	1	Paved	14	0.001	0.000	0.01	0.00
Lowboy Truck/Trailer	1	Paved	14	0.001	0.000	0.01	0.00
Water Truck	1	Unpaved	4	0.922	0.092	3.69	0.37
1-Ton Crew Cab, 4x4	1	Unpaved	4	0.532	0.053	2.13	0.21
Lowboy Truck/Trailer	1	Unpaved	4	0.922	0.092	3.69	0.37
Worker Commute	5	Paved	60	0.001	0.000	0.28	0.00
Offsite Total						**9.82**	**0.95**
Total						**10.74**	**1.04**

a From Table 62
[b] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Table 35
Subtransmission Source Line Construction Emissions
Road Work

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	4,620	2.75E-03	5.72E-04	12.70	2.64
Bulldozing, Scraping and Grading	hr/day	10	1.756	0.365	17.56	3.65
Storage Pile Wind Erosion	acres		6.6	1.37	0.00	0.00
Total					**30.26**	**6.29**

a From Table 63

[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

[c] Based on excavating or backfilling and grading of 18 ft. wide x 18,480 ft. long x 1.5 ft. deep = 18,480 CY over 4 days

Table 36
Subtransmission Source 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	2.25	8.55	21.35	0.03	0.82	0.75	18.3
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	--	--	--	--	0.00	0.00	
Onsite Total	**2.25**	**8.55**	**21.35**	**0.03**	**0.82**	**0.75**	**18.3**
Offsite Motor Vehicle Exhaust	0.45	3.43	2.15	0.01	0.12	0.10	3.9
Offsite Motor Vehicle Fugitive PM	--	--	--	--	5.08	0.47	
Offsite Total	**0.45**	**3.43**	**2.15**	**0.01**	**5.20**	**0.56**	**3.9**
Total	**2.70**	**11.98**	**23.49**	**0.04**	**6.02**	**1.32**	**22.2**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Compressor Trailer	120	1	12	4
Auger Truck	500	1	12	4
Boom/Crane Truck	300	1	12	6
Bucket Truck	350	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
Compressor Trailer	120	0.082	0.325	0.499	0.001	0.046	0.042	46.950	0.007	Air Compressors
Auger Truck	500	0.129	0.552	1.172	0.003	0.036	0.033	311.309	0.012	Bore/Drill Rigs
Boom/Crane Truck	300	0.155	0.529	1.423	0.002	0.052	0.048	180.101	0.014	Cranes
Bucket Truck	350	0.119	0.467	1.531	0.002	0.045	0.041	212.856	0.011	Aerial Lifts

a From Table 59
[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	0.33	1.30	2.00	0.00	0.18	0.17
Auger Truck	0.52	2.21	4.69	0.01	0.14	0.13
Boom/Crane Truck	0.93	3.18	8.54	0.01	0.31	0.29
Bucket Truck	0.48	1.87	6.12	0.01	0.18	0.17
Total	**2.25**	**8.55**	**21.35**	**0.03**	**0.82**	**0.75**

[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
Auger Truck	6.8	0.0	6.8
Boom/Crane Truck	5.9	0.0	5.9
Bucket Truck	4.6	0.0	4.6
Total	**18.3**	**0.0**	**18.3**

[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 59
[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				
Offsite				
3/4-Ton Truck, 4x4	1	12	N/A	15
1-Ton Crew Cab, 4x4	1	12	N/A	15
Extendable Flat Bed Pole Truck	1	12	N/A	15
Auger Truck	1	12	N/A	15
Boom/Crane Truck	1	12	N/A	15
Bucket Truck	1	12	N/A	15
Worker Commute	6	12	N/A	60

Table 36
Subtransmission Source Line Construction Emissions
Guard Structure 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									
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	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	9.07E-05	5.83E-05	1.10E+00	6.71E-05
1-Ton Crew Cab, 4x4	Delivery	2.06E-03	1.41E-02	1.58E-02	2.68E-05	6.00E-04	5.02E-04	2.78E+00	9.70E-05
Extendable Flat Bed Pole Truck	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	1.34E-03	1.15E-03	4.22E+00	1.04E-04
Auger Truck	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	1.34E-03	1.15E-03	4.22E+00	1.04E-04
Boom/Crane Truck	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	1.34E-03	1.15E-03	4.22E+00	1.04E-04
Bucket Truck	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	1.34E-03	1.15E-03	4.22E+00	1.04E-04
Worker Commute	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	9.07E-05	5.83E-05	1.10E+00	6.71E-05

a From Table 60 or Table 61

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	0.01	0.11	0.01	0.00	0.00	0.00
1-Ton Crew Cab, 4x4	0.03	0.21	0.24	0.00	0.01	0.01
Extendable Flat Bed Pole Truck	0.03	0.14	0.41	0.00	0.02	0.02
Auger Truck	0.03	0.14	0.41	0.00	0.02	0.02
Boom/Crane Truck	0.03	0.14	0.41	0.00	0.02	0.02
Bucket Truck	0.03	0.14	0.41	0.00	0.02	0.02
Worker Commute	0.27	2.55	0.26	0.00	0.03	0.02
Offsite Total	**0.45**	**3.43**	**2.15**	**0.01**	**0.12**	**0.10**
Total	**0.45**	**3.43**	**2.15**	**0.01**	**0.12**	**0.10**

[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	0.1	0.0	0.1
1-Ton Crew Cab, 4x4	0.2	0.0	0.2
Extendable Flat Bed Pole Truck	0.3	0.0	0.3
Auger Truck	0.3	0.0	0.3
Boom/Crane Truck	0.3	0.0	0.3
Bucket Truck	0.3	0.0	0.3
Worker Commute	2.2	0.0	2.2
Offsite Total	**3.9**	**0.0**	**3.9**
Total	**3.9**	**0.0**	**3.9**

[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 60 and Table 61

[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 36
Subtransmission Source Line Construction Emissions
Guard Structure Installation

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							
None						0.00	0.00
Onsite Total						**0.00**	**0.00**
Offsite							
3/4-Ton Truck, 4x4	1	Paved	14	0.001	0.000	0.01	0.00
1-Ton Crew Cab, 4x4	1	Paved	14	0.001	0.000	0.01	0.00
Extendable Flat Bed Pole Truck	1	Paved	14	0.001	0.000	0.01	0.00
Auger Truck	1	Paved	14	0.001	0.000	0.01	0.00
Boom/Crane Truck	1	Paved	14	0.001	0.000	0.01	0.00
Bucket Truck	1	Paved	14	0.001	0.000	0.01	0.00
3/4-Ton Truck, 4x4	1	Unpaved	1	0.447	0.045	0.45	0.04
1-Ton Crew Cab, 4x4	1	Unpaved	1	0.532	0.053	0.53	0.05
Extendable Flat Bed Pole Truck	1	Unpaved	1	0.922	0.092	0.92	0.09
Auger Truck	1	Unpaved	1	0.922	0.092	0.92	0.09
Boom/Crane Truck	1	Unpaved	1	0.922	0.092	0.92	0.09
Bucket Truck	1	Unpaved	1	0.922	0.092	0.92	0.09
Worker Commute	6	Paved	60	0.001	0.000	0.33	0.00
Offsite Total						**5.08**	**0.47**
Total						**5.08**	**0.47**

a From Table 62
[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		2.75E-03	5.72E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		1.756	0.365	0.00	0.00
Storage Pile Wind Erosion	acres		6.6	1.37	0.00	0.00
Total					**0.00**	**0.00**

a From Table 63
[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 37
Subtransmission Source Line Construction Emissions
Wood/LWS 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	1.74	6.34	16.66	0.02	0.67	0.62	5.8
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	**1.74**	**6.34**	**16.66**	**0.02**	**0.67**	**0.62**	**5.8**
Offsite Motor Vehicle Exhaust	0.43	3.31	2.02	0.01	0.12	0.09	1.8
Offsite Motor Vehicle Fugitive PM	--	--	--	--	13.58	1.32	
Offsite Total	**0.43**	**3.31**	**2.02**	**0.01**	**13.69**	**1.41**	**1.8**
Total	**2.16**	**9.65**	**18.68**	**0.03**	**14.37**	**2.03**	**7.6**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Bucket Truck	300	1	6	4
Compressor Trailer	120	1	6	4
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
Bucket Truck	300	0.119	0.467	1.531	0.002	0.045	0.041	212.856	0.011	Aerial Lifts
Compressor Trailer	120	0.082	0.325	0.499	0.001	0.046	0.042	46.950	0.007	Air Compressors
Boom/Crane Truck	350	0.155	0.529	1.423	0.002	0.052	0.048	180.101	0.014	Cranes

a From Table 59
[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	0.48	1.87	6.12	0.01	0.18	0.17
Compressor Trailer	0.33	1.30	2.00	0.00	0.18	0.17
Boom/Crane Truck	0.93	3.18	8.54	0.01	0.31	0.29
Total	**1.74**	**6.34**	**16.66**	**0.02**	**0.67**	**0.62**

[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	2.3	0.0	2.3
Compressor Trailer	0.5	0.0	0.5
Boom/Crane Truck	2.9	0.0	2.9
Total	**5.8**	**0.0**	**5.8**

[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 59
[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				
Offsite				
1-Ton Crew Cab, 4x4	1	6	N/A	18
Bucket Truck	1	6	N/A	18
Flat Bed Pole Truck	1	6	N/A	18
Boom/Crane Truck	1	6	N/A	18
Worker Commute	6	6	N/A	60

Table 37
Subtransmission Source Line Construction Emissions
Wood/LWS Pole Removal

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 Crew Cab, 4x4	Delivery	2.06E-03	1.41E-02	1.58E-02	2.68E-05	6.00E-04	5.02E-04	2.78E+00	9.70E-05
Bucket Truck	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	1.34E-03	1.15E-03	4.22E+00	1.04E-04
Flat Bed Pole Truck	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	1.34E-03	1.15E-03	4.22E+00	1.04E-04
Boom/Crane Truck	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	1.34E-03	1.15E-03	4.22E+00	1.04E-04
Worker Commute	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	9.07E-05	5.83E-05	1.10E+00	6.71E-05

a From Table 60 or Table 61

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 Crew Cab, 4x4	0.04	0.25	0.28	0.00	0.01	0.01
Bucket Truck	0.04	0.17	0.49	0.00	0.02	0.02
Flat Bed Pole Truck	0.04	0.17	0.49	0.00	0.02	0.02
Boom/Crane Truck	0.04	0.17	0.49	0.00	0.02	0.02
Worker Commute	0.27	2.55	0.26	0.00	0.03	0.02
Offsite Total	**0.43**	**3.31**	**2.02**	**0.01**	**0.12**	**0.09**
Total	**0.43**	**3.31**	**2.02**	**0.01**	**0.12**	**0.09**

[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 Crew Cab, 4x4	0.1	0.0	0.1
Bucket Truck	0.2	0.0	0.2
Flat Bed Pole Truck	0.2	0.0	0.2
Boom/Crane Truck	0.2	0.0	0.2
Worker Commute	1.1	0.0	1.1
Offsite Total	**1.8**	**0.0**	**1.8**
Total	**1.8**	**0.0**	**1.8**

[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 60 and Table 61

[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							
None						0.00	0.00
Onsite Total						**0.00**	**0.00**
Offsite							
1-Ton Crew Cab, 4x4	1	Paved	14	0.001	0.000	0.01	0.00
Bucket Truck	1	Paved	14	0.001	0.000	0.01	0.00
Flat Bed Pole Truck	1	Paved	14	0.001	0.000	0.01	0.00
Boom/Crane Truck	1	Paved	14	0.001	0.000	0.01	0.00
1-Ton Crew Cab, 4x4	1	Unpaved	4	0.532	0.053	2.13	0.21
Bucket Truck	1	Unpaved	4	0.922	0.092	3.69	0.37
Flat Bed Pole Truck	1	Unpaved	4	0.922	0.092	3.69	0.37
Boom/Crane Truck	1	Unpaved	4	0.922	0.092	3.69	0.37
Worker Commute	6	Paved	60	0.001	0.000	0.33	0.00
Offsite Total						**13.58**	**1.32**
Total						**13.58**	**1.32**

a From Table 62
[b] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Table 37
Subtransmission Source Line Construction Emissions
Wood/LWS Pole Removal

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		2.75E-03	5.72E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		1.756	0.365	0.00	0.00
Storage Pile Wind Erosion	acres		6.6	1.37	0.00	0.00
Total					**0.00**	**0.00**

a From Table 63
[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 38
Subtransmission Source Line Construction Emissions
Install TSP Foundations

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	1.67	6.84	14.55	0.03	0.58	0.53	114.2
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	--	--	--	--	0.06	0.01	
Onsite Total	**1.67**	**6.84**	**14.55**	**0.03**	**0.64**	**0.54**	**114.2**
Offsite Motor Vehicle Exhaust	1.19	6.68	10.73	0.02	0.54	0.46	84.6
Offsite Motor Vehicle Fugitive PM	--	--	--	--	32.35	3.16	
Offsite Total	**1.19**	**6.68**	**10.73**	**0.02**	**32.89**	**3.62**	**84.6**
Total	**2.86**	**13.52**	**25.28**	**0.05**	**33.53**	**4.17**	**198.9**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Boom/Crane Truck	300	1	90	4
Backhoe/Front Loader	79	1	90	4
Auger Truck	500	1	90	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	300	0.155	0.529	1.423	0.002	0.052	0.048	180.101	0.014	Cranes
Backhoe/Front Loader	79	0.069	0.353	0.456	0.001	0.038	0.035	51.728	0.006	Tractors/Loaders/Backhoes
Auger Truck	500	0.129	0.552	1.172	0.003	0.036	0.033	311.309	0.012	Bore/Drill Rigs

a From Table 59
[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	0.62	2.12	5.69	0.01	0.21	0.19
Backhoe/Front Loader	0.28	1.41	1.83	0.00	0.15	0.14
Auger Truck	0.78	3.31	7.03	0.02	0.22	0.20
Total	**1.67**	**6.84**	**14.55**	**0.03**	**0.58**	**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]
Boom/Crane Truck	29.4	0.0	29.5
Backhoe/Front Loader	8.4	0.0	8.5
Auger Truck	76.3	0.0	76.3
Total	**114.1**	**0.0**	**114.2**

[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 59
[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.
Onsite				
None				
Offsite				
Water Truck	1	90	N/A	14
1-Ton Crew Cab, 4x4	1	90	N/A	18
Dump Truck	2	90	N/A	64
Concrete Truck	3	90	N/A	64
Boom/Crane Truck	1	90	N/A	18
Auger Truck	1	90	N/A	18
Worker Commute	7	90	N/A	60

[a] Concrete trucks based on 40 CY per foundation, 50 foundations total and 10 CY/truck over 90 days
= 40 x 50 / 10 / 90 = 2.2 truck/day
Dump trucks based on 40 CY per foundation, 50 foundations total and 14 CY/truck over 90 days
= 40 x 50 / 14 / 90 = 1.6 truck/day

Table 38
Subtransmission Source Line Construction Emissions
Install TSP Foundations

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									
Water Truck	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	1.34E-03	1.15E-03	4.22E+00	1.04E-04
1-Ton Crew Cab, 4x4	Delivery	2.06E-03	1.41E-02	1.58E-02	2.68E-05	6.00E-04	5.02E-04	2.78E+00	9.70E-05
Dump Truck	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	1.34E-03	1.15E-03	4.22E+00	1.04E-04
Concrete Truck	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	1.34E-03	1.15E-03	4.22E+00	1.04E-04
Boom/Crane Truck	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	1.34E-03	1.15E-03	4.22E+00	1.04E-04
Auger Truck	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	1.34E-03	1.15E-03	4.22E+00	1.04E-04
Worker Commute	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	9.07E-05	5.83E-05	1.10E+00	6.71E-05

a From Table 60 or Table 61

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						
Water Truck	0.03	0.13	0.38	0.00	0.02	0.02
1-Ton Crew Cab, 4x4	0.04	0.25	0.28	0.00	0.01	0.01
Dump Truck	0.29	1.19	3.51	0.01	0.17	0.15
Concrete Truck	0.43	1.79	5.27	0.01	0.26	0.22
Boom/Crane Truck	0.04	0.17	0.49	0.00	0.02	0.02
Auger Truck	0.04	0.17	0.49	0.00	0.02	0.02
Worker Commute	0.31	2.98	0.30	0.00	0.04	0.02
Offsite Total	**1.19**	**6.68**	**10.73**	**0.02**	**0.54**	**0.46**
Total	**1.19**	**6.68**	**10.73**	**0.02**	**0.54**	**0.46**

[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			
Water Truck	2.4	0.0	2.4
1-Ton Crew Cab, 4x4	2.0	0.0	2.0
Dump Truck	22.0	0.0	22.0
Concrete Truck	33.0	0.0	33.1
Boom/Crane Truck	3.1	0.0	3.1
Auger Truck	3.1	0.0	3.1
Worker Commute	18.9	0.0	18.9
Offsite Total	**84.6**	**0.0**	**84.6**
Total	**84.6**	**0.0**	**84.6**

[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 60 and Table 61

[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 38
Subtransmission Source Line Construction Emissions
Install TSP Foundations

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							
None							
Onsite Total						**0.00**	**0.00**
Offsite							
Water Truck	1	Paved	10	0.001	0.000	0.01	0.00
1-Ton Crew Cab, 4x4	1	Paved	14	0.001	0.000	0.01	0.00
Dump Truck	2	Paved	60	0.001	0.000	0.11	0.00
Concrete Truck	3	Paved	60	0.001	0.000	0.17	0.00
Boom/Crane Truck	1	Paved	14	0.001	0.000	0.01	0.00
Auger Truck	1	Paved	14	0.001	0.000	0.01	0.00
Water Truck	1	Unpaved	4	0.922	0.092	3.69	0.37
1-Ton Crew Cab, 4x4	1	Unpaved	4	0.532	0.053	2.13	0.21
Dump Truck	2	Unpaved	4	0.922	0.092	7.38	0.74
Concrete Truck	3	Unpaved	4	0.922	0.092	11.07	1.11
Boom/Crane Truck	1	Unpaved	4	0.922	0.092	3.69	0.37
Auger Truck	1	Unpaved	4	0.922	0.092	3.69	0.37
Worker Commute	7	Paved	60	0.001	0.000	0.39	0.00
Offsite Total						**32.35**	**3.16**
Total						**32.35**	**3.16**

a From Table 62
[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[c]	CY/day	22	2.75E-03	5.72E-04	0.06	0.01
Bulldozing, Scraping and Grading	hr/day		1.756	0.365	0.00	0.00
Storage Pile Wind Erosion	acres		6.6	1.37	0.00	0.00
Total					**0.06**	**0.01**

a From Table 63
[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]
[c] Based on 50 TSPs x 40 CY/TSP = 2,000 CY over 90 days

Table 39
Subtransmission Source Line Construction Emissions
TSP 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	0.93	3.18	8.54	0.01	0.31	0.29	5.9
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	**0.93**	**3.18**	**8.54**	**0.01**	**0.31**	**0.29**	**5.9**
Offsite Motor Vehicle Exhaust	0.27	2.17	1.17	0.00	0.07	0.06	2.4
Offsite Motor Vehicle Fugitive PM	--	--	--	--	9.43	0.92	
Offsite Total	**0.27**	**2.17**	**1.17**	**0.00**	**9.50**	**0.97**	**2.4**
Total	**1.20**	**5.34**	**9.71**	**0.01**	**9.81**	**1.26**	**8.3**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Boom/Crane Truck	300	1	12	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	300	0.155	0.529	1.423	0.002	0.052	0.048	180.101	0.014	Cranes

a From Table 59

[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	0.93	3.18	8.54	0.01	0.31	0.29
Total	**0.93**	**3.18**	**8.54**	**0.01**	**0.31**	**0.29**

[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	5.9	0.0	5.9
Total	**5.9**	**0.0**	**5.9**

[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 59

[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				
Offsite				
3/4-Ton Truck, 4x4	1	12	N/A	18
Boom/Crane Truck	1	12	N/A	18
Flat Bed Pole Truck	1	12	N/A	18
Worker Commute	4	12	N/A	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]
Onsite									
None									
Offsite									
3/4-Ton Truck, 4x4	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	9.07E-05	5.83E-05	1.10E+00	6.71E-05
Boom/Crane Truck	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	1.34E-03	1.15E-03	4.22E+00	1.04E-04
Flat Bed Pole Truck	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	1.34E-03	1.15E-03	4.22E+00	1.04E-04
Worker Commute	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	9.07E-05	5.83E-05	1.10E+00	6.71E-05

a From Table 60 or Table 61

Table 39
Subtransmission Source Line Construction Emissions
TSP 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	0.01	0.13	0.01	0.00	0.00	0.00
Boom/Crane Truck	0.04	0.17	0.49	0.00	0.02	0.02
Flat Bed Pole Truck	0.04	0.17	0.49	0.00	0.02	0.02
Worker Commute	0.18	1.70	0.17	0.00	0.02	0.01
Offsite Total	**0.27**	**2.17**	**1.17**	**0.00**	**0.07**	**0.06**
Total	**0.27**	**2.17**	**1.17**	**0.00**	**0.07**	**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			
3/4-Ton Truck, 4x4	0.1	0.0	0.1
Boom/Crane Truck	0.4	0.0	0.4
Flat Bed Pole Truck	0.4	0.0	0.4
Worker Commute	1.4	0.0	1.4
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 60 and Table 61

[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							
None	0					0.00	0.00
Onsite Total						**0.00**	**0.00**
Offsite							
3/4-Ton Truck, 4x4	1	Paved	14	0.001	0.000	0.01	0.00
Boom/Crane Truck	1	Paved	14	0.001	0.000	0.01	0.00
Flat Bed Pole Truck	1	Paved	14	0.001	0.000	0.01	0.00
3/4-Ton Truck, 4x4	1	Unpaved	4	0.447	0.045	1.79	0.18
Boom/Crane Truck	1	Unpaved	4	0.922	0.092	3.69	0.37
Flat Bed Pole Truck	1	Unpaved	4	0.922	0.092	3.69	0.37
Worker Commute	4	Paved	60	0.001	0.000	0.22	0.00
Offsite Total						**9.43**	**0.92**
Total						**9.43**	**0.92**

a From Table 62
[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		2.75E-03	5.72E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		1.756	0.365	0.00	0.00
Storage Pile Wind Erosion	acres		6.6	1.37	0.00	0.00
Total					**0.00**	**0.00**

a From Table 63
[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 40
Subtransmission Source Line Construction Emissions
TSP 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	1.26	4.48	10.53	0.01	0.49	0.45	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	**1.26**	**4.48**	**10.53**	**0.01**	**0.49**	**0.45**	**25.9**
Offsite Motor Vehicle Exhaust	0.81	7.31	1.73	0.01	0.13	0.09	24.7
Offsite Motor Vehicle Fugitive PM	--	--	--	--	12.41	1.15	
Offsite Total	**0.81**	**7.31**	**1.73**	**0.01**	**12.54**	**1.25**	**24.7**
Total	**2.07**	**11.79**	**12.26**	**0.02**	**13.04**	**1.70**	**50.6**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Compressor Trailer	120	1	45	4
Boom/Crane Truck	350	1	45	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	120	0.082	0.325	0.499	0.001	0.046	0.042	46.950	0.007	Air Compressors
Boom/Crane Truck	350	0.155	0.529	1.423	0.002	0.052	0.048	180.101	0.014	Cranes

a From Table 59

[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	0.33	1.30	2.00	0.00	0.18	0.17
Boom/Crane Truck	0.93	3.18	8.54	0.01	0.31	0.29
Total	**1.26**	**4.48**	**10.53**	**0.01**	**0.49**	**0.45**

[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	3.8	0.0	3.8
Boom/Crane Truck	22.1	0.0	22.1
Total	**25.9**	**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 59

[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				
Offsite				
3/4-Ton Pick-up Truck, 4x4	2	45	N/A	18
Boom/Crane Truck	1	45	N/A	18
1-Ton Crew Cab, 4x4	2	45	N/A	18
Worker Commute	15	45	N/A	60

Boom/crane truck not added as emissions might be covered under

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 Pick-up Truck, 4x4	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	9.07E-05	5.83E-05	1.10E+00	6.71E-05
Boom/Crane Truck	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	1.34E-03	1.15E-03	4.22E+00	1.04E-04
1-Ton Crew Cab, 4x4	Delivery	2.06E-03	1.41E-02	1.58E-02	2.68E-05	6.00E-04	5.02E-04	2.78E+00	9.70E-05
Worker Commute	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	9.07E-05	5.83E-05	1.10E+00	6.71E-05

a From Table 60 or Table 61

Table 40
Subtransmission Source Line Construction Emissions
TSP 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 Pick-up Truck, 4x4	0.03	0.26	0.03	0.00	0.00	0.00
Boom/Crane Truck	0.04	0.17	0.49	0.00	0.02	0.02
1-Ton Crew Cab, 4x4	0.07	0.51	0.57	0.00	0.02	0.02
Worker Commute	0.67	6.38	0.64	0.01	0.08	0.05
Offsite Total	**0.81**	**7.31**	**1.73**	**0.01**	**0.13**	**0.09**
Total	**0.81**	**7.31**	**1.73**	**0.01**	**0.13**	**0.09**

[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 Pick-up Truck, 4x4	0.8	0.0	0.8
Boom/Crane Truck	1.5	0.0	1.5
1-Ton Crew Cab, 4x4	2.0	0.0	2.0
Worker Commute	20.2	0.0	20.2
Offsite Total	**24.6**	**0.0**	**24.7**
Total	**24.6**	**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 60 and Table 61

[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							
None	0					0.00	0.00
Onsite Total						**0.00**	**0.00**
Offsite							
3/4-Ton Pick-up Truck, 4x4	2	Paved	14	0.001	0.000	0.03	0.00
Boom/Crane Truck	1	Paved	14	0.001	0.000	0.01	0.00
1-Ton Crew Cab, 4x4	2	Paved	14	0.001	0.000	0.03	0.00
3/4-Ton Pick-up Truck, 4x4	2	Unpaved	4	0.447	0.045	3.58	0.36
Boom/Crane Truck	1	Unpaved	4	0.922	0.092	3.69	0.37
1-Ton Crew Cab, 4x4	2	Unpaved	4	0.532	0.053	4.25	0.43
Worker Commute	15	Paved	60	0.001	0.000	0.83	0.00
Offsite Total						**12.41**	**1.15**
Total						**12.41**	**1.15**

a From Table 62
[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		2.75E-03	5.72E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		1.756	0.365	0.00	0.00
Storage Pile Wind Erosion	acres		6.6	1.37	0.00	0.00
Total					**0.00**	**0.00**

a From Table 63
[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 41
Subtransmission Source Line Construction Emissions
TSP 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	0.95	4.19	6.66	0.01	0.45	0.41	13.7
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	**0.95**	**4.19**	**6.66**	**0.01**	**0.45**	**0.41**	**13.7**
Offsite Motor Vehicle Exhaust	0.77	7.15	1.23	0.01	0.11	0.07	23.1
Offsite Motor Vehicle Fugitive PM	--	--	--	--	8.71	0.78	
Offsite Total	**0.77**	**7.15**	**1.23**	**0.01**	**8.82**	**0.86**	**23.1**
Total	**1.72**	**11.34**	**7.89**	**0.02**	**9.27**	**1.27**	**36.8**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Compressor Trailer	120	1	45	4
30-Ton Rough Terrain Crane	150	1	45	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	120	0.082	0.325	0.499	0.001	0.046	0.042	46.950	0.007	Air Compressors
30-Ton Rough Terrain Crane	150	0.103	0.482	0.777	0.001	0.045	0.041	80.345	0.009	Cranes

a From Table 59

[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	0.33	1.30	2.00	0.00	0.18	0.17
30-Ton Rough Terrain Crane	0.62	2.89	4.66	0.01	0.27	0.25
Total	**0.95**	**4.19**	**6.66**	**0.01**	**0.45**	**0.41**

[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	3.8	0.0	3.8
30-Ton Rough Terrain Crane	9.8	0.0	9.9
Total	**13.7**	**0.0**	**13.7**

[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 59

[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				
Offsite				
3/4-Ton Pick-up Truck, 4x4	2	45	N/A	18
1-Ton Crew Cab, 4x4	2	45	N/A	18
Worker Commute	15	45	N/A	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]
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 Pick-up Truck, 4x4	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	9.07E-05	5.83E-05	1.10E+00	6.71E-05
1-Ton Crew Cab, 4x4	Delivery	2.06E-03	1.41E-02	1.58E-02	2.68E-05	6.00E-04	5.02E-04	2.78E+00	9.70E-05
Worker Commute	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	9.07E-05	5.83E-05	1.10E+00	6.71E-05

a From Table 60 or Table 61

Table 41
Subtransmission Source Line Construction Emissions
TSP Erection

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 Pick-up Truck, 4x4	0.03	0.26	0.03	0.00	0.00	0.00
1-Ton Crew Cab, 4x4	0.07	0.51	0.57	0.00	0.02	0.02
Worker Commute	0.67	6.38	0.64	0.01	0.08	0.05
Offsite Total	**0.77**	**7.15**	**1.23**	**0.01**	**0.11**	**0.07**
Total	**0.77**	**7.15**	**1.23**	**0.01**	**0.11**	**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 Pick-up Truck, 4x4	0.8	0.0	0.8
1-Ton Crew Cab, 4x4	2.0	0.0	2.0
Worker Commute	20.2	0.0	20.2
Offsite Total	**23.1**	**0.0**	**23.1**
Total	**23.1**	**0.0**	**23.1**

[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 60 and Table 61

[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							
None	0					0.00	0.00
Onsite Total						**0.00**	**0.00**
Offsite							
3/4-Ton Pick-up Truck, 4x4	2	Paved	14	0.001	0.000	0.03	0.00
1-Ton Crew Cab, 4x4	2	Paved	14	0.001	0.000	0.03	0.00
3/4-Ton Pick-up Truck, 4x4	2	Unpaved	4	0.447	0.045	3.58	0.36
1-Ton Crew Cab, 4x4	2	Unpaved	4	0.532	0.053	4.25	0.43
Worker Commute	15	Paved	60	0.001	0.000	0.83	0.00
Offsite Total						**8.71**	**0.78**
Total						**8.71**	**0.78**

a From Table 62
[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		2.75E-03	5.72E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		1.756	0.365	0.00	0.00
Storage Pile Wind Erosion	acres		6.6	1.37	0.00	0.00
Total					**0.00**	**0.00**

a From Table 63
[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 42
Subtransmission Source Line Construction Emissions
Install Wood/ LWS Poles

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	2.34	9.37	22.09	0.03	0.86	0.80	96.6
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	--	--	--	--	0.04	0.01	
Onsite Total	**2.34**	**9.37**	**22.09**	**0.03**	**0.90**	**0.80**	**96.6**
Offsite Motor Vehicle Exhaust	0.87	7.39	2.69	0.01	0.18	0.13	36.5
Offsite Motor Vehicle Fugitive PM	--	--	--	--	17.78	1.69	
Offsite Total	**0.87**	**7.39**	**2.69**	**0.01**	**17.95**	**1.82**	**36.5**
Total	**3.21**	**16.76**	**24.78**	**0.05**	**18.85**	**2.62**	**133.1**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Auger Truck	500	1	61	4
Bucket Truck	350	1	61	4
Boom/Crane Truck	350	1	61	6
Backhoe/Front Loader	79	1	61	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
Auger Truck	500	0.129	0.552	1.172	0.003	0.036	0.033	311.309	0.012	Bore/Drill Rigs
Bucket Truck	350	0.119	0.467	1.531	0.002	0.045	0.041	212.856	0.011	Aerial Lifts
Boom/Crane Truck	350	0.155	0.529	1.423	0.002	0.052	0.048	180.101	0.014	Cranes
Backhoe/Front Loader	79	0.069	0.353	0.456	0.001	0.038	0.035	51.728	0.006	Tractors/Loaders/Backhoes

a From Table 59

[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]
Auger Truck	0.52	2.21	4.69	0.01	0.14	0.13
Bucket Truck	0.48	1.87	6.12	0.01	0.18	0.17
Boom/Crane Truck	0.93	3.18	8.54	0.01	0.31	0.29
Backhoe/Front Loader	0.42	2.12	2.74	0.00	0.23	0.21
Total	**2.34**	**9.37**	**22.09**	**0.03**	**0.86**	**0.80**

[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]
Auger Truck	34.5	0.0	34.5
Bucket Truck	23.6	0.0	23.6
Boom/Crane Truck	29.9	0.0	29.9
Backhoe/Front Loader	8.6	0.0	8.6
Total	**96.5**	**0.0**	**96.6**

[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 59

[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				
Offsite				
Auger Truck	1	61	N/A	18
Bucket Truck	1	61	N/A	18
Boom/Crane Truck	1	61	N/A	18
1-Ton Crew Cab, 4x4	1	61	N/A	18
Extendable Flat Bed Pole Truck	1	61	N/A	18
Worker Commute	15	61	N/A	60

Table 42
Subtransmission Source Line Construction Emissions
Install Wood/ LWS Poles

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									
Auger Truck	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	1.34E-03	1.15E-03	4.22E+00	1.04E-04
Bucket Truck	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	1.34E-03	1.15E-03	4.22E+00	1.04E-04
Boom/Crane Truck	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	1.34E-03	1.15E-03	4.22E+00	1.04E-04
1-Ton Crew Cab, 4x4	Delivery	2.06E-03	1.41E-02	1.58E-02	2.68E-05	6.00E-04	5.02E-04	2.78E+00	9.70E-05
Extendable Flat Bed Pole Truck	Delivery	2.06E-03	1.41E-02	1.58E-02	2.68E-05	6.00E-04	5.02E-04	2.78E+00	9.70E-05
Worker Commute	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	9.07E-05	5.83E-05	1.10E+00	6.71E-05

a From Table 60 or Table 61

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						
Auger Truck	0.04	0.17	0.49	0.00	0.02	0.02
Bucket Truck	0.04	0.17	0.49	0.00	0.02	0.02
Boom/Crane Truck	0.04	0.17	0.49	0.00	0.02	0.02
1-Ton Crew Cab, 4x4	0.04	0.25	0.28	0.00	0.01	0.01
Extendable Flat Bed Pole Truck	0.04	0.25	0.28	0.00	0.01	0.01
Worker Commute	0.67	6.38	0.64	0.01	0.08	0.05
Offsite Total	**0.87**	**7.39**	**2.69**	**0.01**	**0.18**	**0.13**
Total	**0.87**	**7.39**	**2.69**	**0.01**	**0.18**	**0.13**

[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			
Auger Truck	2.1	0.0	2.1
Bucket Truck	2.1	0.0	2.1
Boom/Crane Truck	2.1	0.0	2.1
1-Ton Crew Cab, 4x4	1.4	0.0	1.4
Extendable Flat Bed Pole Truck	1.4	0.0	1.4
Worker Commute	27.4	0.0	27.4
Offsite Total	**36.5**	**0.0**	**36.5**
Total	**36.5**	**0.0**	**36.5**

[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 60 and Table 61

[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							
None	0					0.00	0.00
Onsite Total						**0.00**	**0.00**
Offsite							
Auger Truck	1	Paved	14	0.001	0.000	0.01	0.00
Bucket Truck	1	Paved	14	0.001	0.000	0.01	0.00
Boom/Crane Truck	1	Paved	14	0.001	0.000	0.01	0.00
1-Ton Crew Cab, 4x4	1	Paved	14	0.001	0.000	0.01	0.00
Extendable Flat Bed Pole Truck	1	Paved	14	0.001	0.000	0.01	0.00
Auger Truck	1	Unpaved	4	0.922	0.092	3.69	0.37
Bucket Truck	1	Unpaved	4	0.922	0.092	3.69	0.37
Boom/Crane Truck	1	Unpaved	4	0.922	0.092	3.69	0.37
1-Ton Crew Cab, 4x4	1	Unpaved	4	0.532	0.053	2.13	0.21
Extendable Flat Bed Pole Truck	1	Unpaved	4	0.922	0.092	3.69	0.37
Worker Commute	15	Paved	60	0.001	0.000	0.83	0.00
Offsite Total						**17.78**	**1.69**
Total						**17.78**	**1.69**

a From Table 62
[b] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Table 42
Subtransmission Source Line Construction Emissions
Install Wood/ LWS Poles

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	13	2.75E-03	5.72E-04	0.04	0.01
Bulldozing, Scraping and Grading	hr/day		1.756	0.365	0.00	0.00
Storage Pile Wind Erosion	acres		6.6	1.37	0.00	0.00
Total					**0.04**	**0.01**

a From Table 63

[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

[c] Based on excavating 4 ft. diameter x 10 ft. deep per pole x 250 poles = 1,164 CY over 90 days

Table 43
Subtransmission Source Line Construction Emissions
Install 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	4.24	15.65	43.82	0.06	1.48	1.36	146.2
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	**4.24**	**15.65**	**43.82**	**0.06**	**1.48**	**1.36**	**146.2**
Offsite Motor Vehicle Exhaust	1.60	11.71	8.89	0.03	0.49	0.40	58.5
Offsite Motor Vehicle Fugitive PM	--	--	--	--	51.99	5.06	
Offsite Total	**1.60**	**11.71**	**8.89**	**0.03**	**52.48**	**5.46**	**58.5**
Total	**5.84**	**27.37**	**52.71**	**0.09**	**53.96**	**6.82**	**204.7**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Bucket Truck	350	1	50	8
Boom/ Crane Truck	350	1	50	8
Wire Truck/Trailer	10	1	50	6
Bull Wheel Puller	16	1	50	6
3 Drum Sock Line Puller	300	1	50	6
Backhoe/Front Loader	79	1	50	2
Static Truck/Tensioner	350	1	50	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
Bucket Truck	350	0.119	0.467	1.531	0.002	0.045	0.041	212.856	0.011	Aerial Lifts
Boom/ Crane Truck	350	0.155	0.529	1.423	0.002	0.052	0.048	180.101	0.014	Cranes
Wire Truck/Trailer	10	0.012	0.062	0.074	0.000	0.003	0.003	10.107	0.001	Other Construction Equipment
Bull Wheel Puller	16	0.016	0.054	0.101	0.000	0.004	0.004	13.217	0.001	Other Construction Equipment
3 Drum Sock Line Puller	300	0.145	0.523	1.519	0.002	0.049	0.045	254.239	0.013	Other Construction Equipment
Backhoe/Front Loader	79	0.069	0.353	0.456	0.001	0.038	0.035	51.728	0.006	Tractors/Loaders/Backhoes
Static Truck/Tensioner	350	0.145	0.523	1.519	0.002	0.049	0.045	254.239	0.013	Other Construction Equipment

a From Table 59

[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	0.95	3.74	12.25	0.02	0.36	0.33
Boom/ Crane Truck	1.24	4.23	11.38	0.01	0.41	0.38
Wire Truck/Trailer	0.07	0.37	0.44	0.00	0.02	0.02
Bull Wheel Puller	0.10	0.33	0.61	0.00	0.02	0.02
3 Drum Sock Line Puller	0.87	3.14	9.11	0.01	0.29	0.27
Backhoe/Front Loader	0.14	0.71	0.91	0.00	0.08	0.07
Static Truck/Tensioner	0.87	3.14	9.11	0.01	0.29	0.27
Total	**4.24**	**15.65**	**43.82**	**0.06**	**1.48**	**1.36**

[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	38.6	0.0	38.7
Boom/ Crane Truck	32.7	0.0	32.7
Wire Truck/Trailer	1.4	0.0	1.4
Bull Wheel Puller	1.8	0.0	1.8
3 Drum Sock Line Puller	34.6	0.0	34.6
Backhoe/Front Loader	2.3	0.0	2.4
Static Truck/Tensioner	34.6	0.0	34.6
Total	**146.0**	**0.0**	**146.2**

[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 59

[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 43
Subtransmission Source Line Construction Emissions
Install Conductor

Motor Vehicle Usage

Vehicle	Number	Days Used	Hours Used/ Day	Miles/ Day/ Veh.
Onsite				
None				
Offsite				
1-Ton Crew Cab, 4x4	3	50	N/A	18
Wire Truck/Trailer	2	50	N/A	18
Dump Truck	1	50	N/A	64
Boom/Crane Truck	1	50	N/A	18
Bucket Truck	4	50	N/A	18
Lowboy Truck/Trailer	2	50	N/A	18
3 Drum Sock Line Puller	1	50	N/A	18
Static Truck/Tensioner	1	50	N/A	18
Worker Commute	20	50	N/A	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]
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 Crew Cab, 4x4	Delivery	2.06E-03	1.41E-02	1.58E-02	2.68E-05	6.00E-04	5.02E-04	2.78E+00	9.70E-05
Wire Truck/Trailer	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	1.34E-03	1.15E-03	4.22E+00	1.04E-04
Dump Truck	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	1.34E-03	1.15E-03	4.22E+00	1.04E-04
Boom/Crane Truck	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	1.34E-03	1.15E-03	4.22E+00	1.04E-04
Bucket Truck	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	1.34E-03	1.15E-03	4.22E+00	1.04E-04
Lowboy Truck/Trailer	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	1.34E-03	1.15E-03	4.22E+00	1.04E-04
3 Drum Sock Line Puller	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	1.34E-03	1.15E-03	4.22E+00	1.04E-04
Static Truck/Tensioner	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	1.34E-03	1.15E-03	4.22E+00	1.04E-04
Worker Commute	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	9.07E-05	5.83E-05	1.10E+00	6.71E-05

a From Table 60 or Table 61

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 Crew Cab, 4x4	0.11	0.76	0.85	0.00	0.03	0.03
Wire Truck/Trailer	0.08	0.34	0.99	0.00	0.05	0.04
Dump Truck	0.14	0.60	1.76	0.00	0.09	0.07
Boom/Crane Truck	0.04	0.17	0.49	0.00	0.02	0.02
Bucket Truck	0.16	0.67	1.97	0.00	0.10	0.08
Lowboy Truck/Trailer	0.08	0.34	0.99	0.00	0.05	0.04
3 Drum Sock Line Puller	0.04	0.17	0.49	0.00	0.02	0.02
Static Truck/Tensioner	0.04	0.17	0.49	0.00	0.02	0.02
Worker Commute	0.89	8.51	0.85	0.01	0.11	0.07
Offsite Total	**1.60**	**11.71**	**8.89**	**0.03**	**0.49**	**0.40**
Total	**1.60**	**11.71**	**8.89**	**0.03**	**0.49**	**0.40**

[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 Crew Cab, 4x4	3.4	0.0	3.4
Wire Truck/Trailer	3.4	0.0	3.4
Dump Truck	6.1	0.0	6.1
Boom/Crane Truck	1.7	0.0	1.7
Bucket Truck	6.9	0.0	6.9
Lowboy Truck/Trailer	3.4	0.0	3.4
3 Drum Sock Line Puller	1.7	0.0	1.7
Static Truck/Tensioner	1.7	0.0	1.7
Worker Commute	30.0	0.0	30.0
Offsite Total	**58.4**	**0.0**	**58.5**
Total	**58.4**	**0.0**	**58.5**

[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 60 and Table 61

[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 43
Subtransmission Source Line Construction Emissions
Install Conductor

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							
None	0						
Onsite Total						**0.00**	**0.00**
Offsite							
1-Ton Crew Cab, 4x4	3	Paved	14	0.001	0.000	0.04	0.00
Wire Truck/Trailer	2	Paved	14	0.001	0.000	0.03	0.00
Dump Truck	1	Paved	60	0.001	0.000	0.06	0.00
Boom/Crane Truck	1	Paved	14	0.001	0.000	0.01	0.00
Bucket Truck	4	Paved	14	0.001	0.000	0.05	0.00
Lowboy Truck/Trailer	2	Paved	14	0.001	0.000	0.03	0.00
3 Drum Sock Line Puller	1	Paved	14	0.001	0.000	0.01	0.00
Static Truck/Tensioner	1	Paved	14	0.001	0.000	0.01	0.00
1-Ton Crew Cab, 4x4	3	Unpaved	4	0.532	0.053	6.38	0.64
Wire Truck/Trailer	2	Unpaved	4	0.922	0.092	7.38	0.74
Dump Truck	1	Unpaved	4	0.922	0.092	3.69	0.37
Boom/Crane Truck	1	Unpaved	4	0.922	0.092	3.69	0.37
Bucket Truck	4	Unpaved	4	0.922	0.092	14.76	1.48
Lowboy Truck/Trailer	2	Unpaved	4	0.922	0.092	7.38	0.74
3 Drum Sock Line Puller	1	Unpaved	4	0.922	0.092	3.69	0.37
Static Truck/Tensioner	1	Unpaved	4	0.922	0.092	3.69	0.37
Worker Commute	20	Paved	60	0.001	0.000	1.11	0.00
Offsite Total						**51.99**	**5.06**
Total						**51.99**	**5.06**

a From Table 62
[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		2.75E-03	5.72E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		1.756	0.365	0.00	0.00
Storage Pile Wind Erosion	acres		6.6	1.37	0.00	0.00
Total					**0.00**	**0.00**

a From Table 63
[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 44
Subtransmission Source 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	1.74	6.34	16.66	0.02	0.67	0.62	7.7
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	**1.74**	**6.34**	**16.66**	**0.02**	**0.67**	**0.62**	**7.7**
Offsite Motor Vehicle Exhaust	0.44	3.44	2.03	0.01	0.12	0.09	2.5
Offsite Motor Vehicle Fugitive PM	--	--	--	--	15.38	1.50	
Offsite Total	**0.44**	**3.44**	**2.03**	**0.01**	**15.50**	**1.59**	**2.5**
Total	**2.18**	**9.78**	**18.69**	**0.03**	**16.17**	**2.21**	**10.2**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Compressor Trailer	120	1	8	4
Boom/Crane Crane Truck	300	1	8	6
Bucket Truck	350	1	8	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	120	0.082	0.325	0.499	0.001	0.046	0.042	46.950	0.007	Air Compressors
Boom/Crane Crane Truck	300	0.155	0.529	1.423	0.002	0.052	0.048	180.101	0.014	Cranes
Bucket Truck	350	0.119	0.467	1.531	0.002	0.045	0.041	212.856	0.011	Aerial Lifts

a From Table 59

[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	0.33	1.30	2.00	0.00	0.18	0.17
Boom/Crane Crane Truck	0.93	3.18	8.54	0.01	0.31	0.29
Bucket Truck	0.48	1.87	6.12	0.01	0.18	0.17
Total	**1.74**	**6.34**	**16.66**	**0.02**	**0.67**	**0.62**

[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
Boom/Crane Crane Truck	3.9	0.0	3.9
Bucket Truck	3.1	0.0	3.1
Total	**7.7**	**0.0**	**7.7**

[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 59

[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				
Offsite				
3/4-Ton Pick-up Truck, 4x4	1	8	N/A	18
1-Ton Crew Cab, 4x4	1	8	N/A	18
Extendable Flat Bed Pole Truck	1	8	N/A	18
Boom/Crane Truck	1	8	N/A	18
Bucket Truck	1	8	N/A	18
Worker Commute	6	8	N/A	60

Table 44
Subtransmission Source Line Construction Emissions
Guard Structure Removal

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 Pick-up Truck, 4x4	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	9.07E-05	5.83E-05	1.10E+00	6.71E-05
1-Ton Crew Cab, 4x4	Delivery	2.06E-03	1.41E-02	1.58E-02	2.68E-05	6.00E-04	5.02E-04	2.78E+00	9.70E-05
Extendable Flat Bed Pole Truck	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	1.34E-03	1.15E-03	4.22E+00	1.04E-04
Boom/Crane Truck	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	1.34E-03	1.15E-03	4.22E+00	1.04E-04
Bucket Truck	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	1.34E-03	1.15E-03	4.22E+00	1.04E-04
Worker Commute	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	9.07E-05	5.83E-05	1.10E+00	6.71E-05

a From Table 60 or Table 61

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 Pick-up Truck, 4x4	0.01	0.13	0.01	0.00	0.00	0.00
1-Ton Crew Cab, 4x4	0.04	0.25	0.28	0.00	0.01	0.01
Extendable Flat Bed Pole Truck	0.04	0.17	0.49	0.00	0.02	0.02
Boom/Crane Truck	0.04	0.17	0.49	0.00	0.02	0.02
Bucket Truck	0.04	0.17	0.49	0.00	0.02	0.02
Worker Commute	0.27	2.55	0.26	0.00	0.03	0.02
Offsite Total	**0.44**	**3.44**	**2.03**	**0.01**	**0.12**	**0.09**
Total	**0.44**	**3.44**	**2.03**	**0.01**	**0.12**	**0.09**

[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 Pick-up Truck, 4x4	0.1	0.0	0.1
1-Ton Crew Cab, 4x4	0.2	0.0	0.2
Extendable Flat Bed Pole Truck	0.3	0.0	0.3
Boom/Crane Truck	0.3	0.0	0.3
Bucket Truck	0.3	0.0	0.3
Worker Commute	1.4	0.0	1.4
Offsite Total	**2.5**	**0.0**	**2.5**
Total	**2.5**	**0.0**	**2.5**

[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 60 and Table 61

[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							
None	0					0.00	0.00
Onsite Total						**0.00**	**0.00**
Offsite							
3/4-Ton Pick-up Truck, 4x4	1	Paved	14	0.001	0.000	0.01	0.00
1-Ton Crew Cab, 4x4	1	Paved	14	0.001	0.000	0.01	0.00
Extendable Flat Bed Pole Truck	1	Paved	14	0.001	0.000	0.01	0.00
Boom/Crane Truck	1	Paved	14	0.001	0.000	0.01	0.00
Bucket Truck	1	Paved	14	0.001	0.000	0.01	0.00
3/4-Ton Pick-up Truck, 4x4	1	Unpaved	4	0.447	0.045	1.79	0.18
1-Ton Crew Cab, 4x4	1	Unpaved	4	0.532	0.053	2.13	0.21
Extendable Flat Bed Pole Truck	1	Unpaved	4	0.922	0.092	3.69	0.37
Boom/Crane Truck	1	Unpaved	4	0.922	0.092	3.69	0.37
Bucket Truck	1	Unpaved	4	0.922	0.092	3.69	0.37
Worker Commute	6	Paved	60	0.001	0.000	0.33	0.00
Offsite Total						**15.38**	**1.50**
Total						**15.38**	**1.50**

a From Table 62
[b] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Table 44
Subtransmission Source Line Construction Emissions
Guard Structure Removal

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		2.75E-03	5.72E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		1.756	0.365	0.00	0.00
Storage Pile Wind Erosion	acres		6.6	1.37	0.00	0.00
Total					**0.00**	**0.00**

a From Table 63
[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 45
Subtransmission Source 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	1.76	6.03	16.27	0.02	0.62	0.57	10.5
Onsite Motor Vehicle Exhaust	0.00	0.02	0.05	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	1.84	0.18	
Earthwork Fugitive PM	--	--	--	--	10.53	2.19	
Onsite Total	**1.76**	**6.05**	**16.32**	**0.02**	**13.00**	**2.95**	**10.5**
Offsite Motor Vehicle Exhaust	0.46	3.78	1.74	0.01	0.10	0.08	3.5
Offsite Motor Vehicle Fugitive PM	--	--	--	--	12.07	1.16	
Offsite Total	**0.46**	**3.78**	**1.74**	**0.01**	**12.17**	**1.24**	**3.5**
Total	**2.22**	**9.84**	**18.07**	**0.03**	**25.17**	**4.19**	**14.0**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Road Grader	350	1	11	6
Backhoe/Front Loader	79	1	11	2
Drum Type Compactor	250	1	11	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
Road Grader	350	0.186	0.629	1.684	0.002	0.061	0.056	229.484	0.017	Graders
Backhoe/Front Loader	79	0.069	0.353	0.456	0.001	0.038	0.035	51.728	0.006	Tractors/Loaders/Backhoes
Drum Type Compactor	250	0.126	0.389	1.312	0.002	0.045	0.041	153.090	0.011	Rollers

a From Table 59
[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]
Road Grader	1.11	3.77	10.11	0.01	0.36	0.34
Backhoe/Front Loader	0.14	0.71	0.91	0.00	0.08	0.07
Drum Type Compactor	0.50	1.55	5.25	0.01	0.18	0.17
Total	**1.76**	**6.03**	**16.27**	**0.02**	**0.62**	**0.57**

[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]
Road Grader	6.9	0.0	6.9
Backhoe/Front Loader	0.5	0.0	0.5
Drum Type Compactor	3.1	0.0	3.1
Total	**10.4**	**0.0**	**10.5**

[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 59
[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				
Water Truck	1	11	N/A	2
Offsite				
Water Truck	1	11	N/A	14
1-Ton Crew Cab, 4x4	2	11	N/A	18
Lowboy Truck/Trailer	1	11	N/A	18
Worker Commute	7	11	N/A	60

Table 45
Subtransmission Source Line Construction Emissions
Restoration

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	2.26E-03	9.32E-03	2.74E-02	4.09E-05	1.34E-03	1.15E-03	4.22E+00	1.04E-04
Offsite									
Water Truck	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	1.34E-03	1.15E-03	4.22E+00	1.04E-04
1-Ton Crew Cab, 4x4	Delivery	2.06E-03	1.41E-02	1.58E-02	2.68E-05	6.00E-04	5.02E-04	2.78E+00	9.70E-05
Lowboy Truck/Trailer	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	1.34E-03	1.15E-03	4.22E+00	1.04E-04
Worker Commute	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	9.07E-05	5.83E-05	1.10E+00	6.71E-05

a From Table 60 or Table 61

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	0.02	0.05	0.00	0.00	0.00
Onsite Total	**0.00**	**0.02**	**0.05**	**0.00**	**0.00**	**0.00**
Offsite						
Water Truck	0.03	0.13	0.38	0.00	0.02	0.02
1-Ton Crew Cab, 4x4	0.07	0.51	0.57	0.00	0.02	0.02
Lowboy Truck/Trailer	0.04	0.17	0.49	0.00	0.02	0.02
Worker Commute	0.31	2.98	0.30	0.00	0.04	0.02
Offsite Total	**0.46**	**3.78**	**1.74**	**0.01**	**0.10**	**0.08**
Total	**0.46**	**3.80**	**1.80**	**0.01**	**0.11**	**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			
Water Truck	0.0	0.0	0.0
Onsite Total	**0.0**	**0.0**	**0.0**
Offsite			
Water Truck	0.3	0.0	0.3
1-Ton Crew Cab, 4x4	0.5	0.0	0.5
Lowboy Truck/Trailer	0.4	0.0	0.4
Worker Commute	2.3	0.0	2.3
Offsite Total	**3.5**	**0.0**	**3.5**
Total	**3.5**	**0.0**	**3.5**

[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 60 and Table 61

[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							
Water Truck	1	Unpaved	2	0.922	0.092	1.84	0.18
Onsite Total						**1.84**	**0.18**
Offsite							
Water Truck	1	Paved	10	0.001	0.000	0.01	0.00
1-Ton Crew Cab, 4x4	2	Paved	14	0.001	0.000	0.03	0.00
Lowboy Truck/Trailer	1	Paved	14	0.001	0.000	0.01	0.00
Water Truck	1	Unpaved	4	0.922	0.092	3.69	0.37
1-Ton Crew Cab, 4x4	2	Unpaved	4	0.532	0.053	4.25	0.43
Lowboy Truck/Trailer	1	Unpaved	4	0.922	0.092	3.69	0.37
Worker Commute	7	Paved	60	0.001	0.000	0.39	0.00
Offsite Total						**12.07**	**1.16**
Total						**13.91**	**1.35**

a From Table 62
[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		2.75E-03	5.72E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day	6	1.756	0.365	10.53	2.19
Storage Pile Wind Erosion	acres		6.6	1.37	0.00	0.00
Total					**10.53**	**2.19**

a From Table 63
[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 46
Subtransmission Source 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	2.07	9.29	16.64	0.02	0.85	0.78	11.3
Onsite Motor Vehicle Exhaust	0.00	0.01	0.03	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.92	0.09	
Earthwork Fugitive PM	--	--	--	--	0.07	0.01	
Onsite Total	**2.07**	**9.30**	**16.66**	**0.02**	**1.84**	**0.89**	**11.3**
Offsite Motor Vehicle Exhaust	1.25	7.11	11.36	0.02	0.56	0.47	11.6
Offsite Motor Vehicle Fugitive PM	--	--	--	--	39.02	3.84	
Offsite Total	**1.25**	**7.11**	**11.36**	**0.02**	**39.58**	**4.31**	**11.6**
Total	**3.33**	**16.41**	**28.02**	**0.04**	**41.42**	**5.20**	**22.9**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
165-Ton Crane Truck	500	1	12	6
Backhoe/Front Loader	79	1	12	6
Excavator	152	1	12	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
165-Ton Crane Truck	500	0.155	0.529	1.423	0.002	0.052	0.048	180.101	0.014	Cranes
Backhoe/Front Loader	79	0.069	0.353	0.456	0.001	0.038	0.035	51.728	0.006	Tractors/Loaders/Backhoes
Excavator	152	0.121	0.667	0.893	0.001	0.051	0.047	112.222	0.011	Excavators

a From Table 59
[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]
165-Ton Crane Truck	0.93	3.18	8.54	0.01	0.31	0.29
Backhoe/Front Loader	0.42	2.12	2.74	0.00	0.23	0.21
Excavator	0.72	4.00	5.36	0.01	0.31	0.28
Total	**2.07**	**9.29**	**16.64**	**0.02**	**0.85**	**0.78**

[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]
165-Ton Crane Truck	5.9	0.0	5.9
Backhoe/Front Loader	1.7	0.0	1.7
Excavator	3.7	0.0	3.7
Total	**11.2**	**0.0**	**11.3**

[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 59
[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.
Onsite				
Water Truck	1	12	N/A	1
Offsite				
Dump Truck	2	12	N/A	64
Water Truck	1	12	N/A	14
1-Ton Crew Cab, 4x4	2	12	N/A	18
Concrete Truck	3	12	N/A	64
165-Ton Crane Truck	1	12	N/A	1
Lowboy Truck/Trailer	1	12	N/A	18
Flat Bed Truck/Trailer	3	12	N/A	18
Worker Commute	6	12	N/A	60

[a] Dump trucks based on 4 vaults 20 ft. x 10 ft.x 9.5 ft. plus 10 percent extra = 310 CY and 14 CY/truck over 12 days
= 310 CY / 14 CY/truck / 12 days = 1.8

Table 46
Subtransmission Source 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									
Water Truck	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	1.34E-03	1.15E-03	4.22E+00	1.04E-04
Offsite									
Dump Truck	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	1.34E-03	1.15E-03	4.22E+00	1.04E-04
Water Truck	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	1.34E-03	1.15E-03	4.22E+00	1.04E-04
1-Ton Crew Cab, 4x4	Delivery	2.06E-03	1.41E-02	1.58E-02	2.68E-05	6.00E-04	5.02E-04	2.78E+00	9.70E-05
Concrete Truck	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	1.34E-03	1.15E-03	4.22E+00	1.04E-04
165-Ton Crane Truck	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	1.34E-03	1.15E-03	4.22E+00	1.04E-04
Lowboy Truck/Trailer	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	1.34E-03	1.15E-03	4.22E+00	1.04E-04
Flat Bed Truck/Trailer	Delivery	2.06E-03	1.41E-02	1.58E-02	2.68E-05	6.00E-04	5.02E-04	2.78E+00	9.70E-05
Worker Commute	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	9.07E-05	5.83E-05	1.10E+00	6.71E-05

a From Table 60 or Table 61

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	0.03	0.00	0.00	0.00
Onsite Total	**0.00**	**0.01**	**0.03**	**0.00**	**0.00**	**0.00**
Offsite						
Dump Truck	0.29	1.19	3.51	0.01	0.17	0.15
Water Truck	0.03	0.13	0.38	0.00	0.02	0.02
1-Ton Crew Cab, 4x4	0.07	0.51	0.57	0.00	0.02	0.02
Concrete Truck	0.43	1.79	5.27	0.01	0.26	0.22
165-Ton Crane Truck	0.00	0.01	0.03	0.00	0.00	0.00
Lowboy Truck/Trailer	0.04	0.17	0.49	0.00	0.02	0.02
Flat Bed Truck/Trailer	0.11	0.76	0.85	0.00	0.03	0.03
Worker Commute	0.27	2.55	0.26	0.00	0.03	0.02
Offsite Total	**1.25**	**7.11**	**11.36**	**0.02**	**0.56**	**0.47**
Total	**1.26**	**7.12**	**11.39**	**0.02**	**0.56**	**0.47**

[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	0.0	0.0	0.0
Onsite Total	**0.0**	**0.0**	**0.0**
Offsite			
Dump Truck	2.9	0.0	2.9
Water Truck	0.3	0.0	0.3
1-Ton Crew Cab, 4x4	0.5	0.0	0.5
Concrete Truck	4.4	0.0	4.4
165-Ton Crane Truck	0.0	0.0	0.0
Lowboy Truck/Trailer	0.4	0.0	0.4
Flat Bed Truck/Trailer	0.8	0.0	0.8
Worker Commute	2.2	0.0	2.2
Offsite Total	**11.6**	**0.0**	**11.6**
Total	**11.6**	**0.0**	**11.7**

[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 60 and Table 61

[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 46
Subtransmission Source Line Construction Emissions
Vault Installation

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							
Water Truck	1	Unpaved	1	0.922	0.092	0.92	0.09
Onsite Total						**0.92**	**0.09**
Offsite							
Dump Truck	1	Paved	60	0.001	0.000	0.06	0.00
Water Truck	1	Paved	10	0.001	0.000	0.01	0.00
1-Ton Crew Cab, 4x4	2	Paved	14	0.001	0.000	0.03	0.00
Concrete Truck	3	Paved	60	0.001	0.000	0.17	0.00
Lowboy Truck/Trailer	1	Paved	14	0.001	0.000	0.01	0.00
Flat Bed Truck/Trailer	3	Paved	14	0.001	0.000	0.04	0.00
Dump Truck	1	Unpaved	4	0.922	0.092	3.69	0.37
Water Truck	1	Unpaved	4	0.922	0.092	3.69	0.37
1-Ton Crew Cab, 4x4	2	Unpaved	4	0.532	0.053	4.25	0.43
Concrete Truck	3	Unpaved	4	0.922	0.092	11.07	1.11
Lowboy Truck/Trailer	1	Unpaved	4	0.922	0.092	3.69	0.37
Flat Bed Truck/Trailer	3	Unpaved	4	0.922	0.092	11.07	1.11
165-Ton Crane Truck	1	Unpaved	1	0.922	0.092	0.92	0.09
Worker Commute	6	Paved	60	0.001	0.000	0.33	0.00
Offsite Total						**39.02**	**3.84**
Total						**39.94**	**3.93**

a From Table 62
[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[c]	CY/day	26	2.75E-03	5.72E-04	0.07	0.01
Bulldozing, Scraping and Grading	hr/day		1.756	0.365	0.00	0.00
Storage Pile Wind Erosion	acres		6.6	1.37	0.00	0.00
Total					**0.07**	**0.01**

a From Table 63
[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]
[c] Based on 310 CY in 12 days

Table 47
Subtransmission Source 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	0.47	2.37	3.07	0.00	0.25	0.23	1.3
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	--	--	--	--	0.21	0.04	
Onsite Total	**0.47**	**2.37**	**3.07**	**0.00**	**0.45**	**0.27**	**1.3**
Offsite Motor Vehicle Exhaust	1.61	8.30	16.24	0.03	0.81	0.68	9.9
Offsite Motor Vehicle Fugitive PM	--	--	--	--	45.71	4.48	
Offsite Total	**1.61**	**8.30**	**16.24**	**0.03**	**46.52**	**5.17**	**9.9**
Total	**2.09**	**10.67**	**19.31**	**0.03**	**46.97**	**5.44**	**11.2**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Compressor Trailer	120	1	8	6
Backhoe/Front Loader	79	1	8	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	120	0.009	0.042	0.056	0.000	0.003	0.002	7.248	0.001	Compressors
Backhoe/Front Loader	79	0.069	0.353	0.456	0.001	0.038	0.035	51.728	0.006	Tractors/Loaders/Backhoes

a From Table 59

[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	0.05	0.25	0.33	0.00	0.02	0.01
Backhoe/Front Loader	0.42	2.12	2.74	0.00	0.23	0.21
Total	**0.47**	**2.37**	**3.07**	**0.00**	**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	0.2	0.0	0.2
Backhoe/Front Loader	1.1	0.0	1.1
Total	**1.3**	**0.0**	**1.3**

[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 59

[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.
Onsite				
None				
Offsite				
Dump Truck	6	8	N/A	64
Pipe Truck/Trailer	1	8	N/A	18
Water Truck	1	8	N/A	14
1-Ton Crew Cab, 4x4	2	8	N/A	18
Concrete Truck	2	6	N/A	64
Lowboy Truck/Trailer	1	8	N/A	18
Worker Commute	6	8	N/A	60

[a] Dump trucks based on 600 CY over 8 days and 14 CY/truck = 600 CY / 14 CY/truck / 8 days = 5.4 trucks/day
Concrete trucks based on duct bank 21 in. x 20 in x 1,800 ft. - volume of 6, 5.563 in. OD PVC over 6 days and 10 CY/truck =
(21 in. x 20 in. - 6 x pi x $(5.563 \text{ in.})^2$ / 4) / 144 sq. in./sq. ft. x 1,800 ft. / 27 CY/cu. ft. / 10 CY/truck / 6 days = 2.1 trucks/day

Table 47
Subtransmission Source Line Construction Emissions
Duct Bank 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									
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									
Dump Truck	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	1.34E-03	1.15E-03	4.22E+00	1.04E-04
Pipe Truck/Trailer	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	1.34E-03	1.15E-03	4.22E+00	1.04E-04
Water Truck	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	1.34E-03	1.15E-03	4.22E+00	1.04E-04
1-Ton Crew Cab, 4x4	Delivery	2.06E-03	1.41E-02	1.58E-02	2.68E-05	6.00E-04	5.02E-04	2.78E+00	9.70E-05
Concrete Truck	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	1.34E-03	1.15E-03	4.22E+00	1.04E-04
Lowboy Truck/Trailer	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	1.34E-03	1.15E-03	4.22E+00	1.04E-04
Worker Commute	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	9.07E-05	5.83E-05	1.10E+00	6.71E-05

a From Table 60 or Table 61

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						
Dump Truck	0.87	3.58	10.53	0.02	0.51	0.44
Pipe Truck/Trailer	0.04	0.17	0.49	0.00	0.02	0.02
Water Truck	0.03	0.13	0.38	0.00	0.02	0.02
1-Ton Crew Cab, 4x4	0.07	0.51	0.57	0.00	0.02	0.02
Concrete Truck	0.29	1.19	3.51	0.01	0.17	0.15
Lowboy Truck/Trailer	0.04	0.17	0.49	0.00	0.02	0.02
Worker Commute	0.27	2.55	0.26	0.00	0.03	0.02
Offsite Total	**1.61**	**8.30**	**16.24**	**0.03**	**0.81**	**0.68**
Total	**1.61**	**8.30**	**16.24**	**0.03**	**0.81**	**0.68**

[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			
Dump Truck	5.9	0.0	5.9
Pipe Truck/Trailer	0.3	0.0	0.3
Water Truck	0.2	0.0	0.2
1-Ton Crew Cab, 4x4	0.4	0.0	0.4
Concrete Truck	1.5	0.0	1.5
Lowboy Truck/Trailer	0.3	0.0	0.3
Worker Commute	1.4	0.0	1.4
Offsite Total	**9.9**	**0.0**	**9.9**
Total	**9.9**	**0.0**	**9.9**

[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 60 and Table 61

[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 47
Subtransmission Source Line Construction Emissions
Duct Bank Installation

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							
None						0.00	0.00
Onsite Total						**0.00**	**0.00**
Offsite							
Dump Truck	6	Paved	60	0.001	0.000	0.33	0.00
Pipe Truck/Trailer	1	Paved	14	0.001	0.000	0.01	0.00
Water Truck	1	Paved	10	0.001	0.000	0.01	0.00
1-Ton Crew Cab, 4x4	2	Paved	14	0.001	0.000	0.03	0.00
Concrete Truck	2	Paved	60	0.001	0.000	0.11	0.00
Lowboy Truck/Trailer	1	Paved	60	0.001	0.000	0.06	0.00
Dump Truck	6	Unpaved	4	0.922	0.092	22.13	2.21
Pipe Truck/Trailer	1	Unpaved	4	0.922	0.092	3.69	0.37
Water Truck	1	Unpaved	4	0.922	0.092	3.69	0.37
1-Ton Crew Cab, 4x4	2	Unpaved	4	0.532	0.053	4.25	0.43
Concrete Truck	2	Unpaved	4	0.922	0.092	7.38	0.74
Lowboy Truck/Trailer	1	Unpaved	4	0.922	0.092	3.69	0.37
Worker Commute	6	Paved	60	0.001	0.000	0.33	0.00
Offsite Total						**45.71**	**4.48**
Total						**45.71**	**4.48**

a From Table 62
[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[c]	CY/day	75	2.75E-03	5.72E-04	0.21	0.04
Bulldozing, Scraping and Grading	hr/day		1.756	0.365	0.00	0.00
Storage Pile Wind Erosion	acres		6.6	1.37	0.00	0.00
Total					**0.21**	**0.04**

a From Table 63
[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]
[c] Based on 600 CY over 8 days

Table 48
Telecommunications Construction
Cable Construction

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	1.67	6.54	21.43	0.03	0.63	0.58	31.1
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	**1.67**	**6.54**	**21.43**	**0.03**	**0.63**	**0.58**	**31.1**
Offsite Motor Vehicle Exhaust	0.42	3.22	2.05	0.01	0.11	0.09	6.6
Offsite Motor Vehicle Fugitive PM	--	--	--	--	14.85	1.45	
Offsite Total	**0.42**	**3.22**	**2.05**	**0.01**	**14.96**	**1.54**	**6.6**
Total	**2.08**	**9.76**	**23.49**	**0.04**	**15.59**	**2.12**	**37.7**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Bucket Truck	350	2	23	7

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	350	0.119	0.467	1.531	0.002	0.045	0.041	212.856	0.011	Aerial Lifts

a From Table 59

[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	1.67	6.54	21.43	0.03	0.63	0.58
Total	**1.67**	**6.54**	**21.43**	**0.03**	**0.63**	**0.58**

[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	31.1	0.0	31.1
Total	**31.1**	**0.0**	**31.1**

[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 59

[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				
Offsite				
PIck-up Truck	1	23	N/A	18
Splicing Truck	2	23	N/A	18
Bucket Truck	2	23	N/A	18
Worker Commute	5	23	N/A	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]
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									
PIck-up Truck	Delivery	2.06E-03	1.41E-02	1.58E-02	2.68E-05	6.00E-04	5.02E-04	2.78E+00	9.70E-05
Splicing Truck	Delivery	2.06E-03	1.41E-02	1.58E-02	2.68E-05	6.00E-04	5.02E-04	2.78E+00	9.70E-05
Bucket Truck	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	1.34E-03	1.15E-03	4.22E+00	1.04E-04
Worker Commute	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	9.07E-05	5.83E-05	1.10E+00	6.71E-05

a From Table 60 or Table 61

Table 48
Telecommunications Construction
Cable Construction

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						
PIck-up Truck	0.04	0.25	0.28	0.00	0.01	0.01
Splicing Truck	0.07	0.51	0.57	0.00	0.02	0.02
Bucket Truck	0.08	0.34	0.99	0.00	0.05	0.04
Worker Commute	0.22	2.13	0.21	0.00	0.03	0.02
Offsite Total	**0.42**	**3.22**	**2.05**	**0.01**	**0.11**	**0.09**
Total	**0.42**	**3.22**	**2.05**	**0.01**	**0.11**	**0.09**

[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			
PIck-up Truck	0.5	0.0	0.5
Splicing Truck	1.0	0.0	1.0
Bucket Truck	1.6	0.0	1.6
Worker Commute	3.4	0.0	3.4
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 60 and Table 61

[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							
None	0					0.00	0.00
Onsite Total						**0.00**	**0.00**
Offsite							
PIck-up Truck	1	Paved	14	0.001	0.000	0.01	0.00
Bucket Truck	2	Paved	14	0.001	0.000	0.03	0.00
PIck-up Truck	1	Unpaved	4	0.726	0.073	2.91	0.29
Splicing Truck	2	Unpaved	4	0.532	0.053	4.25	0.43
Bucket Truck	2	Unpaved	4	0.922	0.092	7.38	0.74
Worker Commute	5	Paved	60	0.001	0.000	0.28	0.00
Offsite Total						**14.85**	**1.45**
Total						**14.85**	**1.45**

a From Table 62
[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		2.75E-03	5.72E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		1.756	0.365	0.00	0.00
Storage Pile Wind Erosion	acres		6.6	1.37	0.00	0.00
Total					**0.00**	**0.00**

a From Table 63
[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 49
Telecommunications Construction
Vault and 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	0.63	3.16	4.10	0.01	0.33	0.30	4.3
Onsite Motor Vehicle Exhaust	0.00	0.01	0.03	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.92	0.09	
Earthwork Fugitive PM	--	--	--	--	0.06	0.01	
Onsite Total	**0.63**	**3.17**	**4.12**	**0.01**	**1.31**	**0.41**	**4.3**
Offsite Motor Vehicle Exhaust	0.90	6.41	5.83	0.01	0.27	0.22	8.5
Offsite Motor Vehicle Fugitive PM	--	--	--	--	23.29	2.27	
Offsite Total	**0.90**	**6.41**	**5.83**	**0.01**	**23.55**	**2.49**	**8.5**
Total	**1.53**	**9.58**	**9.96**	**0.02**	**24.86**	**2.90**	**12.8**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Backhoe/Front Loader	79	1	20	8
Compressor Trailer	120	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
Backhoe/Front Loader	79	0.069	0.353	0.456	0.001	0.038	0.035	51.728	0.006	Tractors/Loaders/Backhoes
Compressor Trailer	120	0.009	0.042	0.056	0.000	0.003	0.002	7.248	0.001	Compressors

a From Table 59

[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	0.56	2.82	3.65	0.00	0.31	0.28
Compressor Trailer	0.07	0.34	0.44	0.00	0.02	0.02
Total	**0.63**	**3.16**	**4.10**	**0.01**	**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]
Backhoe/Front Loader	3.8	0.0	3.8
Compressor Trailer	0.5	0.0	0.5
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 59

[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.
Onsite				
Water Truck	1	20	N/A	1
Offsite				
Foreman Truck	1	20	N/A	18
Concrete Truck	3	5	N/A	64
Dump Truck	1	20	N/A	64
Water Truck	1	20	N/A	10
Crewcab Truck	1	20	N/A	15
Worker Commute	6	20	N/A	60

[a] Dump trucks based on hauling bottom 1 ft. of 1 ft. wide trench, 3,825 ft. long over 20 days and 14 CY/truck:
1 ft. deep x 1 ft. wide x 3,825 ft. long / 27 CY/cu. ft. / 14 CY/truck / 20 days = 0.5 trucks/day
Concrete trucks based on filling bottom 1 ft. of 1 ft. wide trench, 3,825 ft. long over 5 day and 10 CY/truck:
1 ft. deep x 1 ft. wide x 3,825 ft. long / 27 CY/cu. ft. / 10 CY/truck / 5 days = 2.8 trucks/day

Table 49
Telecommunications Construction
Vault and Duct Bank 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									
Water Truck	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	1.34E-03	1.15E-03	4.22E+00	1.04E-04
Offsite									
Foreman Truck	Delivery	2.06E-03	1.41E-02	1.58E-02	2.68E-05	6.00E-04	5.02E-04	2.78E+00	9.70E-05
Concrete Truck	Delivery	2.06E-03	1.41E-02	1.58E-02	2.68E-05	6.00E-04	5.02E-04	2.78E+00	9.70E-05
Dump Truck	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	1.34E-03	1.15E-03	4.22E+00	1.04E-04
Water Truck	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	1.34E-03	1.15E-03	4.22E+00	1.04E-04
Crewcab Truck	Delivery	2.06E-03	1.41E-02	1.58E-02	2.68E-05	6.00E-04	5.02E-04	2.78E+00	9.70E-05
Worker Commute	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	9.07E-05	5.83E-05	1.10E+00	6.71E-05

a From Table 60 or Table 61

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	0.03	0.00	0.00	0.00
Onsite Total	**0.00**	**0.01**	**0.03**	**0.00**	**0.00**	**0.00**
Offsite						
Foreman Truck	0.04	0.25	0.28	0.00	0.01	0.01
Concrete Truck	0.40	2.70	3.03	0.01	0.12	0.10
Dump Truck	0.14	0.60	1.76	0.00	0.09	0.07
Water Truck	0.02	0.09	0.27	0.00	0.01	0.01
Crewcab Truck	0.03	0.21	0.24	0.00	0.01	0.01
Worker Commute	0.27	2.55	0.26	0.00	0.03	0.02
Offsite Total	**0.90**	**6.41**	**5.83**	**0.01**	**0.27**	**0.22**
Total	**0.90**	**6.42**	**5.86**	**0.01**	**0.27**	**0.22**

[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	0.0	0.0	0.0
Onsite Total	**0.0**	**0.0**	**0.0**
Offsite			
Foreman Truck	0.5	0.0	0.5
Concrete Truck	1.2	0.0	1.2
Dump Truck	2.4	0.0	2.4
Water Truck	0.4	0.0	0.4
Crewcab Truck	0.4	0.0	0.4
Worker Commute	3.6	0.0	3.6
Offsite Total	**8.5**	**0.0**	**8.5**
Total	**8.5**	**0.0**	**8.5**

[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 60 and Table 61

[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							
Water Truck	1	Unpaved	1	0.922	0.092	0.92	0.09
Onsite Total						**0.92**	**0.09**
Offsite							
Foreman Truck	1	Paved	14	0.001	0.000	0.01	0.00
Concrete Truck	3	Paved	60	0.001	0.000	0.17	0.00
Dump Truck	1	Paved	60	0.001	0.000	0.06	0.00
Water Truck	1	Paved	10	0.001	0.000	0.01	0.00
Crewcab Truck	1	Paved	14	0.001	0.000	0.01	0.00
Foreman Truck	1	Unpaved	4	0.532	0.053	2.13	0.21
Concrete Truck	3	Unpaved	4	0.922	0.092	11.07	1.11
Dump Truck	1	Unpaved	4	0.922	0.092	3.69	0.37
Water Truck	1	Unpaved	4	0.922	0.092	3.69	0.37
Crewcab Truck	1	Unpaved	4	0.532	0.053	2.13	0.21
Worker Commute	6	Paved	60	0.001	0.000	0.33	0.00
Offsite Total						**23.29**	**2.27**
Total						**24.21**	**2.36**

a From Table 62
[b] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Table 49
Telecommunications Construction
Vault and Duct Bank 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	CY/day	21	2.75E-03	5.72E-04	0.06	0.01
Bulldozing, Scraping and Grading	hr/day		1.756	0.365	0.00	0.00
Storage Pile Wind Erosion	acres		6.6	1.37	0.00	0.00
Total					**0.06**	**0.01**

a From Table 63

[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

[c] Based on excavating 12 in. x 36 in. x 3,825 ft. = 425 CY over 20 days

Table 50
Distribution Getaways 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	1.28	4.89	10.62	0.01	0.55	0.51	2.0
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	--	--	--	--	0.26	0.05	
Onsite Total	**1.28**	**4.89**	**10.62**	**0.01**	**0.81**	**0.56**	**2.0**
Offsite Motor Vehicle Exhaust	1.48	7.34	15.28	0.03	0.76	0.65	8.0
Offsite Motor Vehicle Fugitive PM	--	--	--	--	9.62	0.88	
Offsite Total	**1.48**	**7.34**	**15.28**	**0.03**	**10.38**	**1.53**	**8.0**
Total	**2.76**	**12.23**	**25.90**	**0.04**	**11.19**	**2.09**	**10.0**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Backhoe	79	1	5	8
Precaster Boom Truck	250	1	3	7

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	79	0.069	0.353	0.456	0.001	0.038	0.035	51.728	0.006	Tractors/Loaders/Backhoes
Precaster Boom Truck	250	0.104	0.295	0.995	0.001	0.035	0.032	112.159	0.009	Cranes

a From Table 59

[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	0.56	2.82	3.65	0.00	0.31	0.28
Precaster Boom Truck	0.73	2.06	6.96	0.01	0.25	0.23
Total	**1.28**	**4.89**	**10.62**	**0.01**	**0.55**	**0.51**

[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	0.9	0.0	0.9
Precaster Boom Truck	1.1	0.0	1.1
Total	**2.0**	**0.0**	**2.0**

[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 59

[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.
Onsite				
None				
Offsite				
Dump Truck	4	10	N/A	61
Precaster Boom Truck	1	3	N/A	61
Crew Pickup Truck	1	10	N/A	14
Concrete Truck	4	3	N/A	61
Worker Commute	5	10	N/A	60

[a] Dump trucks based on hauling 470 CY over 10 days and 14 CY/truck: 470 CY / 14 CY/truck / 10 days = 3.4
Concrete trucks based on backfilling excavation with sand slurry mix over 3 days and 10 CY/truck.
Excavated volume = 470 CY. Vault volume = 5 vaults x 10 ft. wide x 20 ft. long x 9.5 ft. deep / 27 cu. ft./CY = 352 CY.
Number trucks = (470 CY - 352 CY) / 10 CY/truck / 3 days = 3.9

Table 50
Distribution Getaways 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									
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									
Dump Truck	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	1.34E-03	1.15E-03	4.22E+00	1.04E-04
Precaster Boom Truck	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	1.34E-03	1.15E-03	4.22E+00	1.04E-04
Crew Pickup Truck	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	9.07E-05	5.83E-05	1.10E+00	6.71E-05
Concrete Truck	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	1.34E-03	1.15E-03	4.22E+00	1.04E-04
Worker Commute	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	9.07E-05	5.83E-05	1.10E+00	6.71E-05

a From Table 60 or Table 61

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						
Dump Truck	0.55	2.27	6.69	0.01	0.33	0.28
Precaster Boom Truck	0.14	0.57	1.67	0.00	0.08	0.07
Crew Pickup Truck	0.01	0.10	0.01	0.00	0.00	0.00
Concrete Truck	0.55	2.27	6.69	0.01	0.33	0.28
Worker Commute	0.22	2.13	0.21	0.00	0.03	0.02
Offsite Total	**1.48**	**7.34**	**15.28**	**0.03**	**0.76**	**0.65**
Total	**1.48**	**7.34**	**15.28**	**0.03**	**0.76**	**0.65**

[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			
Dump Truck	4.7	0.0	4.7
Precaster Boom Truck	0.3	0.0	0.4
Crew Pickup Truck	0.1	0.0	0.1
Concrete Truck	1.4	0.0	1.4
Worker Commute	1.5	0.0	1.5
Offsite Total	**8.0**	**0.0**	**8.0**
Total	**8.0**	**0.0**	**8.0**

[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 60 and Table 61

[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							
None						0.00	0.00
Onsite Total						**0.00**	**0.00**
Offsite							
Dump Truck	4	Paved	60	0.001	0.000	0.22	0.00
Precaster Boom Truck	1	Paved	60	0.001	0.000	0.06	0.00
Crew Pickup Truck	1	Paved	14	0.001	0.000	0.01	0.00
Dump Truck	4	Unpaved	1	0.922	0.092	3.69	0.37
Precaster Boom Truck	1	Unpaved	1	0.922	0.092	0.92	0.09
Crew Pickup Truck	1	Unpaved	1	0.532	0.053	0.53	0.05
Concrete Truck	4	Unpaved	1	0.922	0.092	3.69	0.37
Concrete Truck	4	Paved	60	0.001	0.000	0.22	0.00
Worker Commute	5	Paved	60	0.001	0.000	0.28	0.00
Offsite Total						**9.62**	**0.88**
Total						**9.62**	**0.88**

a From Table 62
[b] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Table 50
Distribution Getaways 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	94	2.75E-03	5.72E-04	0.26	0.05
Bulldozing, Scraping and Grading	hr/day		1.756	0.365	0.00	0.00
Storage Pile Wind Erosion	acres		6.6	1.37	0.00	0.00
Total					**0.26**	**0.05**

a From Table 63
[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]
[c] Based on 470 CY over 5 days

Table 51
Distribution Getaways Construction Emissions
Trench

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	0.90	4.72	6.21	0.01	0.48	0.44	6.0
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	--	--	--	--	0.12	0.02	
Onsite Total	**0.90**	**4.72**	**6.21**	**0.01**	**0.60**	**0.46**	**6.0**
Offsite Motor Vehicle Exhaust	2.71	13.48	28.12	0.05	1.40	1.19	20.9
Offsite Motor Vehicle Fugitive PM	--	--	--	--	19.09	1.77	
Offsite Total	**2.71**	**13.48**	**28.12**	**0.05**	**20.49**	**2.95**	**20.9**
Total	**3.61**	**18.20**	**34.33**	**0.06**	**21.09**	**3.42**	**26.9**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Backhoe	79	1	20	8
Stomper	4	1	3	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
Backhoe	79	0.101	0.528	0.703	0.001	0.057	0.052	80.859	0.009	Other Construction Equipment
Stomper	4	0.012	0.062	0.074	0.000	0.003	0.003	10.107	0.001	Other Construction Equipment

a From Table 59

[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	0.80	4.22	5.62	0.01	0.45	0.42
Stomper	0.09	0.49	0.59	0.00	0.02	0.02
Total	**0.90**	**4.72**	**6.21**	**0.01**	**0.48**	**0.44**

[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	5.9	0.0	5.9
Stomper	0.1	0.0	0.1
Total	**6.0**	**0.0**	**6.0**

[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 59

[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.
Onsite				
None				
Offsite				
Dump Truck	7	10	N/A	61
Water Truck	1	20	N/A	11
Gang Truck	1	20	N/A	15
Conduit Vendor Truck	1	4	N/A	15
Concrete Truck	9	6	N/A	61
Crew Pickup Truck	1	20	N/A	15
Worker Commute	9	20	N/A	60

[a] Dump trucks based on hauling 865 CY over 10 days and 14 CY/truck: 865 CY / 14 CY/truck / 10 days = 6.2
Number of concrete trucks assumed the same as dump trucks.

Table 51
Distribution Getaways Construction Emissions
Trench

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									
Dump Truck	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	1.34E-03	1.15E-03	4.22E+00	1.04E-04
Water Truck	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	1.34E-03	1.15E-03	4.22E+00	1.04E-04
Gang Truck	Delivery	2.06E-03	1.41E-02	1.58E-02	2.68E-05	6.00E-04	5.02E-04	2.78E+00	9.70E-05
Conduit Vendor Truck	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	1.34E-03	1.15E-03	4.22E+00	1.04E-04
Concrete Truck	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	1.34E-03	1.15E-03	4.22E+00	1.04E-04
Crew Pickup Truck	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	9.07E-05	5.83E-05	1.10E+00	6.71E-05
Worker Commute	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	9.07E-05	5.83E-05	1.10E+00	6.71E-05

a From Table 60 or Table 61

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						
Dump Truck	0.97	3.98	11.71	0.02	0.57	0.49
Water Truck	0.02	0.10	0.30	0.00	0.01	0.01
Gang Truck	0.03	0.21	0.24	0.00	0.01	0.01
Conduit Vendor Truck	0.03	0.14	0.41	0.00	0.02	0.02
Concrete Truck	1.24	5.12	15.06	0.02	0.73	0.63
Crew Pickup Truck	0.01	0.11	0.01	0.00	0.00	0.00
Worker Commute	0.40	3.83	0.38	0.01	0.05	0.03
Offsite Total	**2.71**	**13.48**	**28.12**	**0.05**	**1.40**	**1.19**
Total	**2.71**	**13.48**	**28.12**	**0.05**	**1.40**	**1.19**

[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			
Dump Truck	8.2	0.0	8.2
Water Truck	0.4	0.0	0.4
Gang Truck	0.4	0.0	0.4
Conduit Vendor Truck	0.1	0.0	0.1
Concrete Truck	6.3	0.0	6.3
Crew Pickup Truck	0.1	0.0	0.1
Worker Commute	5.4	0.0	5.4
Offsite Total	**20.9**	**0.0**	**20.9**
Total	**20.9**	**0.0**	**20.9**

[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 60 and Table 61

[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 51
Distribution Getaways Construction Emissions
Trench

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							
None						0.00	0.00
Onsite Total						**0.00**	**0.00**
Offsite							
Dump Truck	7	Unpaved	1	0.922	0.092	6.46	0.65
Dump Truck	7	Paved	60	0.001	0.000	0.39	0.00
Water Truck	1	Unpaved	1	0.922	0.092	0.92	0.09
Water Truck	1	Paved	10	0.001	0.000	0.01	0.00
Gang Truck	1	Unpaved	1	0.532	0.053	0.53	0.05
Gang Truck	1	Paved	14	0.001	0.000	0.01	0.00
Conduit Vendor Truck	1	Unpaved	1	0.922	0.092	0.92	0.09
Conduit Vendor Truck	1	Paved	14	0.001	0.000	0.01	0.00
Concrete Truck	9	Unpaved	1	0.922	0.092	8.30	0.83
Concrete Truck	9	Paved	60	0.001	0.000	0.50	0.00
Crew Pickup Truck	1	Unpaved	1	0.532	0.053	0.53	0.05
Crew Pickup Truck	1	Paved	14	0.001	0.000	0.01	0.00
Worker Commute	9	Paved	60	0.001	0.000	0.50	0.00
Offsite Total						**19.09**	**1.77**
Total						**19.09**	**1.77**

a From Table 62
[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	43	2.75E-03	5.72E-04	0.12	0.02
Bulldozing, Scraping and Grading	hr/day		1.756	0.365	0.00	0.00
Storage Pile Wind Erosion	acres		6.6	1.37	0.00	0.00
Total					**0.12**	**0.02**

Soil Hadling based on : excavation volumes: 20 inch*54 inch*2000ft = 16200 cuft= 600 cubic yards = 60 cubic yards/day for 10 days
a From Table 63
[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]
[c] Based on 865 CY over 20 days

Table 52
Distribution - Existing Facilities Relocation Emissions
Location 1

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	0.24	2.03	0.78	0.00	0.05	0.04	0.2
Offsite Motor Vehicle Fugitive PM	--	--	--	--	0.25	0.00	
Offsite Total	**0.24**	**2.03**	**0.78**	**0.00**	**0.30**	**0.04**	**0.2**
Total	**0.24**	**2.03**	**0.78**	**0.00**	**0.30**	**0.04**	**0.2**

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]	Category
None		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

a From Table 59

[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 59

[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				
Offsite				
Line Truck	1	1	N/A	14
Pick-up Truck	1	1	N/A	14
Worker Commute	4	1	N/A	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]
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									
Line Truck	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	1.34E-03	1.15E-03	4.22E+00	1.04E-04
Pick-up Truck	Delivery	2.06E-03	1.41E-02	1.58E-02	2.68E-05	6.00E-04	5.02E-04	2.78E+00	9.70E-05
Worker Commute	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	9.07E-05	5.83E-05	1.10E+00	6.71E-05

a From Table 60 or Table 61

Table 52
Distribution - Existing Facilities Relocation Emissions
Location 1

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						
Line Truck	0.03	0.13	0.38	0.00	0.02	0.02
Pick-up Truck	0.03	0.20	0.22	0.00	0.01	0.01
Worker Commute	0.18	1.70	0.17	0.00	0.02	0.01
Offsite Total	**0.24**	**2.03**	**0.78**	**0.00**	**0.05**	**0.04**
Total	**0.24**	**2.03**	**0.78**	**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			
Line Truck	0.0	0.0	0.0
Pick-up Truck	0.0	0.0	0.0
Worker Commute	0.1	0.0	0.1
Offsite Total	**0.2**	**0.0**	**0.2**
Total	**0.2**	**0.0**	**0.2**

[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 60 and Table 61

[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							
None						0.00	0.00
Onsite Total						**0.00**	**0.00**
Offsite							
Line Truck	1	Paved	14	0.001	0.000	0.01	0.00
Pick-up Truck	1	Paved	14	0.001	0.000	0.01	0.00
Worker Commute	4	Paved	60	0.001	0.000	0.22	0.00
Offsite Total						**0.25**	**0.00**
Total						**0.25**	**0.00**

a From Table 62
[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		2.75E-03	5.72E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		1.756	0.365	0.00	0.00
Storage Pile Wind Erosion	acres		6.6	1.37	0.00	0.00
Total					**0.00**	**0.00**

a From Table 63
[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 53
Distribution - Existing Facilities Relocation Emissions
Location 2

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	0.24	2.03	0.78	0.00	0.05	0.04	0.2
Offsite Motor Vehicle Fugitive PM	--	--	--	--	0.25	0.00	
Offsite Total	**0.24**	**2.03**	**0.78**	**0.00**	**0.30**	**0.04**	**0.2**
Total	**0.24**	**2.03**	**0.78**	**0.00**	**0.30**	**0.04**	**0.2**

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]	Category
None		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

a From Table 59

[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 59

[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				
Offsite				
Line Truck	1	1	N/A	14
Pick-up Truck	1	1	N/A	14
Worker Commute	4	1	N/A	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]
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									
Line Truck	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	1.34E-03	1.15E-03	4.22E+00	1.04E-04
Pick-up Truck	Delivery	2.06E-03	1.41E-02	1.58E-02	2.68E-05	6.00E-04	5.02E-04	2.78E+00	9.70E-05
Worker Commute	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	9.07E-05	5.83E-05	1.10E+00	6.71E-05

a From Table 60 or Table 61

Table 53
Distribution - Existing Facilities Relocation Emissions
Location 2

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						
Line Truck	0.03	0.13	0.38	0.00	0.02	0.02
Pick-up Truck	0.03	0.20	0.22	0.00	0.01	0.01
Worker Commute	0.18	1.70	0.17	0.00	0.02	0.01
Offsite Total	**0.24**	**2.03**	**0.78**	**0.00**	**0.05**	**0.04**
Total	**0.24**	**2.03**	**0.78**	**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			
Line Truck	0.0	0.0	0.0
Pick-up Truck	0.0	0.0	0.0
Worker Commute	0.1	0.0	0.1
Offsite Total	**0.2**	**0.0**	**0.2**
Total	**0.2**	**0.0**	**0.2**

[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 60 and Table 61

[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							
None						0.00	0.00
Onsite Total						**0.00**	**0.00**
Offsite							
Line Truck	1	Paved	14	0.001	0.000	0.01	0.00
Pick-up Truck	1	Paved	14	0.001	0.000	0.01	0.00
Worker Commute	4	Paved	60	0.001	0.000	0.22	0.00
Offsite Total						**0.25**	**0.00**
Total						**0.25**	**0.00**

a From Table 62
[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		2.75E-03	5.72E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		1.756	0.365	0.00	0.00
Storage Pile Wind Erosion	acres		6.6	1.37	0.00	0.00
Total					**0.00**	**0.00**

a From Table 63
[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 54
Distribution - Existing Facilities Relocation Emissions
Location 3

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	0.48	4.06	1.55	0.01	0.10	0.07	1.0
Offsite Motor Vehicle Fugitive PM	--	--	--	--	0.49	0.00	
Offsite Total	**0.48**	**4.06**	**1.55**	**0.01**	**0.59**	**0.07**	**1.0**
Total	**0.48**	**4.06**	**1.55**	**0.01**	**0.59**	**0.07**	**1.0**

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]	Category
None		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

a From Table 59

[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 59

[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				
Offsite				
Line Truck	2	3	N/A	14
Pick-up Truck	2	3	N/A	14
Worker Commute	8	3	N/A	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]
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									
Line Truck	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	1.34E-03	1.15E-03	4.22E+00	1.04E-04
Pick-up Truck	Delivery	2.06E-03	1.41E-02	1.58E-02	2.68E-05	6.00E-04	5.02E-04	2.78E+00	9.70E-05
Worker Commute	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	9.07E-05	5.83E-05	1.10E+00	6.71E-05

a From Table 60 or Table 61

Table 54
Distribution - Existing Facilities Relocation Emissions
Location 3

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						
Line Truck	0.06	0.26	0.77	0.00	0.04	0.03
Pick-up Truck	0.06	0.39	0.44	0.00	0.02	0.01
Worker Commute	0.36	3.40	0.34	0.01	0.04	0.03
Offsite Total	**0.48**	**4.06**	**1.55**	**0.01**	**0.10**	**0.07**
Total	**0.48**	**4.06**	**1.55**	**0.01**	**0.10**	**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			
Line Truck	0.2	0.0	0.2
Pick-up Truck	0.1	0.0	0.1
Worker Commute	0.7	0.0	0.7
Offsite Total	**1.0**	**0.0**	**1.0**
Total	**1.0**	**0.0**	**1.0**

[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 60 and Table 61

[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							
None						0.00	0.00
Onsite Total						**0.00**	**0.00**
Offsite							
Line Truck	2	Paved	14	0.001	0.000	0.03	0.00
Pick-up Truck	2	Paved	14	0.001	0.000	0.03	0.00
Worker Commute	8	Paved	60	0.001	0.000	0.44	0.00
Offsite Total						**0.49**	**0.00**
Total						**0.49**	**0.00**

a From Table 62
[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		2.75E-03	5.72E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		1.756	0.365	0.00	0.00
Storage Pile Wind Erosion	acres		6.6	1.37	0.00	0.00
Total					**0.00**	**0.00**

a From Table 63
[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 55
Distribution - Existing Facilities Relocation Emissions
Location 4

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	0.24	2.03	0.78	0.00	0.05	0.04	0.2
Offsite Motor Vehicle Fugitive PM	--	--	--	--	0.25	0.00	
Offsite Total	**0.24**	**2.03**	**0.78**	**0.00**	**0.30**	**0.04**	**0.2**
Total	**0.24**	**2.03**	**0.78**	**0.00**	**0.30**	**0.04**	**0.2**

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]	Category
None		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

a From Table 59

[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 59

[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				
Offsite				
Line Truck	1	1	N/A	14
Pick-up Truck	1	1	N/A	14
Worker Commute	4	1	N/A	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]
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									
Line Truck	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	1.34E-03	1.15E-03	4.22E+00	1.04E-04
Pick-up Truck	Delivery	2.06E-03	1.41E-02	1.58E-02	2.68E-05	6.00E-04	5.02E-04	2.78E+00	9.70E-05
Worker Commute	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	9.07E-05	5.83E-05	1.10E+00	6.71E-05

a From Table 60 or Table 61

Table 55
Distribution - Existing Facilities Relocation Emissions
Location 4

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						
Line Truck	0.03	0.13	0.38	0.00	0.02	0.02
Pick-up Truck	0.03	0.20	0.22	0.00	0.01	0.01
Worker Commute	0.18	1.70	0.17	0.00	0.02	0.01
Offsite Total	**0.24**	**2.03**	**0.78**	**0.00**	**0.05**	**0.04**
Total	**0.24**	**2.03**	**0.78**	**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			
Line Truck	0.0	0.0	0.0
Pick-up Truck	0.0	0.0	0.0
Worker Commute	0.1	0.0	0.1
Offsite Total	**0.2**	**0.0**	**0.2**
Total	**0.2**	**0.0**	**0.2**

[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 60 and Table 61

[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							
None						0.00	0.00
Onsite Total						**0.00**	**0.00**
Offsite							
Line Truck	1	Paved	14	0.001	0.000	0.01	0.00
Pick-up Truck	1	Paved	14	0.001	0.000	0.01	0.00
Worker Commute	4	Paved	60	0.001	0.000	0.22	0.00
Offsite Total						**0.25**	**0.00**
Total						**0.25**	**0.00**

a From Table 62
[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		2.75E-03	5.72E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		1.756	0.365	0.00	0.00
Storage Pile Wind Erosion	acres		6.6	1.37	0.00	0.00
Total					**0.00**	**0.00**

a From Table 63
[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 56
Distribution - Existing Facilities Relocation Emissions
Location 5

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	0.93	3.40	7.40	0.01	0.29	0.27	1.1
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	--	--	--	--	0.31	0.06	
Onsite Total	**0.93**	**3.40**	**7.40**	**0.01**	**0.60**	**0.33**	**1.1**
Offsite Motor Vehicle Exhaust	0.44	3.24	2.41	0.01	0.13	0.10	0.6
Offsite Motor Vehicle Fugitive PM	--	--	--	--	0.37	0.00	
Offsite Total	**0.44**	**3.24**	**2.41**	**0.01**	**0.49**	**0.10**	**0.6**
Total	**1.37**	**6.64**	**9.82**	**0.02**	**1.09**	**0.43**	**1.7**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Rodder Truck	35	1	2	4
Cable Dolley	9	1	2	4
Reel Truck	210	1	2	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
Rodder Truck	35	0.075	0.265	0.259	0.000	0.020	0.019	27.990	0.007	Other Construction Equipment
Cable Dolley	9	0.012	0.062	0.074	0.000	0.003	0.003	10.107	0.001	Other Construction Equipment
Reel Truck	210	0.145	0.523	1.519	0.002	0.049	0.045	254.239	0.013	Other Construction Equipment

a From Table 59

[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]
Rodder Truck	0.30	1.06	1.03	0.00	0.08	0.08
Cable Dolley	0.05	0.25	0.29	0.00	0.01	0.01
Reel Truck	0.58	2.09	6.07	0.01	0.20	0.18
Total	**0.93**	**3.40**	**7.40**	**0.01**	**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]
Rodder Truck	0.1	0.0	0.1
Cable Dolley	0.0	0.0	0.0
Reel Truck	0.9	0.0	0.9
Total	**1.1**	**0.0**	**1.1**

[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 59

[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				
Offsite				
Line Truck	2	2	N/A	14
Rodder Truck	1	2	N/A	14
Reel Truck	1	2	N/A	14
Pick-up Truck	3	2	N/A	14
Worker Commute	5	2	N/A	60

Table 56
Distribution - Existing Facilities Relocation Emissions
Location 5

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									
Line Truck	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	1.34E-03	1.15E-03	4.22E+00	1.04E-04
Rodder Truck	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	1.34E-03	1.15E-03	4.22E+00	1.04E-04
Reel Truck	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	1.34E-03	1.15E-03	4.22E+00	1.04E-04
Pick-up Truck	Delivery	2.06E-03	1.41E-02	1.58E-02	2.68E-05	6.00E-04	5.02E-04	2.78E+00	9.70E-05
Worker Commute	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	9.07E-05	5.83E-05	1.10E+00	6.71E-05

a From Table 60 or Table 61

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						
Line Truck	0.06	0.26	0.77	0.00	0.04	0.03
Rodder Truck	0.03	0.13	0.38	0.00	0.02	0.02
Reel Truck	0.03	0.13	0.38	0.00	0.02	0.02
Pick-up Truck	0.09	0.59	0.66	0.00	0.03	0.02
Worker Commute	0.22	2.13	0.21	0.00	0.03	0.02
Offsite Total	**0.44**	**3.24**	**2.41**	**0.01**	**0.13**	**0.10**
Total	**0.44**	**3.24**	**2.41**	**0.01**	**0.13**	**0.10**

[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			
Line Truck	0.1	0.0	0.1
Rodder Truck	0.1	0.0	0.1
Reel Truck	0.1	0.0	0.1
Pick-up Truck	0.1	0.0	0.1
Worker Commute	0.3	0.0	0.3
Offsite Total	**0.6**	**0.0**	**0.6**
Total	**0.6**	**0.0**	**0.6**

[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 60 and Table 61

[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							
None						0.00	0.00
Onsite Total						**0.00**	**0.00**
Offsite							
Line Truck	2	Paved	14	0.001	0.000	0.03	0.00
Rodder Truck	1	Paved	14	0.001	0.000	0.01	0.00
Reel Truck	1	Paved	14	0.001	0.000	0.01	0.00
Pick-up Truck	3	Paved	14	0.001	0.000	0.04	0.00
Worker Commute	5	Paved	60	0.001	0.000	0.28	0.00
Offsite Total						**0.37**	**0.00**
Total						**0.37**	**0.00**

a From Table 62
[b] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Table 56
Distribution - Existing Facilities Relocation Emissions
Location 5

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	111	2.75E-03	5.72E-04	0.31	0.06
Bulldozing, Scraping and Grading	hr/day		1.756	0.365	0.00	0.00
Storage Pile Wind Erosion	acres		6.6	1.37	0.00	0.00
Total					**0.31**	**0.06**

a From Table 63
[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]
[c] Based on excavating 20 in. wide x 54 in. deep x 800 ft. = 222 CY over 2 days

Table 57
Distribution - Existing Facilities Relocation Emissions
Location 6

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	0.56	2.82	3.65	0.00	0.31	0.28	0.4
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	**0.56**	**2.82**	**3.65**	**0.00**	**0.31**	**0.28**	**0.4**
Offsite Motor Vehicle Exhaust	0.56	4.16	3.04	0.01	0.17	0.13	0.8
Offsite Motor Vehicle Fugitive PM	--	--	--	--	0.58	0.00	
Offsite Total	**0.56**	**4.16**	**3.04**	**0.01**	**0.74**	**0.13**	**0.8**
Total	**1.12**	**6.98**	**6.70**	**0.01**	**1.05**	**0.42**	**1.1**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Rodder Truck	35	1	1	6
Cable Dolley	9	1	1	6
Reel Truck	210	1	1	6
Backhoe	79	1	2	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
Rodder Truck	35	0.075	0.265	0.259	0.000	0.020	0.019	27.990	0.007	Other Construction Equipment
Cable Dolley	9	0.012	0.062	0.074	0.000	0.003	0.003	10.107	0.001	Other Construction Equipment
Reel Truck	210	0.145	0.523	1.519	0.002	0.049	0.045	254.239	0.013	Other Construction Equipment
Backhoe	79	0.069	0.353	0.456	0.001	0.038	0.035	51.728	0.006	Tractors/Loaders/Backhoes

a From Table 59

[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	0.56	2.82	3.65	0.00	0.31	0.28
Total	**0.56**	**2.82**	**3.65**	**0.00**	**0.31**	**0.28**

[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	0.4	0.0	0.4
Total	**0.4**	**0.0**	**0.4**

[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 59

[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				
Offsite				
Line Truck	2	2	N/A	14
Rodder Truck	1	1	N/A	14
Reel Truck	1	1	N/A	14
Pick-up Truck	2	2	N/A	14
Concrete Truck	1	2	N/A	14
Dump Truck	1	2	N/A	14
Worker Commute	7	2	N/A	60

Table 57
Distribution - Existing Facilities Relocation Emissions
Location 6

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									
Line Truck	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	1.34E-03	1.15E-03	4.22E+00	1.04E-04
Rodder Truck	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	1.34E-03	1.15E-03	4.22E+00	1.04E-04
Reel Truck	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	1.34E-03	1.15E-03	4.22E+00	1.04E-04
Pick-up Truck	Delivery	2.06E-03	1.41E-02	1.58E-02	2.68E-05	6.00E-04	5.02E-04	2.78E+00	9.70E-05
Concrete Truck	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	1.34E-03	1.15E-03	4.22E+00	1.04E-04
Dump Truck	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	1.34E-03	1.15E-03	4.22E+00	1.04E-04
Worker Commute	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	9.07E-05	5.83E-05	1.10E+00	6.71E-05

a From Table 60 or Table 61

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						
Line Truck	0.06	0.26	0.77	0.00	0.04	0.03
Rodder Truck	0.03	0.13	0.38	0.00	0.02	0.02
Reel Truck	0.03	0.13	0.38	0.00	0.02	0.02
Pick-up Truck	0.06	0.39	0.44	0.00	0.02	0.01
Concrete Truck	0.03	0.13	0.38	0.00	0.02	0.02
Dump Truck	0.03	0.13	0.38	0.00	0.02	0.02
Worker Commute	0.31	2.98	0.30	0.00	0.04	0.02
Offsite Total	**0.56**	**4.16**	**3.04**	**0.01**	**0.17**	**0.13**
Total	**0.56**	**4.16**	**3.04**	**0.01**	**0.17**	**0.13**

[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			
Line Truck	0.1	0.0	0.1
Rodder Truck	0.0	0.0	0.0
Reel Truck	0.0	0.0	0.0
Pick-up Truck	0.1	0.0	0.1
Concrete Truck	0.1	0.0	0.1
Dump Truck	0.1	0.0	0.1
Worker Commute	0.4	0.0	0.4
Offsite Total	**0.8**	**0.0**	**0.8**
Total	**0.8**	**0.0**	**0.8**

[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 60 and Table 61

[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							
None						0.00	0.00
Onsite Total						**0.00**	**0.00**
Offsite							
Line Truck	2	Paved	14	0.001	0.000	0.03	0.00
Rodder Truck	1	Paved	14	0.001	0.000	0.01	0.00
Reel Truck	1	Paved	14	0.001	0.000	0.01	0.00
Pick-up Truck	2	Paved	14	0.001	0.000	0.03	0.00
Concrete Truck	1	Paved	60	0.001	0.000	0.06	0.00
Dump Truck	1	Paved	60	0.001	0.000	0.06	0.00
Worker Commute	7	Paved	60	0.001	0.000	0.39	0.00
Offsite Total						**0.58**	**0.00**
Total						**0.58**	**0.00**

a From Table 62
[b] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Table 57
Distribution - Existing Facilities Relocation Emissions
Location 6

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		2.75E-03	5.72E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		1.756	0.365	0.00	0.00
Storage Pile Wind Erosion	acres		6.6	1.37	0.00	0.00
Total					**0.00**	**0.00**

a From Table 63
[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 58
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	0.10	0.94	0.09	0.00	0.01	0.01	1
Motor Vehicle Fugitive PM	--	--	--	--	5.47	0.54	--
SF6 Leakage	--	--	--	--	--	--	13
Total	**0.10**	**0.94**	**0.09**	**0.00**	**5.49**	**0.54**	**15**

Motor Vehicle Usage

Vehicle	Number	Days Used/ Year	Miles/ Day/ Veh.
Subtransmission Line Inspection	1	1	72
Substation Site Visit	1	48	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	7.46E-04	7.09E-03	7.12E-04	1.07E-05	9.07E-05	5.83E-05	1.10E+00	6.71E-05
Substation Site Visit	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	9.07E-05	5.83E-05	1.10E+00	6.71E-05

a From Table 60 or Table 61

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	0.05	0.51	0.05	0.00	0.01	0.00
Substation Site Visit	0.04	0.43	0.04	0.00	0.01	0.00
Total	**0.10**	**0.94**	**0.09**	**0.00**	**0.01**	**0.01**

[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	0.0	0.0	0.0
Substation Site Visit	1.4	0.0	1.4
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 60 and Table 61

[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	60	0.001	0.000	0.06	0.00
Subtransmission Line Inspection	1	Unpaved	12	0.447	0.045	5.36	0.54
Substation Site Visit	1	Paved	60	0.001	0.000	0.06	0.00
Total						**5.47**	**0.54**

a From Table 62
[b] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Table 58
Operational Emissions

SF6 Leakage Greenhouse Gas Emissions

Item	Value	Units
Total SF6	248	pounds
SF6 Leakage Rate	0.5	%/year
SF6 Emissions	1.24	pounds
SF6 Global Warming Potential[a]	23,200	
CO2e Emissions[b]	**13**	**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 59
SCAB Fleet Average Emission Factors (Diesel)

2013

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	0.0637	0.0001	0.0027	8.7	0.0009
	25	0.0166	0.0503	0.0937	0.0001	0.0051	11.0	0.0015
	50	0.0592	0.1757	0.1840	0.0003	0.0156	19.6	0.0053
	120	0.0558	0.2425	0.3758	0.0004	0.0299	38.1	0.0050
	500	0.1191	0.4671	1.5310	0.0021	0.0448	213	0.0107
	750	0.2221	0.8443	2.8534	0.0039	0.0825	385	0.0200
Aerial Lifts Composite		0.0529	0.1925	0.3059	0.0004	0.0202	34.7	0.0048
Aerial Lifts-Propane	15	0.0037	1.4362	0.0393	0.0000	0.0041	8.9	0.0311
	25	0.0083	2.2105	0.0608	0.0000	0.0067	13.0	0.0698
Aerial Lifts-Propane Composite								
Air Compressors	15	0.0122	0.0484	0.0732	0.0001	0.0048	7.2	0.0011
	25	0.0266	0.0744	0.1306	0.0002	0.0081	14.4	0.0024
	50	0.0921	0.2546	0.2221	0.0003	0.0220	22.3	0.0083
	120	0.0825	0.3251	0.4991	0.0006	0.0456	47.0	0.0074
	175	0.1059	0.5054	0.8385	0.0010	0.0472	88.5	0.0096
	250	0.1007	0.2955	1.1320	0.0015	0.0347	131	0.0091
	500	0.1626	0.5399	1.7639	0.0023	0.0570	232	0.0147
	750	0.2547	0.8344	2.8139	0.0036	0.0898	358	0.0230
	1000	0.4190	1.4213	5.0841	0.0049	0.1474	486	0.0378
Air Compressors Composite		0.0913	0.3376	0.6065	0.0007	0.0434	63.6	0.0082
Bore/Drill Rigs	15	0.0120	0.0632	0.0754	0.0002	0.0029	10.3	0.0011
	25	0.0193	0.0658	0.1226	0.0002	0.0049	16.0	0.0017
	50	0.0289	0.2282	0.2568	0.0004	0.0120	31.0	0.0026
	120	0.0447	0.4698	0.4583	0.0009	0.0257	77.1	0.0040
	175	0.0704	0.7538	0.6931	0.0016	0.0302	141	0.0063
	250	0.0795	0.3429	0.7632	0.0021	0.0221	188	0.0072
	500	0.1295	0.5517	1.1717	0.0031	0.0361	311	0.0117
	750	0.2565	1.0899	2.3376	0.0062	0.0715	615	0.0231
	1000	0.4163	1.6675	5.9553	0.0093	0.1544	928	0.0376
Bore/Drill Rigs Composite		0.0786	0.5044	0.8125	0.0017	0.0302	165	0.0071
Cement and Mortar Mixers	15	0.0074	0.0386	0.0470	0.0001	0.0021	6.3	0.0007
	25	0.0270	0.0813	0.1510	0.0002	0.0083	17.6	0.0024
Cement and Mortar Mixers Composite		0.0091	0.0421	0.0556	0.0001	0.0026	7.2	0.0008
Concrete/Industrial Saws	25	0.0199	0.0678	0.1257	0.0002	0.0049	16.5	0.0018
	50	0.0955	0.2918	0.2858	0.0004	0.0247	30.2	0.0086
	120	0.1065	0.4836	0.7154	0.0009	0.0589	74.1	0.0096
	175	0.1569	0.8701	1.3612	0.0018	0.0706	160	0.0142
Concrete/Industrial Saws Composite		0.1002	0.4088	0.5572	0.0007	0.0452	58.5	0.0090
Cranes	50	0.1015	0.2892	0.2394	0.0003	0.0239	23.2	0.0092
	120	0.0919	0.3618	0.5508	0.0006	0.0493	50.1	0.0083
	175	0.1031	0.4821	0.7769	0.0009	0.0445	80.3	0.0093
	250	0.1040	0.2948	0.9948	0.0013	0.0351	112	0.0094
	500	0.1551	0.5292	1.4230	0.0018	0.0518	180	0.0140
	750	0.2625	0.8887	2.4614	0.0030	0.0885	303	0.0237
	9999	0.9491	3.3249	10.3665	0.0098	0.3189	971	0.0856
Cranes Composite		0.1348	0.4737	1.1934	0.0014	0.0508	129	0.0122
Crawler Tractors	50	0.1176	0.3246	0.2627	0.0003	0.0270	24.9	0.0106
	120	0.1293	0.4858	0.7686	0.0008	0.0677	65.8	0.0117
	175	0.1674	0.7448	1.2529	0.0014	0.0713	121	0.0151
	250	0.1764	0.5000	1.5945	0.0019	0.0613	166	0.0159
	500	0.2542	0.9504	2.2389	0.0025	0.0868	259	0.0229
	750	0.4574	1.6983	4.1042	0.0047	0.1573	465	0.0413
	1000	0.6901	2.6950	7.3731	0.0066	0.2361	658	0.0623
Crawler Tractors Composite		0.1584	0.5900	1.1593	0.0013	0.0697	114	0.0143
Crushing/Proc. Equipment	50	0.1741	0.5009	0.4359	0.0006	0.0422	44.0	0.0157
	120	0.1402	0.5764	0.8552	0.0010	0.0779	83.1	0.0127
	175	0.1942	0.9615	1.5237	0.0019	0.0864	167	0.0175
	250	0.1848	0.5425	2.0202	0.0028	0.0620	245	0.0167
	500	0.2608	0.8480	2.7097	0.0037	0.0884	374	0.0235
	750	0.4147	1.3191	4.4498	0.0059	0.1418	589	0.0374
	9999	1.1270	3.6752	13.3218	0.0131	0.3880	1,308	0.1017
Crushing/Proc. Equipment Composite		0.1733	0.6773	1.1752	0.0015	0.0748	132	0.0156

Table 59

SCAB Fleet Average Emission Factors (Diesel)

2013

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)
Dumpers/Tenders	25	0.0097	0.0320	0.0601	0.0001	0.0029	7.6	0.0009
Dumpers/Tenders Composite		0.0097	0.0320	0.0601	0.0001	0.0029	7.6	0.0009
Excavators	25	0.0198	0.0677	0.1253	0.0002	0.0047	16.4	0.0018
	50	0.0816	0.2841	0.2458	0.0003	0.0212	25.0	0.0074
	120	0.1086	0.5177	0.6791	0.0009	0.0586	73.6	0.0098
	175	0.1208	0.6668	0.8932	0.0013	0.0512	112	0.0109
	250	0.1242	0.3541	1.1360	0.0018	0.0372	159	0.0112
	500	0.1735	0.5271	1.4763	0.0023	0.0516	234	0.0157
	750	0.2895	0.8731	2.5290	0.0039	0.0871	387	0.0261
Excavators Composite		0.1220	0.5338	0.9071	0.0013	0.0481	120	0.0110
Forklifts	50	0.0445	0.1623	0.1431	0.0002	0.0121	14.7	0.0040
	120	0.0438	0.2176	0.2788	0.0004	0.0241	31.2	0.0040
	175	0.0572	0.3307	0.4261	0.0006	0.0246	56.1	0.0052
	250	0.0570	0.1614	0.5281	0.0009	0.0168	77.1	0.0051
	500	0.0781	0.2208	0.6592	0.0011	0.0228	111	0.0070
Forklifts Composite		0.0541	0.2235	0.3950	0.0006	0.0204	54.4	0.0049
Generator Sets	15	0.0149	0.0684	0.1016	0.0002	0.0058	10.2	0.0013
	25	0.0266	0.0908	0.1594	0.0002	0.0091	17.6	0.0024
	50	0.0872	0.2639	0.2847	0.0004	0.0234	30.6	0.0079
	120	0.1106	0.4905	0.7587	0.0009	0.0590	77.9	0.0100
	175	0.1347	0.7388	1.2314	0.0016	0.0592	142	0.0122
	250	0.1277	0.4365	1.6763	0.0024	0.0464	213	0.0115
	500	0.1818	0.7230	2.3955	0.0033	0.0690	337	0.0164
	750	0.3035	1.1671	3.9863	0.0055	0.1134	544	0.0274
	9999	0.7957	2.8065	10.2314	0.0105	0.2844	1,049	0.0718
Generator Sets Composite		0.0767	0.3045	0.5430	0.0007	0.0324	61.0	0.0069
Graders	50	0.1080	0.3263	0.2772	0.0004	0.0262	27.5	0.0097
	120	0.1254	0.5310	0.7729	0.0009	0.0676	75.0	0.0113
	175	0.1467	0.7345	1.1193	0.0014	0.0631	124	0.0132
	250	0.1492	0.4331	1.4184	0.0019	0.0494	172	0.0135
	500	0.1855	0.6289	1.6842	0.0023	0.0608	229	0.0167
	750	0.3952	1.3289	3.6674	0.0049	0.1306	486	0.0357
Graders Composite		0.1446	0.6053	1.1663	0.0015	0.0593	133	0.0130
Off-Highway Tractors	120	0.2113	0.7191	1.2368	0.0011	0.1078	93.7	0.0191
	175	0.2045	0.8335	1.5337	0.0015	0.0871	130	0.0185
	250	0.1641	0.4691	1.4453	0.0015	0.0601	130	0.0148
	750	0.6538	2.8815	5.8130	0.0057	0.2353	568	0.0590
	1000	0.9818	4.4978	10.0554	0.0082	0.3436	814	0.0886
Off-Highway Tractors Composite		0.2077	0.7649	1.7062	0.0017	0.0818	151	0.0187
Off-Highway Trucks	175	0.1441	0.7580	1.0305	0.0014	0.0602	125	0.0130
	250	0.1400	0.3837	1.2373	0.0019	0.0412	167	0.0126
	500	0.2170	0.6362	1.7865	0.0027	0.0634	272	0.0196
	750	0.3542	1.0311	2.9938	0.0044	0.1046	442	0.0320
	1000	0.5484	1.6691	5.9808	0.0063	0.1796	625	0.0495
Off-Highway Trucks Composite		0.2141	0.6361	1.8543	0.0027	0.0644	260	0.0193
Other Construction Equipment	15	0.0118	0.0617	0.0737	0.0002	0.0029	10.1	0.0011
	25	0.0160	0.0544	0.1013	0.0002	0.0041	13.2	0.0014
	50	0.0753	0.2653	0.2585	0.0004	0.0205	28.0	0.0068
	120	0.1006	0.5277	0.7025	0.0009	0.0567	80.9	0.0091
	175	0.0935	0.5873	0.8011	0.0012	0.0420	107	0.0084
	500	0.1452	0.5234	1.5187	0.0025	0.0491	254	0.0131
Other Construction Equipment Composite		0.0872	0.3765	0.7938	0.0013	0.0330	123	0.0079
Other General Industrial Equipment	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	0.0980	0.2738	0.2243	0.0003	0.0232	21.7	0.0088
	120	0.1177	0.4487	0.6789	0.0007	0.0644	62.0	0.0106
	175	0.1261	0.5728	0.9333	0.0011	0.0549	95.9	0.0114
	250	0.1174	0.3177	1.2013	0.0015	0.0380	136	0.0106
	500	0.2135	0.6384	2.0642	0.0026	0.0693	265	0.0193
	750	0.3546	1.0522	3.5146	0.0044	0.1165	437	0.0320
	1000	0.5246	1.6793	6.0067	0.0056	0.1805	560	0.0473
Other General Industrial Equipment Composite		0.1542	0.5159	1.3484	0.0016	0.0580	152	0.0139

Table 59

SCAB Fleet Average Emission Factors (Diesel)

2013

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 Material Handling Equipment	50	0.1361	0.3789	0.3119	0.0004	0.0323	30.3	0.0123
	120	0.1144	0.4370	0.6628	0.0007	0.0628	60.7	0.0103
	175	0.1591	0.7257	1.1860	0.0014	0.0696	122	0.0144
	250	0.1241	0.3385	1.2829	0.0016	0.0405	145	0.0112
	500	0.1521	0.4596	1.4883	0.0019	0.0498	192	0.0137
	9999	0.7021	2.2197	7.9424	0.0073	0.2379	741	0.0634
Other Material Handling Equipment Composite		0.1473	0.4951	1.3132	0.0015	0.0562	141	0.0133
Pavers	25	0.0247	0.0799	0.1500	0.0002	0.0075	18.7	0.0022
	50	0.1366	0.3592	0.2948	0.0004	0.0308	28.0	0.0123
	120	0.1387	0.5057	0.8357	0.0008	0.0729	69.2	0.0125
	175	0.1777	0.7784	1.3769	0.0014	0.0769	128	0.0160
	250	0.2072	0.6081	1.9469	0.0022	0.0756	194	0.0187
	500	0.2275	0.9254	2.1080	0.0023	0.0818	233	0.0205
Pavers Composite		0.1511	0.5357	0.8542	0.0009	0.0603	77.9	0.0136
Paving Equipment	25	0.0153	0.0520	0.0968	0.0002	0.0039	12.6	0.0014
	50	0.1166	0.3049	0.2514	0.0003	0.0263	23.9	0.0105
	120	0.1087	0.3958	0.6561	0.0006	0.0574	54.5	0.0098
	175	0.1387	0.6079	1.0816	0.0011	0.0602	101	0.0125
	250	0.1277	0.3763	1.2206	0.0014	0.0467	122	0.0115
Paving Equipment Composite		0.1142	0.4316	0.7709	0.0008	0.0536	68.9	0.0103
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	0.0071	0.0328	0.0487	0.0001	0.0028	4.9	0.0006
	25	0.0108	0.0368	0.0646	0.0001	0.0037	7.1	0.0010
	50	0.0315	0.1037	0.1284	0.0002	0.0094	14.3	0.0028
	120	0.0302	0.1443	0.2235	0.0003	0.0157	24.1	0.0027
Pressure Washers Composite		0.0159	0.0619	0.0878	0.0001	0.0058	9.4	0.0014
Pumps	15	0.0125	0.0497	0.0752	0.0001	0.0049	7.4	0.0011
	25	0.0359	0.1004	0.1761	0.0002	0.0109	19.5	0.0032
	50	0.1052	0.3116	0.3228	0.0004	0.0275	34.3	0.0095
	120	0.1149	0.4984	0.7706	0.0009	0.0617	77.9	0.0104
	175	0.1385	0.7405	1.2344	0.0016	0.0611	140	0.0125
	250	0.1266	0.4210	1.6140	0.0023	0.0457	201	0.0114
	500	0.1952	0.7595	2.4849	0.0034	0.0734	345	0.0176
	750	0.3326	1.2556	4.2353	0.0057	0.1235	571	0.0300
	9999	1.0536	3.7127	13.3750	0.0136	0.3744	1,355	0.0951
Pumps Composite		0.0748	0.2926	0.4705	0.0006	0.0323	49.6	0.0067
Rollers	15	0.0074	0.0386	0.0461	0.0001	0.0018	6.3	0.0007
	25	0.0161	0.0549	0.1023	0.0002	0.0041	13.3	0.0015
	50	0.1025	0.2911	0.2583	0.0003	0.0245	26.0	0.0092
	120	0.0986	0.4063	0.6253	0.0007	0.0534	59.0	0.0089
	175	0.1247	0.6199	1.0114	0.0012	0.0550	108	0.0113
	250	0.1262	0.3887	1.3124	0.0017	0.0451	153	0.0114
	500	0.1654	0.6313	1.6820	0.0022	0.0593	219	0.0149
Rollers Composite		0.0973	0.4060	0.6546	0.0008	0.0453	67.1	0.0088
Rough Terrain Forklifts	50	0.1181	0.3778	0.3316	0.0004	0.0300	33.9	0.0107
	120	0.0955	0.4327	0.5995	0.0007	0.0529	62.4	0.0086
	175	0.1352	0.7256	1.0448	0.0014	0.0592	125	0.0122
	250	0.1294	0.3798	1.2955	0.0019	0.0416	171	0.0117
	500	0.1824	0.5717	1.7096	0.0025	0.0584	257	0.0165
Rough Terrain Forklifts Composite		0.1009	0.4642	0.6526	0.0008	0.0532	70.3	0.0091
Rubber Tired Dozers	175	0.2119	0.8457	1.5561	0.0015	0.0893	129	0.0191
	250	0.2435	0.6833	2.0817	0.0021	0.0881	183	0.0220
	500	0.3211	1.4228	2.7305	0.0026	0.1133	265	0.0290
	750	0.4843	2.1329	4.1797	0.0040	0.1716	399	0.0437
	1000	0.7496	3.4322	7.4509	0.0060	0.2591	592	0.0676
Rubber Tired Dozers Composite		0.2986	1.1749	2.5452	0.0025	0.1064	239	0.0269
Rubber Tired Loaders	25	0.0204	0.0697	0.1292	0.0002	0.0050	16.9	0.0018
	50	0.1200	0.3641	0.3118	0.0004	0.0292	31.1	0.0108
	120	0.0971	0.4152	0.6015	0.0007	0.0525	58.9	0.0088
	175	0.1238	0.6274	0.9501	0.0012	0.0535	106	0.0112
	250	0.1259	0.3685	1.2125	0.0017	0.0417	149	0.0114

Table 59
SCAB Fleet Average Emission Factors (Diesel)

2013

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	0.1867	0.6397	1.7158	0.0023	0.0613	237	0.0168
	750	0.3850	1.3084	3.6184	0.0049	0.1276	486	0.0347
	1000	0.5190	1.8389	5.9660	0.0060	0.1795	594	0.0468
Rubber Tired Loaders Composite		0.1195	0.4763	0.9346	0.0012	0.0508	109	0.0108
Scrapers	120	0.1877	0.6943	1.1141	0.0011	0.0983	93.9	0.0169
	175	0.2070	0.9107	1.5564	0.0017	0.0884	148	0.0187
	250	0.2252	0.6408	2.0481	0.0024	0.0791	209	0.0203
	500	0.3186	1.2113	2.8288	0.0032	0.1099	321	0.0287
	750	0.5525	2.0861	4.9949	0.0056	0.1918	555	0.0499
Scrapers Composite		0.2783	1.0395	2.4118	0.0027	0.1005	262	0.0251
Signal Boards	15	0.0072	0.0377	0.0450	0.0001	0.0018	6.2	0.0006
	50	0.1151	0.3456	0.3415	0.0005	0.0296	36.2	0.0104
	120	0.1176	0.5214	0.7807	0.0009	0.0644	80.2	0.0106
	175	0.1535	0.8341	1.3333	0.0017	0.0685	155	0.0139
	250	0.1632	0.5350	1.9963	0.0029	0.0580	255	0.0147
Signal Boards Composite		0.0192	0.0934	0.1399	0.0002	0.0077	16.7	0.0017
Skid Steer Loaders	25	0.0202	0.0620	0.1166	0.0002	0.0063	13.8	0.0018
	50	0.0517	0.2263	0.2279	0.0003	0.0157	25.5	0.0047
	120	0.0429	0.2748	0.3267	0.0005	0.0245	42.8	0.0039
Skid Steer Loaders Composite		0.0468	0.2309	0.2522	0.0004	0.0179	30.3	0.0042
Surfacing Equipment	50	0.0477	0.1403	0.1359	0.0002	0.0119	14.1	0.0043
	120	0.0970	0.4215	0.6523	0.0007	0.0517	63.8	0.0088
	175	0.0894	0.4730	0.7742	0.0010	0.0392	85.8	0.0081
	250	0.1025	0.3374	1.1177	0.0015	0.0376	135	0.0092
	500	0.1532	0.6418	1.6597	0.0022	0.0567	221	0.0138
	750	0.2443	1.0046	2.6697	0.0035	0.0900	347	0.0220
Surfacing Equipment Composite		0.1277	0.5182	1.2760	0.0017	0.0468	166	0.0115
Sweepers/Scrubbers	15	0.0124	0.0729	0.0870	0.0002	0.0034	11.9	0.0011
	25	0.0237	0.0808	0.1496	0.0002	0.0058	19.6	0.0021
	50	0.1048	0.3425	0.3055	0.0004	0.0271	31.6	0.0095
	120	0.1107	0.5147	0.6989	0.0009	0.0622	75.0	0.0100
	175	0.1439	0.7997	1.1204	0.0016	0.0637	139	0.0130
	250	0.1146	0.3382	1.1784	0.0018	0.0362	162	0.0103
Sweepers/Scrubbers Composite		0.1148	0.5145	0.6862	0.0009	0.0510	78.5	0.0104
Tractors/Loaders/Backhoes	25	0.0195	0.0657	0.1237	0.0002	0.0056	15.9	0.0018
	50	0.0893	0.3199	0.2893	0.0004	0.0238	30.3	0.0081
	120	0.0694	0.3529	0.4565	0.0006	0.0383	51.7	0.0063
	175	0.0988	0.5861	0.7696	0.0011	0.0428	101	0.0089
	250	0.1204	0.3666	1.1658	0.0019	0.0370	172	0.0109
	500	0.2290	0.7443	2.0659	0.0039	0.0701	345	0.0207
	750	0.3462	1.1159	3.2041	0.0058	0.1072	517	0.0312
Tractors/Loaders/Backhoes Composite		0.0792	0.3782	0.5392	0.0008	0.0387	66.8	0.0071
Trenchers	15	0.0099	0.0517	0.0617	0.0001	0.0024	8.5	0.0009
	25	0.0397	0.1355	0.2511	0.0004	0.0097	32.9	0.0036
	50	0.1566	0.4082	0.3432	0.0004	0.0353	32.9	0.0141
	120	0.1281	0.4684	0.7862	0.0008	0.0669	64.9	0.0116
	175	0.1955	0.8632	1.5520	0.0016	0.0849	144	0.0176
	250	0.2354	0.7089	2.2485	0.0025	0.0880	223	0.0212
	500	0.2985	1.3011	2.8470	0.0031	0.1105	311	0.0269
	750	0.5663	2.4440	5.4715	0.0059	0.2099	587	0.0511
Trenchers Composite		0.1427	0.4675	0.6684	0.0007	0.0549	58.7	0.0129
Welders	15	0.0104	0.0416	0.0629	0.0001	0.0041	6.2	0.0009
	25	0.0208	0.0581	0.1020	0.0001	0.0063	11.3	0.0019
	50	0.0979	0.2753	0.2535	0.0003	0.0240	26.0	0.0088
	120	0.0654	0.2659	0.4099	0.0005	0.0358	39.5	0.0059
	175	0.1101	0.5455	0.9083	0.0011	0.0490	98.2	0.0099
	250	0.0855	0.2618	1.0026	0.0013	0.0301	119	0.0077
	500	0.1092	0.3838	1.2526	0.0016	0.0394	168	0.0098
Welders Composite		0.0646	0.2096	0.2564	0.0003	0.0225	25.6	0.0058

Source: File offroadEF07_25.xls, downloaded from http://www.aqmd.gov/ceqa/handbook/offroad/offroad.html

Table 60

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: **2013**
All model years in the range 1969 to 2013

Passenger Vehicles (pounds/mile)	
CO	**0.00709228**
NOx	**0.00071158**
ROG	**0.00074567**
SOx	**0.00001072**
PM10	**0.00009067**
PM2.5	**0.00005834**
CO2	**1.10087435**
CH4	**0.00006707**

Delivery Trucks (pounds/mile)	
CO	**0.01407778**
NOx	**0.01577311**
ROG	**0.00206295**
SOx	**0.00002682**
PM10	**0.00059956**
PM2.5	**0.00050174**
CO2	**2.78163459**
CH4	**0.00009703**

Source: File onroadEF07_26.xls, downloaded from http://www.aqmd.gov/ceqa/handbook/onroad/onroad.html

Table 61
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: **2013**
All model years in the range 1969 to 2013

HHDT-DSL (pounds/mile)	
CO	**0.00931790**
NOx	**0.02742935**
ROG	**0.00226308**
SOx	**0.00004086**
PM10	**0.00133697**
PM2.5	**0.00114629**
CO2	**4.21518556**
CH4	**0.00010441**

HHDT-DSL, Exh (pounds/mile)	
PM10	**0.00119623**
PM2.5	**0.00109863**

Source: File onroadEFHHDT07_26.xls, downloaded from http://www.aqmd.gov/ceqa/handbook/onroad/onroad.html

Table 62
Motor Vehicle Entrained Road Dust Emission Factors

Vehicle Type	Surface	Silt Loading (sL, g/m2) or 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]
Tool Truck	Paved	0.035	3.4	9.22E-04	0.00E+00	0%	9.22E-04	0.00E+00
Tool Truck	Unpaved	7.5	3.4	1.04E+00	1.04E-01	57%	4.47E-01	4.47E-02
Pickup 4x4	Paved	0.035	3.4	9.22E-04	0.00E+00	0%	9.22E-04	0.00E+00
Pickup 4x4	Unpaved	7.5	3.4	1.04E+00	1.04E-01	57%	4.47E-01	4.47E-02
Survey Truck	Paved	0.035	3.4	9.22E-04	0.00E+00	0%	9.22E-04	0.00E+00
Survey Truck	Unpaved	7.5	3.4	1.04E+00	1.04E-01	57%	4.47E-01	4.47E-02
1-Ton Crew Cab, 4x4	Paved	0.035	3.4	9.22E-04	0.00E+00	0%	9.22E-04	0.00E+00
1-Ton Crew Cab, 4x4	Unpaved	7.5	5	1.24E+00	1.24E-01	57%	5.32E-01	5.32E-02
1-Ton Truck, 4x4	Paved	0.035	3.4	9.22E-04	0.00E+00	0%	9.22E-04	0.00E+00
1-Ton Truck, 4x4	Unpaved	7.5	5	1.24E+00	1.24E-01	57%	5.32E-01	5.32E-02
165-Ton Crane Truck	Paved	0.035	3.4	9.22E-04	0.00E+00	0%	9.22E-04	0.00E+00
165-Ton Crane Truck	Unpaved	7.5	17	2.14E+00	2.14E-01	57%	9.22E-01	9.22E-02
3/4-Ton Pick-up Truck, 4x4	Paved	0.035	3.4	9.22E-04	0.00E+00	0%	9.22E-04	0.00E+00
3/4-Ton Pick-up Truck, 4x4	Unpaved	7.5	3.4	1.04E+00	1.04E-01	57%	4.47E-01	4.47E-02
3/4-Ton Truck, 4x4	Paved	0.035	3.4	9.22E-04	0.00E+00	0%	9.22E-04	0.00E+00
3/4-Ton Truck, 4x4	Unpaved	7.5	3.4	1.04E+00	1.04E-01	57%	4.47E-01	4.47E-02
3 Drum Sock Line Puller	Paved	0.035	3.4	9.22E-04	0.00E+00	0%	9.22E-04	0.00E+00
3 Drum Sock Line Puller	Unpaved	7.5	17	2.14E+00	2.14E-01	57%	9.22E-01	9.22E-02
Aggregate Base Delivery Truck	Paved	0.035	3.4	9.22E-04	0.00E+00	0%	9.22E-04	0.00E+00
Aggregate Base Delivery Truck	Unpaved	7.5	17	2.14E+00	2.14E-01	57%	9.22E-01	9.22E-02
Asphalt Delivery Truck	Paved	0.035	3.4	9.22E-04	0.00E+00	0%	9.22E-04	0.00E+00
Asphalt Delivery Truck	Unpaved	7.5	17	2.14E+00	2.14E-01	57%	9.22E-01	9.22E-02
Auger Truck	Paved	0.035	3.4	9.22E-04	0.00E+00	0%	9.22E-04	0.00E+00
Auger Truck	Unpaved	7.5	17	2.14E+00	2.14E-01	57%	9.22E-01	9.22E-02
Boom/Crane Truck	Paved	0.035	3.4	9.22E-04	0.00E+00	0%	9.22E-04	0.00E+00
Boom/Crane Truck	Unpaved	7.5	17	2.14E+00	2.14E-01	57%	9.22E-01	9.22E-02
Bucket Truck	Paved	0.035	3.4	9.22E-04	0.00E+00	0%	9.22E-04	0.00E+00
Bucket Truck	Unpaved	7.5	17	2.14E+00	2.14E-01	57%	9.22E-01	9.22E-02
Carry-all Truck	Paved	0.035	3.4	9.22E-04	0.00E+00	0%	9.22E-04	0.00E+00
Carry-all Truck	Unpaved	7.5	17	2.14E+00	2.14E-01	57%	9.22E-01	9.22E-02
Concrete Truck	Paved	0.035	3.4	9.22E-04	0.00E+00	0%	9.22E-04	0.00E+00
Concrete Truck	Unpaved	7.5	17	2.14E+00	2.14E-01	57%	9.22E-01	9.22E-02
Conduit Vendor Truck	Paved	0.035	3.4	9.22E-04	0.00E+00	0%	9.22E-04	0.00E+00
Conduit Vendor Truck	Unpaved	7.5	17	2.14E+00	2.14E-01	57%	9.22E-01	9.22E-02
Crew Pickup Truck	Paved	0.035	3.4	9.22E-04	0.00E+00	0%	9.22E-04	0.00E+00
Crew Pickup Truck	Unpaved	7.5	5	1.24E+00	1.24E-01	57%	5.32E-01	5.32E-02
Crew Truck	Paved	0.035	3.4	9.22E-04	0.00E+00	0%	9.22E-04	0.00E+00
Crew Truck	Unpaved	7.5	5	1.24E+00	1.24E-01	57%	5.32E-01	5.32E-02
Crewcab Truck	Paved	0.035	3.4	9.22E-04	0.00E+00	0%	9.22E-04	0.00E+00
Crewcab Truck	Unpaved	7.5	5	1.24E+00	1.24E-01	57%	5.32E-01	5.32E-02
Crushed Rock Delivery Truck	Paved	0.035	3.4	9.22E-04	0.00E+00	0%	9.22E-04	0.00E+00
Crushed Rock Delivery Truck	Unpaved	7.5	17	2.14E+00	2.14E-01	57%	9.22E-01	9.22E-02
Dump Truck	Paved	0.035	3.4	9.22E-04	0.00E+00	0%	9.22E-04	0.00E+00
Dump Truck	Unpaved	7.5	17	2.14E+00	2.14E-01	57%	9.22E-01	9.22E-02
Dump Truck - Import	Paved	0.035	3.4	9.22E-04	0.00E+00	0%	9.22E-04	0.00E+00
Dump Truck - Import	Unpaved	7.5	17	2.14E+00	2.14E-01	57%	9.22E-01	9.22E-02
Dump Truck - Export	Paved	0.035	3.4	9.22E-04	0.00E+00	0%	9.22E-04	0.00E+00
Dump Truck - Export	Unpaved	7.5	17	2.14E+00	2.14E-01	57%	9.22E-01	9.22E-02
Extendable Flat Bed Pole Truck	Paved	0.035	3.4	9.22E-04	0.00E+00	0%	9.22E-04	0.00E+00
Extendable Flat Bed Pole Truck	Unpaved	7.5	17	2.14E+00	2.14E-01	57%	9.22E-01	9.22E-02
Flat Bed Truck/Trailer	Paved	0.035	3.4	9.22E-04	0.00E+00	0%	9.22E-04	0.00E+00
Flat Bed Truck/Trailer	Unpaved	7.5	17	2.14E+00	2.14E-01	57%	9.22E-01	9.22E-02
Flat Bed Pole Truck	Paved	0.035	3.4	9.22E-04	0.00E+00	0%	9.22E-04	0.00E+00
Flat Bed Pole Truck	Unpaved	7.5	17	2.14E+00	2.14E-01	57%	9.22E-01	9.22E-02
Flatbed Truck	Paved	0.035	3.4	9.22E-04	0.00E+00	0%	9.22E-04	0.00E+00
Flatbed Truck	Unpaved	7.5	17	2.14E+00	2.14E-01	57%	9.22E-01	9.22E-02

Table 62
Motor Vehicle Entrained Road Dust Emission Factors

Vehicle Type	Surface	Silt Loading (sL, g/m2) or 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]
Foreman Truck	Paved	0.035	3.4	9.22E-04	0.00E+00	0%	9.22E-04	0.00E+00
Foreman Truck	Unpaved	7.5	5	1.24E+00	1.24E-01	57%	5.32E-01	5.32E-02
Gang Truck	Paved	0.035	3.4	9.22E-04	0.00E+00	0%	9.22E-04	0.00E+00
Gang Truck	Unpaved	7.5	5	1.24E+00	1.24E-01	57%	5.32E-01	5.32E-02
Line Truck	Paved	0.035	3.4	9.22E-04	0.00E+00	0%	9.22E-04	0.00E+00
Line Truck	Unpaved	7.5	17	2.14E+00	2.14E-01	57%	9.22E-01	9.22E-02
Low Bed Truck	Paved	0.035	3.4	9.22E-04	0.00E+00	0%	9.22E-04	0.00E+00
Low Bed Truck	Unpaved	7.5	17	2.14E+00	2.14E-01	57%	9.22E-01	9.22E-02
Lowboy Truck/Trailer	Paved	0.035	3.4	9.22E-04	0.00E+00	0%	9.22E-04	0.00E+00
Lowboy Truck/Trailer	Unpaved	7.5	17	2.14E+00	2.14E-01	57%	9.22E-01	9.22E-02
Maintenance Truck	Paved	0.035	3.4	9.22E-04	0.00E+00	0%	9.22E-04	0.00E+00
Maintenance Truck	Unpaved	7.5	10	1.69E+00	1.69E-01	57%	7.26E-01	7.26E-02
Pick-up Truck	Paved	0.035	3.4	9.22E-04	0.00E+00	0%	9.22E-04	0.00E+00
Pick-up Truck	Unpaved	7.5	10	1.69E+00	1.69E-01	57%	7.26E-01	7.26E-02
Pipe Truck/Trailer	Paved	0.035	3.4	9.22E-04	0.00E+00	0%	9.22E-04	0.00E+00
Pipe Truck/Trailer	Unpaved	7.5	17	2.14E+00	2.14E-01	57%	9.22E-01	9.22E-02
Precaster Boom Truck	Paved	0.035	3.4	9.22E-04	0.00E+00	0%	9.22E-04	0.00E+00
Precaster Boom Truck	Unpaved	7.5	17	2.14E+00	2.14E-01	57%	9.22E-01	9.22E-02
Reel Truck	Paved	0.035	3.4	9.22E-04	0.00E+00	0%	9.22E-04	0.00E+00
Reel Truck	Unpaved	7.5	10	1.69E+00	1.69E-01	57%	7.26E-01	7.26E-02
Rodder Truck	Paved	0.035	3.4	9.22E-04	0.00E+00	0%	9.22E-04	0.00E+00
Rodder Truck	Unpaved	7.5	10	1.69E+00	1.69E-01	57%	7.26E-01	7.26E-02
Stake Truck	Paved	0.035	3.4	9.22E-04	0.00E+00	0%	9.22E-04	0.00E+00
Stake Truck	Unpaved	7.5	17	2.14E+00	2.14E-01	57%	9.22E-01	9.22E-02
Static Truck/Tensioner	Paved	0.035	3.4	9.22E-04	0.00E+00	0%	9.22E-04	0.00E+00
Static Truck/Tensioner	Unpaved	7.5	17	2.14E+00	2.14E-01	57%	9.22E-01	9.22E-02
Splicing Truck	Paved	0.035	3.4	9.22E-04	0.00E+00	0%	9.22E-04	0.00E+00
Splicing Truck	Unpaved	7.5	5	1.24E+00	1.24E-01	57%	5.32E-01	5.32E-02
Truck, Semi Tractor	Paved	0.035	3.4	9.22E-04	0.00E+00	0%	9.22E-04	0.00E+00
Truck, Semi Tractor	Unpaved	7.5	17	2.14E+00	2.14E-01	57%	9.22E-01	9.22E-02
Water Truck	Paved	0.035	3.4	9.22E-04	0.00E+00	0%	9.22E-04	0.00E+00
Water Truck	Unpaved	7.5	17	2.14E+00	2.14E-01	57%	9.22E-01	9.22E-02
Wire Truck/Trailer	Paved	0.035	3.4	9.22E-04	0.00E+00	0%	9.22E-04	0.00E+00
Wire Truck/Trailer	Unpaved	7.5	17	2.14E+00	2.14E-01	57%	9.22E-01	9.22E-02
Work Truck	Paved	0.035	3.4	9.22E-04	0.00E+00	0%	9.22E-04	0.00E+00
Work Truck	Unpaved	7.5	5	1.24E+00	1.24E-01	57%	5.32E-01	5.32E-02
Worker Commute	Paved	0.035	3.4	9.22E-04	0.00E+00	0%	9.22E-04	0.00E+00
Worker Commute	Unpaved	7.5	3.4	1.04E+00	1.04E-01	57%	4.47E-01	4.47E-02

Table 62
Motor Vehicle Entrained Road Dust Emission Factors

Vehicle Type	Surface	Silt Loading (sL, g/m2) or 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]
Subtransmission Line Inspection	Paved	0.035	3.4	9.22E-04	0.00E+00	0%	9.22E-04	0.00E+00
Subtransmission Line Inspection	Unpaved	7.5	3.4	1.04E+00	1.04E-01	57%	4.47E-01	4.47E-02
Substation Site Visit	Paved	0.035	3.4	9.22E-04	0.00E+00	0%	9.22E-04	0.00E+00
Substation Site Visit	Unpaved	7.5	3.4	1.04E+00	1.04E-01	57%	4.47E-01	4.47E-02

[a] Paved road silt loading 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 silt content from SCAQMD CEQA Handbook, (1993) Table A9-9-E-1 for overburden

[b] Average paved on-road vehicle weight in San Bernardino 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.

[c] Equations:

EF(paved) = $k_p\ (sL/2)^{0.65}\ (W/3)^{1.5} - C$ — Ref: AP-42, Section 13.2.1, "Paved Rods," November 2006

EF (unpaved) = $k_u\ (s/12)^a\ (W/3)^b$ — Ref: AP-42, Section 13.2.2, "Unpaved Rods," November 2006

Constants:

k_p =	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_u =	1.5	(Particle size multiplier for PM)
	0.15	(Particle size multiplier for PM2.5)
a =	0.9	for PM10
	0.9	for PM2.5
b =	0.45	for PM10
	0.45	for PM2.5

[d] Control efficiency from limiting speeds on unpaved roads to 15 mph, from Table XI-A, Mitigation Measure Examples,
Fugitive Dust from Construction & Demolition, http://www.aqmd.gov/ceqa/handbook/mitigation/fugitive/MM_fugitive.html

[e] Controlled emission factor [lb/mi] = Uncontrolled emission factor [lb/mi] x (1 - Control efficiency [%] / 100)

Table 63
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	3.7	Geotechnical investigation of substation site
Number Drops	4	Assumption
Soil Density	1.215	Table 2.46, Handbook of Solid Waste Management

PM10 Emission Factor (Uncontrolled)	7.05E-03	lb/cu. yd
Reduction from Watering Twice/Day	61%	Control efficiency from watering three times per day, Table XI-A, Mitigation Measure Examples, Fugitive Dust from Construction & Demolition, http://www.aqmd.gov/ceqa/handbook/mitigation/fugitive/MM_fugitive.html
Controlled PM10 Emission Factor	2.75E-03	lb/cu. yd
Controlled PM2.5 Emission Factor[a]	5.72E-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	11.2	Geotechnical investigation of substation site
Pct. time wind > 12 mph	100	Worst-case assumption

PM10 Emission Factor (Uncontrolled)	65.7	lb/day-acre
Reduction from Watering Twice/Day	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	6.6	lb/day-acre
Controlled PM2.5 Emission Factor[a]	1.4	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	11.2	Geotechnical investigation of substation site
Moisture	3.7	Geotechnical investigation of substation site

PM10 Emission Factor (Uncontrolled)	4.502	lb/hr
Reduction from Watering Twice/Day	61%	Control efficiency from watering three times per day, Table XI-A, Mitigation Measure Examples, Fugitive Dust from Construction & Demolition, http://www.aqmd.gov/ceqa/handbook/mitigation/fugitive/MM_fugitive.html
Controlled PM10 Emission Factor	1.756	lb/hr
Controlled PM2.5 Emission Factor[a]	0.365	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

Emissions [pounds per day] = Controlled emission factor [pounds per hour] x Bulldozing, scraping or grading time [hours/day]

Table 1
Construction Emissions Summary Alder Source Line Segment Preferred Route
Total Daily Criteria Pollutant Emissions by Construction Component

Component	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)
Subtransmission Source Line Construction						
Survey	0.21	1.96	0.20	0.00	4.53	0.44
Marshalling Yard	0.86	4.93	5.87	0.01	0.52	0.26
Road Work	2.69	12.23	20.48	0.03	40.19	8.30
Guard Structure Installation	2.54	11.32	22.24	0.04	19.98	2.68
Wood/LWS Pole Removal	2.20	9.91	18.96	0.03	1.21	0.72
Install TSP Foundations	2.82	13.79	25.84	0.05	37.29	4.55
TSP Haul	1.20	5.34	9.71	0.01	9.81	1.26
TSP Assembly	1.76	8.81	11.96	0.02	12.61	1.67
TSP Erection	1.41	7.24	8.90	0.02	8.79	1.19
Install Wood/ LWS Poles	2.78	13.49	24.64	0.04	18.27	2.56
Install Conductor	8.77	38.95	89.90	0.14	55.06	7.83
Guard Structure Removal	2.18	9.78	18.69	0.03	16.17	2.21
Restoration	1.95	9.20	14.35	0.02	25.15	4.17

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 Alder Source Line Segment Preferred Route
Total Daily Criteria Pollutant Emissions for Overlapping Construction Activities

Group[a]	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)
Subtransmission Source Line Construction						
Staging Area, Survey, Road Work, Install Wood/LWS Poles	6.5	32.6	51.2	0.1	63.5	11.6
Staging Area, Install TSP Foundations, TSP Haul, TSP Assembly, TSP Erection, Install Wood/LWS Poles	10.8	53.6	86.9	0.1	87.3	11.5
Staging Area, TSP Erection,	2.3	12.2	14.8	0.0	9.3	1.4
Staging Area, Guard Structure Installation	3.4	16.3	28.1	0.0	20.5	2.9
Staging Area, Install Conductor	9.6	43.9	95.8	0.2	55.6	8.1
Staging Area, Wood/LWS Pole Removal, Guard Structure Removal	5.2	24.6	43.5	0.1	17.9	3.2
Staging Area, Restoration	2.8	14.1	20.2	0.0	25.7	4.4
Maximum	**10.8**	**53.6**	**95.8**	**0.2**	**87.3**	**11.6**

[a] The construction activities within a group could all occur at the same time.

Table 3
Construction Emissions Alder Source Line Segment Preferred Rout
Total Greenhouse Gas Emissions by Construction Component

Component	CO2e (MT)
Subtransmission Source Line Construction	
Survey	0.41
Marshalling Yard	72.93
Road Work	2.43
Guard Structure Installation	3.31
Wood/LWS Pole Removal	1.29
Install TSP Foundations	72.17
TSP Haul	4.82
TSP Assembly	23.77
TSP Erection	18.06
Install Wood/ LWS Poles	38.31
Install Conductor	83.44
Guard Structure Removal	2.56
Restoration	2.97
TOTAL	**326.48**

Table 1
Construction Emissions Summary Alternative 2B(i)
Total Daily Criteria Pollutant Emissions by Construction Component

Component	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)
Subtransmission Source Line Construction						
Survey	0.21	1.96	0.20	0.00	1.34	0.12
Marshalling Yard	0.86	4.93	5.87	0.01	0.52	0.26
Road Work	2.69	12.23	20.48	0.03	32.84	6.98
Guard Structure Installation	2.54	11.32	22.24	0.04	10.66	1.75
Wood/LWS Pole Removal	2.20	9.91	18.96	0.03	1.21	0.72
Install TSP Foundations	2.82	13.79	25.84	0.05	19.64	2.78
TSP Haul	1.20	5.34	9.71	0.01	5.23	0.80
TSP Assembly	1.76	8.81	11.96	0.02	6.86	1.10
TSP Erection	1.41	7.24	8.90	0.02	4.88	0.80
Install Wood/ LWS Poles	2.78	13.49	24.64	0.04	9.83	1.72
Install Conductor	8.77	38.95	89.90	0.14	29.76	5.30
Guard Structure Removal	2.18	9.78	18.69	0.03	8.69	1.46
Restoration	1.95	9.20	14.35	0.02	19.34	3.59

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 Alternative 2B(i)
Total Daily Criteria Pollutant Emissions for Overlapping Construction Activities

Group[a]	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)
Subtransmission Source Line Construction						
Staging Area, Survey, Road Work, Install Wood/LWS Poles	6.5	32.6	51.2	0.1	44.5	9.1
Staging Area, Install TSP Foundations, TSP Haul, TSP Assembly, TSP Erection, Install Wood/LWS Poles	10.8	53.6	86.9	0.1	47.0	7.5
Staging Area, TSP Erection	2.3	12.2	14.8	0.0	5.4	1.1
Staging Area, Guard Structure Installation	3.4	16.3	28.1	0.0	11.2	2.0
Staging Area, Install Conductor	9.6	43.9	95.8	0.2	30.3	5.6
Staging Area, Wood/LWS Pole Removal, Guard Structure Removal	5.2	24.6	43.5	0.1	10.4	2.4
Staging Area, Restoration	2.8	14.1	20.2	0.0	19.9	3.8
Maximum	**10.8**	**53.6**	**95.8**	**0.2**	**47.0**	**9.1**

[a] The construction activities within a group could all occur at the same time.

Table 3
Construction Emissions Summary Alternative 2B(i)
Total Greenhouse Gas Emissions by Construction Component

Component	CO2e (MT)
Subtransmission Source Line Construction	
Survey	0.55
Marshalling Yard	51.37
Road Work	1.22
Guard Structure Installation	4.96
Wood/LWS Pole Removal	1.29
Install TSP Foundations	27.76
TSP Haul	2.07
TSP Assembly	9.14
TSP Erection	6.95
Install Wood/ LWS Poles	69.33
Install Conductor	94.87
Guard Structure Removal	2.56
Restoration	3.96
TOTAL	**276.02**

APPENDIX D

Hazards and Hazardous Materials

LINK TO THIS MAP

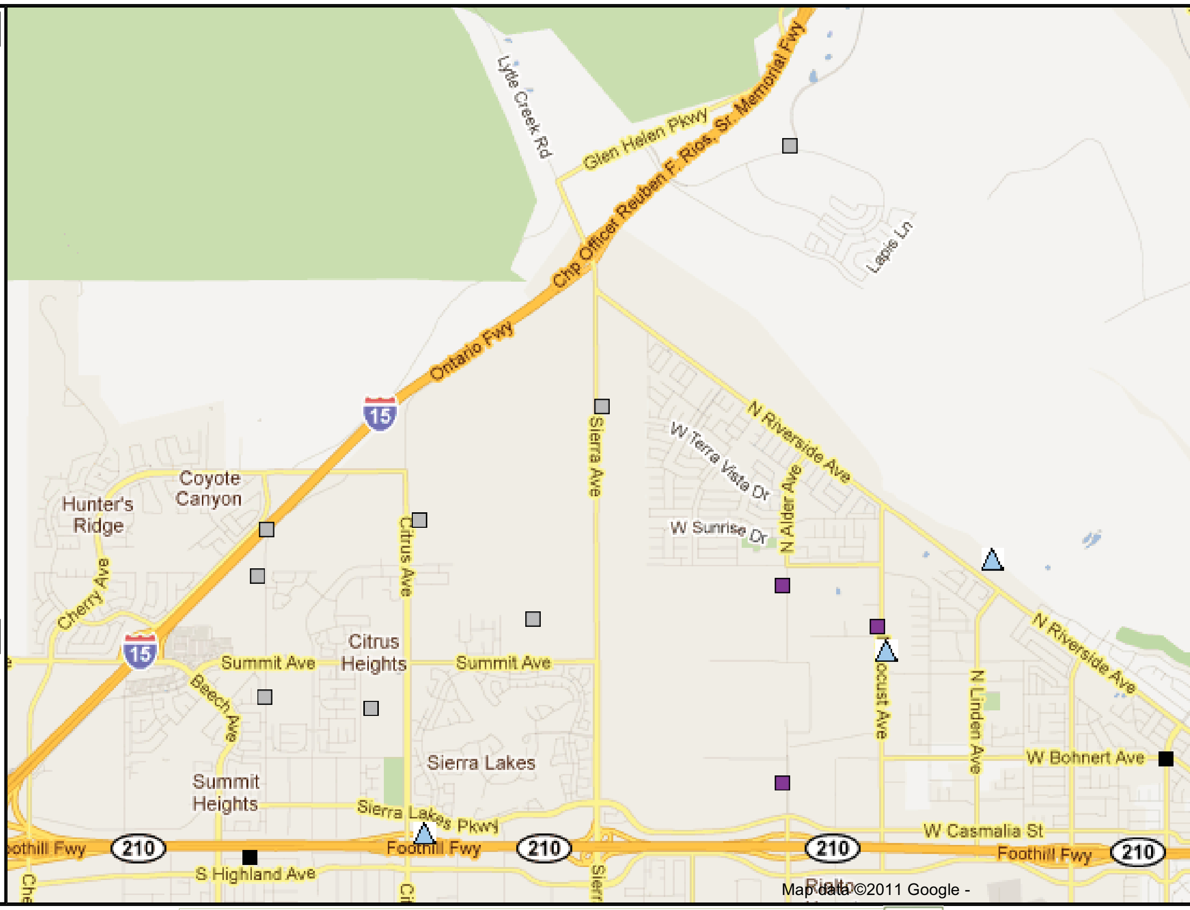
ENVIROSTOR

LAYERS

- Federal Superfund
- State Response
- Voluntary Cleanup
- School Cleanup
- Evaluation
- School Investigation
- Military Evaluation
- Tiered Permit
- Corrective Action
- Haz Waste Permit
- Monitoring Wells
- GeoTracker LUFT
- GeoTracker SLIC

MAP SIZE

640x480



MAP AN ADDRESS: Go!

LINK TO THIS MAP

ENVIROSTOR

LAYERS

- Federal Superfund
- State Response
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- Monitoring Wells
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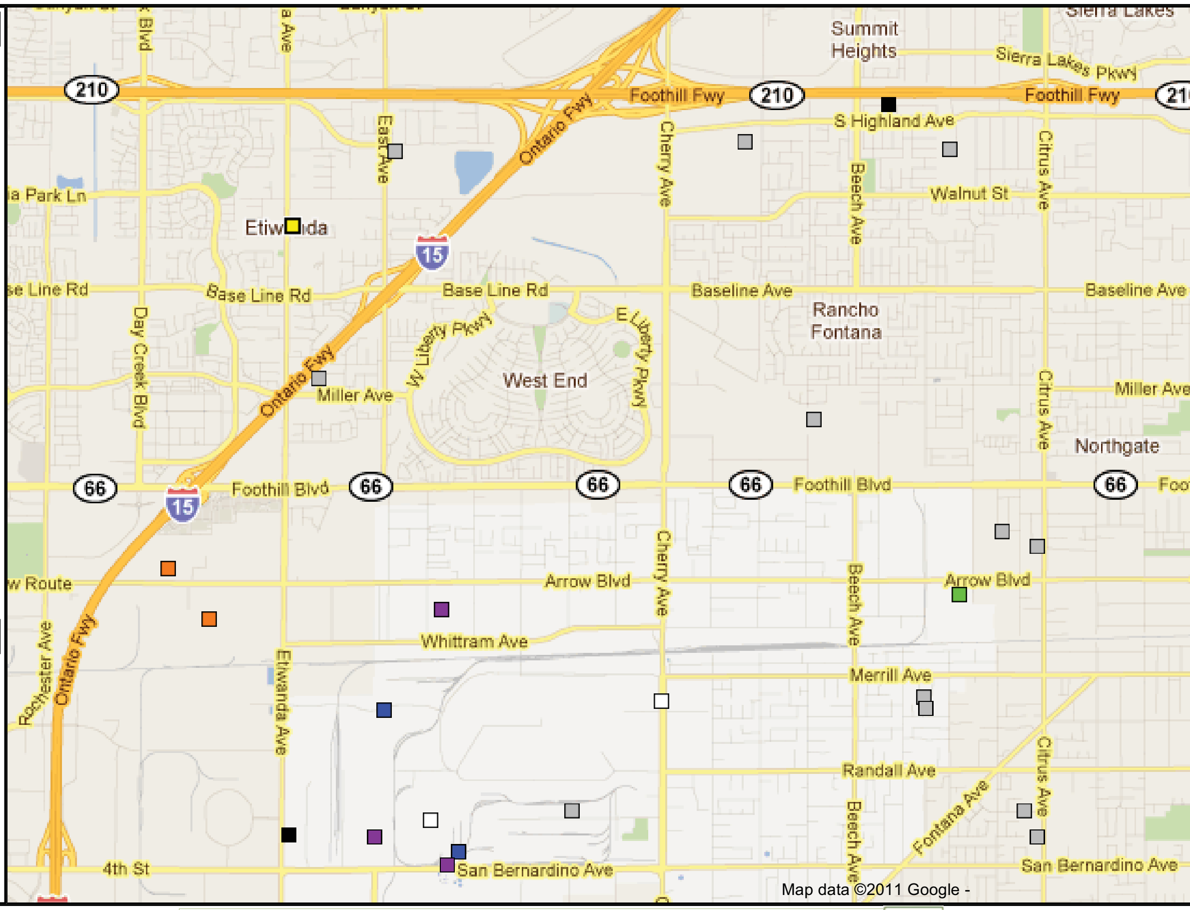


MAP AN ADDRESS: Go!

EPA

B.F. Goodrich Superfund Site

U.S. Environmental Protection Agency • Region 9 • San Francisco, CA • January 2010

EPA Seeks Public Comment on Groundwater Cleanup Plan

Introduction

This fact sheet presents the U.S. Environmental Protection Agency's (EPA) plan to begin cleanup of contaminated groundwater at the B.F. Goodrich Superfund Site (Site) in Rialto, California. The Site is located about 60 miles east of the city of Los Angeles.

EPA seeks your feedback on this proposed cleanup plan. Your comments and suggestions may result in changes to the plan.

After EPA reviews all public comments on the plan and on related documents, it will adopt and implement a final cleanup plan. EPA's preferred action, described in more detail on pages 10 - 12, is to design and construct groundwater extraction wells, pipelines, water treatment systems, and other facilities needed to prevent the contaminated groundwater from spreading into uncontaminated and less contaminated areas.

This plan describes the importance of the groundwater as a source of drinking water to residents and businesses in the Rialto area, and the nature and extent of the contamination at the Site. In addition to discussing the preferred cleanup action, this plan describes EPA's cleanup objectives and the relative effectiveness, cost, and feasibility of other cleanup options that EPA considered, but chose not to propose at this time. EPA may propose additional cleanup at the Site in future actions.

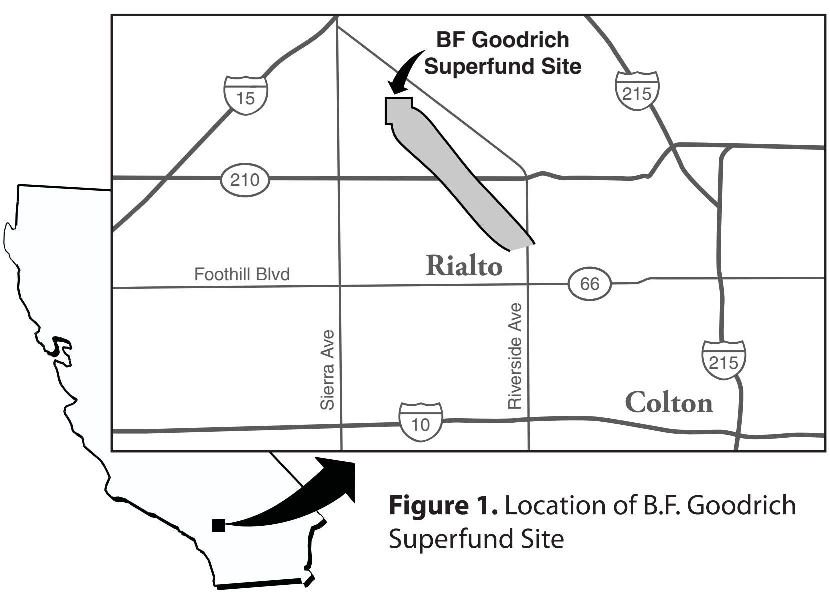


Figure 1. Location of B.F. Goodrich Superfund Site

Public Meeting

EPA will hold a public meeting to explain and answer questions about its Proposed Plan. Oral and written comments will also be accepted at the meeting. The meeting will take place on:

Wednesday, February 10, 2010
6:30 p.m. - 8:30 p.m.

Rialto Senior Center
1411 S. Riverside Ave.
Rialto, CA 92376

EPA Seeks Your Comments on this Proposed Cleanup Plan

EPA welcomes your comments on the Proposed Plan and other documents in EPA's Administrative Record file. Comments may be made at the public meeting on Wednesday, February 10, 2010, or submitted by email, fax, or regular mail **no later than March 8, 2010,** unless EPA extends the comment period. See EPA's B.F. Goodrich Site website for notice of any extension in the comment period. You can send your comments to:

Wayne Praskins
EPA Project Manager
US EPA (SFD-7-3)
75 Hawthorne Street
San Francisco, CA 94105
praskins.wayne@epa.gov
Fax: (415) 947-3526
Phone: (415) 972-3181

This Proposed Plan is being issued pursuant to CERCLA §117(a) and the National Contingency Plan §300.430(f)(2)

EPA, the California Regional Water Quality Control Board (Santa Ana Region), the California Department of Toxic Substances Control, the cities of Rialto and Colton, and local water utilities have been working jointly to investigate and clean up contaminated soil and groundwater at the Site. EPA is the lead agency for this proposed cleanup.

For a detailed description of the information and analyses upon which this plan is based, see the Remedial Investigation and Feasibility Study (RI/FS) Report and other documents available in the Administrative Record file for this proposal. See page 13 for information on how to obtain these documents.

Site Background

The B.F. Goodrich Site includes contaminated soil and groundwater in an industrial area in Rialto, California known as the "160-acre area." The Site also includes contaminated groundwater that has spread from the 160-acre area to the southeast. The 160-acre area is part of a larger area developed by the United States Army in the 1940s as a storage facility for rail cars transporting ordnance (military supplies) to the Port of Los Angeles. It was subsequently used by a variety of private businesses to manufacture and test solid-fuel rocket propellant, solid-fuel missile and rocket motors, military flares, fireworks, and other products.

Community Participation

EPA representatives provided an update on its investigation and cleanup efforts at a public meeting in Rialto on December 2, 2009, and will provide future updates through public meetings, fact sheets, public notices, and its website. EPA has begun preparation of a formal Community Involvement Plan for the Site, which should be completed in 2010.

Testing to determine the sources, number, and extent of chemical contamination in the soil and groundwater began in 2003. The testing has been conducted by businesses that currently operate or formerly operated at the 160-acre area, current property owners, San Bernardino County, local water utilities, and EPA.

The groundwater at the Site is a vital resource for residents of Rialto and Colton. The Rialto-Colton groundwater basin, in

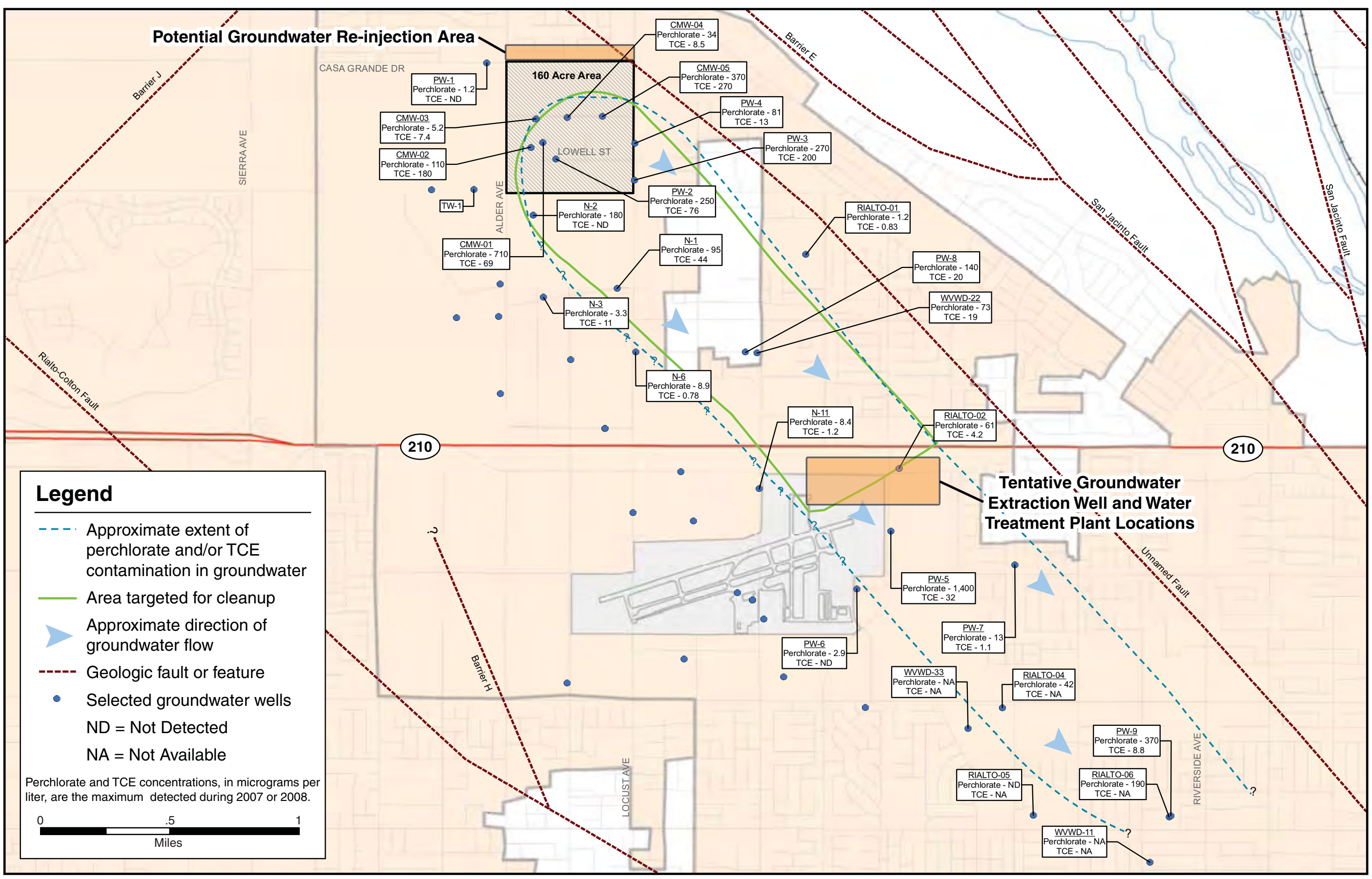


Figure 2. Approximate extent of perchlorate and/or trichloroethene (TCE) contamination

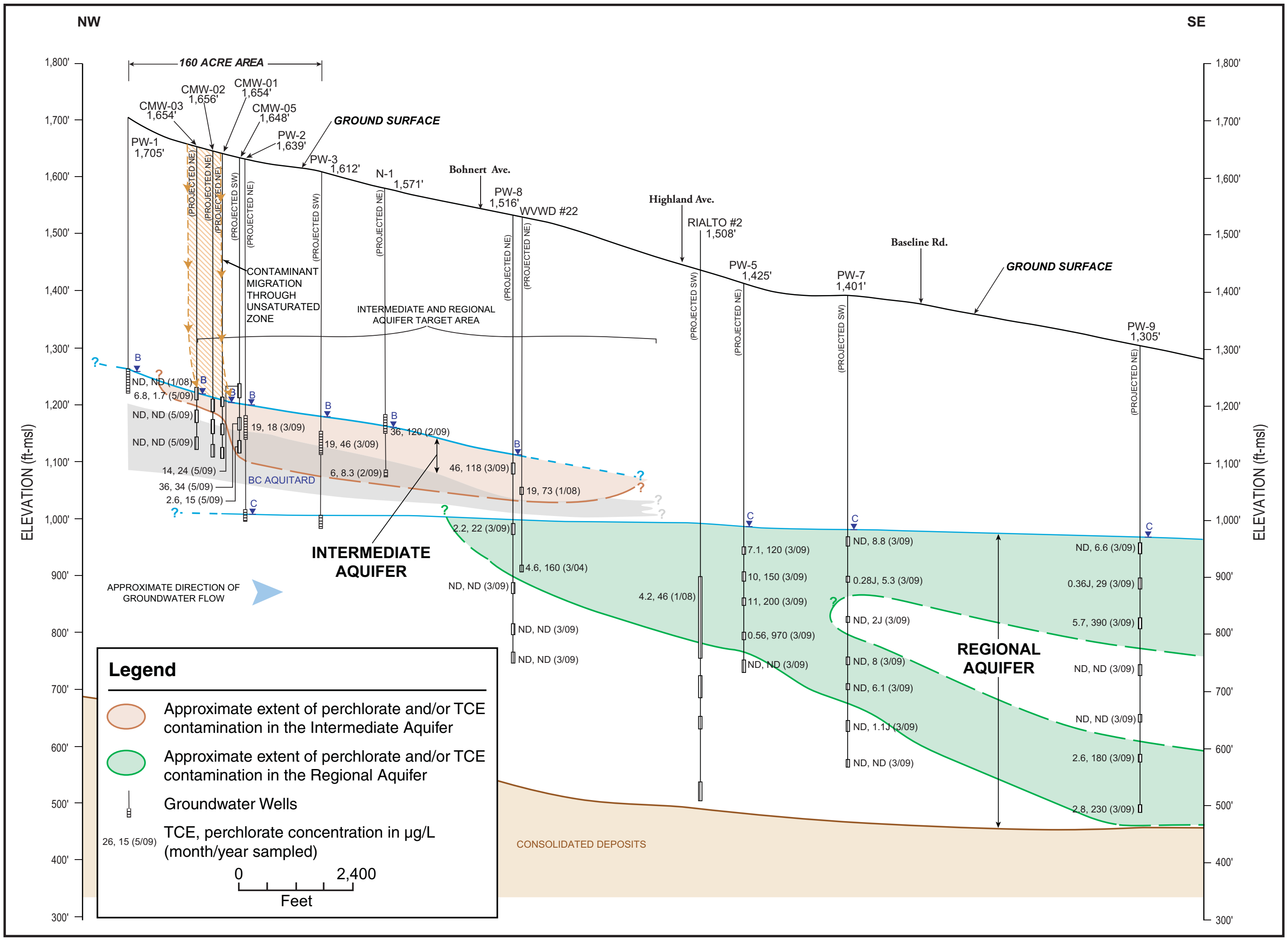


Figure 3. Approximate extent of trichloroethene (TCE) and/or perchlorate contamination

which the Site is located, has in recent years supplied more than 8 million gallons of drinking water per day, through large municipal water supply wells that pump water from hundreds of feet below ground. That is enough water to meet the needs of tens of thousands of area residents. The contamination has forced the closure of many drinking water supply wells in the basin, requiring water utilities to pump more water from wells in clean outlying areas or to install costly water treatment systems.

Site Characteristics

The area of groundwater contamination is at least several miles long and has reached depths of 800 feet below ground, as shown in Figures 2 and 3. Testing is underway to determine the full extent of contamination. The figures show the approximate area where the concentrations of contaminants in the groundwater exceed Federal or State drinking water standards (known as Maximum Contaminant Levels or MCLs).

Area Targeted for Cleanup

EPA's cleanup plan is directed at the most-contaminated groundwater at the Site, which extends from the 160-acre area about 1 ½ miles to the southeast. The tentative location for the groundwater wells and water treatment systems that EPA is proposing as part of this plan is northeast of the Rialto Municipal Airport, just south of the Foothill Freeway (Route 210) in Rialto. Figure 2 shows the approximate location.

Groundwater

The Rialto-Colton groundwater basin has multiple water-bearing layers. In the area targeted for cleanup, the depth to the first layer, known as the Intermediate Aquifer, is currently about 400 to 450 feet. The Intermediate Aquifer is about 50 to 100 feet thick. The deeper water-bearing layer, known as the Regional Aquifer, is about 300 to 500 feet thick. To the southeast of the area targeted for cleanup, only the Regional Aquifer is present.

Drinking Water is Regularly Tested to Ensure Compliance With EPA and State Drinking Water Standards

Drinking water supplied to residents and businesses in the Rialto area is regularly tested to ensure compliance with EPA and State drinking water standards. Drinking water wells not meeting EPA and the State standards have been equipped with water treatment systems to remove the contaminants or shut down.

Groundwater in the Intermediate Aquifer generally flows to the southeast at up to several feet per day. Groundwater in the Regional Aquifer generally flows to the southeast at an average rate of about one-half foot per day.

Groundwater levels, and the rate at which groundwater moves, vary seasonally and year to year. The primary cause of the variability is year to year changes in precipitation in the region.

Chemical Contaminants

The primary contaminants in the groundwater are trichloroethene (TCE) and perchlorate. Low concentrations of carbon tetrachloride and other volatile organic compounds (VOCs) have also been detected. Perchlorate is an inorganic chemical used as an oxidizer in rocket propellant, flares, fireworks, and other products. TCE is an organic cleaning solvent that was extensively used in the 1950s and 1960s. Employees of businesses that operated in the 160-acre area in the 1950s and 1960s have testified that perchlorate and cleaning solvents were handled or used at the Site. The chemicals probably contaminated the soil and groundwater from intentional onsite disposal and spills. Neither TCE nor perchlorate readily degrade when dumped or spilled and both can persist in groundwater for decades.

Nature and Extent of Contamination

In the area of groundwater contamination targeted for cleanup, TCE, perchlorate, and carbon tetrachloride have been detected at concentrations above Federal and/or State drinking water standards. The highest TCE concentration measured is more than three hundred times the drinking water standard of 5 micrograms per liter (µg/L). The perchlorate concentrations in most of the groundwater monitoring wells exceed the drinking water standard of 6 µg/L by a factor of ten or more. The highest perchlorate concentration measured is more than one thousand times the drinking water standard. Carbon tetrachloride has also been detected at one monitoring well above its drinking water standard of 0.5 µg/L . The highest concentrations of TCE and perchlorate were measured after heavy precipitation in early 2005 caused large increases in groundwater levels in the Intermediate Aquifer, suggesting that there is a substantial amount of contamination remaining in the soil and groundwater. In recent testing in 2009, TCE and perchlorate concentrations remained well above drinking water standards.

Scope and Role of this Operable Unit (OU)

EPA's first priority at the Site, reflected in this plan, is to limit further spread of the most-contaminated groundwater at the Site.

EPA has designated the area of highly contaminated groundwater targeted in this cleanup plan as the Interim Source Area Operable Unit. The term "operable unit" (OU) defines a discrete action that is an incremental step toward cleanup of a Superfund site. Because this action is considered "interim," EPA is not setting numeric cleanup goals for the groundwater in the aquifer at this time (i.e., "*in situ*" cleanup goals).

Some contaminated groundwater has already moved past the area targeted by this cleanup plan. Additional cleanup actions are planned for this "downgradient" area after groundwater flow directions and the extent of contamination in the downgradient area are better understood. In 2009, EPA completed a $2 million effort to install new groundwater monitoring wells to better define the nature and extent of contamination in the downgradient area and help determine what additional cleanup actions may be needed.

Potentially Responsible Parties

EPA has named three companies that operated at the Site (or their corporate successors), and two current property owners, as Potentially Responsible Parties (PRPs). The Superfund law makes certain owners and "operators" at a site responsible for investigation and cleanup work. The PRPs have completed some of the soil and groundwater testing upon which this Proposed Plan is based.

In a future action, EPA may propose to set cleanup goals for the aquifer. EPA is also examining the value of cleaning up contaminated soil. EPA's ultimate goal at the Site is to clean up the groundwater to the point that it is safe to drink without having to treat the chemical contaminants.

EPA's Reasons for Taking Action

Cleanup of the targeted area of groundwater contamination is needed because the levels of contamination exceed Federal and/or State drinking water standards. Recently measured levels of contamination in the groundwater exceed standards for TCE, perchlorate, and carbon tetrachloride by factors of up to 19, 48, and 1.2 respectively.

To evaluate the need for cleanup, EPA also estimated the "hazard index" that could result in the unlikely event that Federal and State drinking water standards are not enforced, and people drink (or inhale vapors from) groundwater at the most contaminated parts of the Site. Making this worst case assumption, the hazard index would be as high as 11. A hazard index greater than one indicates the potential for adverse health effects.

It is EPA's current judgment that the Preferred Alternative identified in this Proposed Plan, or one of the other active measures considered in this Proposed Plan, is necessary to protect public health or welfare or the environment from actual or threatened releases of hazardous substances into the environment, or from the actual or threatened releases of pollutants or contaminants from this Site which may present an imminent and substantial endangerment to public health or welfare.

EPA and State Roles

From 2002 until about 2008, the California Regional Water Quality Control Board, Santa Ana Region, led investigation and cleanup efforts at the Site. EPA added the Site to the Superfund National Priorities List (NPL) in September 2009 and is now leading cleanup efforts at the Site.

Remedial Action Objectives

The primary and secondary remedial action objectives of the cleanup described in this plan are to: 1) protect water supply wells and groundwater resources by limiting the spread of contaminated groundwater from the 160-acre area; and 2) remove the contaminants from the groundwater.

Installation of Groundwater Wells

Between April and December 2009, EPA completed a $2 million effort to install a network of 900-foot deep groundwater monitoring wells in Rialto to provide information needed to plan future cleanup actions at the Site.

Summary of Remedial Alternatives

EPA has evaluated how well each of five cleanup options, described further below, satisfies the remedial action objectives and other requirements. The five options are labeled: Alternative 1, Alternative 2a, Alternative 2b, Alternative 3 and a "no-action" option. The no-action option does not include active remediation or monitoring and is an option that EPA is required to evaluate.

The four "action" alternatives are groundwater "pump-and-treat" systems consisting of five key components:

- **Extraction of Contaminated Groundwater:** Each of the four "action" alternatives assumes that contaminated groundwater is pumped from the Regional Aquifer about 1½ miles to the southeast of the 160-acre area, at or near the location where the Intermediate Aquifer ends. The wells would be operated to limit the spread of contaminated groundwater from the "targeted areas" into down-gradient portions of the Regional Aquifer (i.e., to provide "hydraulic control" or "containment" of groundwater in the targeted areas). EPA concluded that extracting contaminated groundwater closer to the 160-acre area would probably be less effective. The alternatives differ in their extraction and treatment capacity and may differ in their capability to achieve the remedial action objectives during extended wet periods, as described below.
- **Treatment of the Groundwater to Remove Contaminants:** Each of the four alternatives assumes the use of a water treatment technology known as "liquid phase granular activated carbon" (LGAC) to remove TCE and other volatile organic compounds from the groundwater, and disinfection of the water after contaminant removal. The alternatives would provide the same level of treatment but differ in the capacity of the treatment

systems and technology used to remove perchlorate from the groundwater, as described below. After use, spent granular activated carbon and other wastes would be sent to an EPA-approved facility for treatment or disposal.

- **Use of the Groundwater after Removal of the Contaminants:** The alternatives differ in the assumed use of the groundwater after the contaminants are removed. The possible uses are delivery to a local water utility for distribution to residents and businesses, and re-injection into the aquifer.
- **Conveyance Systems to Transport the Groundwater:** Each of the four alternatives assumes the construction of pipelines and pumps to convey water from the extraction wells to the treatment plant, and from the treatment plant to the delivery location. The alternatives differ in the length of pipeline needed and amount of pumping needed to lift water from the treatment plant to the delivery location.
- **Groundwater Monitoring:** Each of the four alternatives assumes the construction of at least eight new small-diameter groundwater monitoring wells, called piezometers, and periodic monitoring of the new piezometers and existing groundwater wells. The monitoring is needed to evaluate the performance of the project and optimize its operation.

Each of the four action alternatives is expected to take from one to two years to construct, achieve remedial action objectives soon after startup, and operate for a period of several years to decades.

Alternative 1 – Pump and Treat 1,500 to 1,650 Gallons per Minute (gpm) of Contaminated Groundwater and Use Treated Water as Drinking Water Supply

Alternative 1 consists of two groundwater extraction wells, a LGAC water treatment system, pipelines and booster pumps, and a groundwater monitoring program. Alternatives 2a, 2b, and 3 include these same elements.

Alternative 1 requires the construction of wells, treatment systems, and pipelines capable of extracting and treating up to 1,650 gpm of contaminated groundwater. It assumes that extraction and treatment at a rate of 1,500 gpm rate would be adequate to satisfy the remedial action objectives during most groundwater conditions. The 1,500 gpm rate is based on computer "particle tracking" simulations conducted with a site-specific numeric groundwater flow model. During extended wet periods, however, when above-average rainfall in the region causes significant increases in groundwater levels and groundwater hydraulic gradients in the Regional Aquifer,

Water Treatment Technologies

Liquid Phase Granular Activated Carbon Adsorption (LGAC) uses a charcoal-like material to remove TCE and other contaminants from water. The carbon is replaced when it loses its capacity to adsorb contaminants, and the "spent" carbon is typically disposed or regenerated offsite.

Air Stripping can also be used to remove TCE from groundwater. In a typical air stripper, water is pumped to the top of a tower and allowed to trickle downward as air is blown upward, transferring the TCE (and any other volatile contaminants) from the water to the air. The contaminated air is often further treated to remove or destroy the contaminants.

Advanced Oxidation Processes can also be used to remove TCE from groundwater. They often use ultraviolet light and a chemical oxidant to chemically alter or destroy contaminants. In a typical groundwater treatment system, a small amount of hydrogen peroxide is added to the contaminated water, which is then exposed to ultraviolet light.

Ion Exchange is similar to LGAC, except that a synthetic resin is used instead of a charcoal-like material. In a system designed to remove perchlorate, perchlorate ions in the water are adsorbed onto the resin and replaced with chloride ions. The resin is replaced when it loses its capacity to adsorb perchlorate and is typically disposed or regenerated offsite.

Biological treatment uses microbes to destroy perchlorate in water. A complete treatment system may include the bioreactor (in which the microbes are maintained) followed by aeration (to reoxygenate the water), filtration (to remove residual biomass), and disinfection. Biological treatment has been used to remove perchlorate from groundwater in Northern California since the late 1990s, and has been tested extensively at the Site. If used to supply potable water, a lengthy approval process is expected.

higher extraction rates would be needed. Extraction would increase up to the maximum rate of 1,650 gpm. The 1,650 gpm rate is unlikely to be adequate, however potentially limiting the alternative's effectiveness in preventing the spread of contaminated groundwater. Based on a review of rainfall amounts over the past 50 years, wet periods have occurred every five years on average.

Alternative 1 assumes that the groundwater is used as drinking water supply after the contaminants are removed. Alternatives 2a and 3 include the same assumption. Alternative 1 assumes that the water would be delivered to West Valley Water District (WVWD), which would distribute the water to its residential and business customers. WVWD has large distribution facilities (e.g., pipelines and tanks) relatively close to the assumed treatment plant location.

Alternative 1 assumes the use of ion exchange as the perchlorate removal technology. Alternatives 2a and 3 include the same assumption. The treatment goals for TCE, carbon tetrachloride, and perchlorate in the extracted groundwater are 5.0, 0.5, and 6 ug/L respectively, but it is expected that TCE and perchlorate concentrations would be reduced to lower levels, probably 1 ug/L or less. These treatment goals also apply to Alternatives 2a, 2b, and 3.

Alternative 2a – Pump and Treat 1,500 to 3,200 gpm of Contaminated Groundwater and Use Treated Water as Drinking Water Supply

Alternative 2a also consists of two groundwater extraction wells, a LGAC water treatment system, pipelines and pumps, and a groundwater monitoring program. Alternative 2a assumes almost double the extraction and treatment capacity of Alternative 1 (3,200 gpm in Alternative 2a compared to 1,650 in Alternative 1). In Alternative 2a, as in Alternative 1, it is assumed that groundwater would be extracted and treated at a rate of 1,500 gpm most of the time, and that higher extraction rates would be needed only during extended wet periods. During these periods, extraction could increase up to the maximum extraction rate of 3,200 gpm. The average flow rate would increase only modestly above that in Alternative 1 because periods requiring higher pumping rates are expected to be infrequent. If extraction occurred at 1,500 gpm 80% of the time, and at 3,200 gpm 20% of the time, the average rate would be 1,840 gpm.

Alternative 2a would achieve capture under a wider range of conditions than Alternative 1. Based on an evaluation of the magnitude and duration of periods of above-average rainfall over the last 50 years, and other factors affecting hydraulic gradients, Alternative 2a is expected to achieve remedial action objectives during all expected groundwater conditions. There is some uncertainty because the performance of the remedy would depend on future rainfall patterns and pumping rates at other wells near the Site, but the groundwater monitoring program that would be a part of the alternative would allow EPA to evaluate whether the cleanup is achieving its hydraulic containment objective and modify the project if needed. Modifications could include adjusting extraction rates, modifying the extraction wells, or installing new wells.

Alternative 2a assumes that the groundwater is used as drinking water supply after the contaminants are removed, and that ion exchange is used as the perchlorate removal technology, as do Alternatives 1 and 3. It is assumed that the groundwater is distributed by WVWD.

Alternative 2b – Pump and Treat 1,500 to 3,200 gpm of Contaminated Groundwater and Re-inject the Treated Groundwater

Alternative 2b is the same as 2a except that it assumes: 1) a biological treatment process for removal of perchlorate from the contaminated groundwater (rather than ion exchange); and 2) re-injection of the treated water into the aquifer (rather than direct use as drinking water supply). Potential re-injection locations are shown in Figure 2. The biological treatment process is described further on page 6.

Alternative 2b assumes that re-injecting the water would require the construction of two 700-foot deep injection wells located along the northern boundary of the 160-acre area, installation of long pipelines to convey the treated water to the injection wells, and more costly pumping (compared to Alternative 2a) to move the treated water from the treatment plant to the delivery location.

It is assumed that the State Water Resources Control Board Resolution No. 68-16, "Statement of Policy with Respect to Maintaining High Quality of Waters in California," would apply to the re-injected water.

Alternative 3 – Pump and Treat 1,500 to 5,000 gpm of Contaminated Groundwater and Use Treated Water as Drinking Water Supply

Alternative 3 also assumes two groundwater extraction wells, a LGAC water treatment system, pipelines and pumps, and a groundwater monitoring program.

Alternative 3 includes the construction of a much larger groundwater extraction and treatment system than Alternatives 1, 2a, or 2b. It would operate at a rate similar to the other alternatives most of the time (approximately 1,500 gpm), but would have additional capacity (up to 5,000 gpm) to operate at higher rates during extended wet periods. The additional capacity would provide a greater level of confidence that the project would provide complete hydraulic containment during extended wet periods. It assumes triple the treatment capacity of Alternative 1 (5,000 gpm in Alternative 3 compared to 1,650 gpm in Alternative 1). If extraction occurred at the maximum 5,000 gpm rate 20% of the time, the average rate would be 2,200 gpm.

Alternative 3 assumes that the groundwater is used as drinking water supply after the contaminants are removed, and the use of ion exchange as the perchlorate removal technology, as do Alternatives 1 and 2a. Because of the higher extraction and treatment rate, it is assumed that pipelines must be built to convey the treated groundwater to WVWD and Fontana Water Company.

Evaluation of Remedial Alternatives

To determine which alternative to select, EPA evaluates and compares the remedial alternatives using nine evaluation criteria. The nine criteria are summarized in Figure 4. EPA categorizes the nine criteria into three groups: (1) threshold criteria, (2) balancing criteria, and (3) modifying criteria.

An alternative must meet the threshold criteria to be chosen as the preferred alternative. The threshold criteria are "overall protection of human health and the environment" and "compliance with ARARs" (unless an ARAR is waived). The comparison of remedial alternatives is based primarily on the balancing criteria. The balancing criteria are "Long-Term Effectiveness and Permanence," "Reduction of Toxicity, Mobility, or Volume through Treatment," "Short-Term Effectiveness," "Implementability," and "Cost." The modifying criteria are "State Acceptance" and "Community Acceptance."

EPA's Nine Evaluation Criteria For Superfund Remedial Alternatives

1 **Overall Protection of Human Health and the Environment**
This evaluation criterion assesses whether each alternative adequately protects human health and the environment from unacceptable risks posed by contaminants at a site. It draws on the assessments conducted as part of other evaluation criteria.

2 **Compliance with ARARs**
This evaluation criterion is used to determine if each alternative would comply with federal and state ARARs, or whether invoking waivers to specific ARARs is justified.

3 **Long-Term Effectiveness and Permanence**
This evaluation criterion examines the risk remaining at a site after a remedial alternative has been implemented and the remedial action objectives have been met. In the evaluation completed to support this plan, the primary focus is the adequacy and reliability of the remedial alternatives and the controls that may be required to manage the risk posed by treatment residuals and untreated wastes.

4 **Reduction of Toxicity, Mobility, or Volume through Treatment**
This evaluation criterion addresses the extent to which an alternative employs treatment technologies that permanently and significantly reduce the toxicity, mobility, and volume of hazardous materials at the Site.

5 **Short-Term Effectiveness**
This evaluation criterion considers the effects of each alternative on workers, the community, and the environment during the construction and implementation process.

6 **Implementability**
This evaluation criterion is used to evaluate the technical feasibility and administrative feasibility (that is, the ease or difficulty) of implementing each alternative and the availability of required services and materials during implementation.

7 **Cost**
This evaluation criterion estimates the cost of implementing each alternative, including engineering, construction, and operation and maintenance costs (O&M) incurred over the life of the project. The cost estimates in this plan include a 25 percent contingency for capital costs and a 10 percent contingency for O&M costs.

In this plan, the costs of the remedial alternatives are compared using the estimated net present value (NPV) of the alternative. The assumed period of operation is 30 years; the assumed discount rate is 7 percent.

8 **State Acceptance**
This criterion considers whether the State agrees with the EPA's preferred alternative and supporting analyses.

9 **Community Acceptance**
This criterion considers whether the community agrees with the EPA's preferred alternative and supporting analyses. EPA gives significant weight to comments submitted on its Proposed Plan in evaluating community acceptance.

Selected Remedy

Figure 4. EPA's Nine Evaluation Criteria

In the discussion below, the alternatives are evaluated in relation to the threshold criteria and the balancing criteria. A more detailed description of this evaluation is provided in the RI/FS report. EPA will consider the Community Acceptance criterion after review of public comments on this proposal. Table 1 summarizes EPA's ranking of the alternatives in relation to the criteria.

"Compliance with ARARs," "Reduction of Toxicity, Mobility, or Volume through Treatment," "Short-Term Effectiveness."

The four action alternatives (Alternatives 1, 2a, 2b, 3) are all ranked similarly in "Compliance with ARARs," "Reduction of Toxicity, Mobility, or Volume through Treatment," and "Short-Term Effectiveness."

The four action alternatives are all expected to comply with all ARARs.

The four action alternatives would all reduce the mobility and volume of the contaminated groundwater, although there would be minor differences in proportion to the average extraction and treatment rate of the alternative (i.e., slightly greater reductions in Alternatives 2a and 2b than in Alternative 1, and a slightly greater reduction in Alternative 3 than in Alternatives 2a and 2b).

The four action alternatives would all result in similar levels of adverse short-term impacts (e.g., construction impacts from installation of pipelines, risks associated with handling and disposal of used carbon). Consequently, all alternatives are assigned a high ranking for short-term effectiveness because no unmitigable risks are expected to the community, workers, or the environment during construction and implementation. There may be minor differences between the alternatives resulting from the slightly higher rate at which carbon, resin, or other treatment residuals are generated in Alternatives 2a and 2b (compared to Alternative 1) and Alternative 3 (compared to Alternatives 2a and 2b). There could also be minor differences in residual risk if air stripping is used for VOC removal instead of LGAC (as described in the Preferred Alternative section below).

Long-Term Effectiveness

The action alternatives differ in their long-term effectiveness. All four action alternatives are expected to achieve remedial action objectives during most groundwater conditions, but they are expected to differ in effectiveness during extended wet periods that result in significantly increased groundwater levels and increased groundwater hydraulic gradients in the Regional Aquifer. The evaluation of long-term effectiveness is based primarily on computer simulations of groundwater flow conducted to estimate the extent to which extraction at the specified rates and locations would intercept contaminated groundwater moving from the targeted areas. The computer model and the results of the computer simulations are described in the RI/FS report.

Table 1. Comparison of Remedial Alternatives

Alternative	Overall Protection of Human Health and the Environment	ARARs	Long-Term Effectiveness and Permanence	Reduction of Toxicity, Mobility, or Volume	Short-term Effectiveness	Implementability	Cost (30 yr NPV)
No Action	Low	NA	Low	NA	NA	NA	—
1	Med	High	Med	High	High	Med to High	$24.2M
2a	High	High	High	High	High	Med	$29.3M
2b	High	High	High	High	High	Med	$40.5M
3	High	High	High	High	High	Med	$36.8M

NA = not applicable

Alternative 1 may not be fully effective during extended wet periods, potentially limiting the alternative's effectiveness in preventing the spread of contaminated groundwater. Alternative 1 is ranked moderate in relation to the "Long-term Effectiveness and Permanence" criterion.

Alternative 2a is expected to achieve remedial action objectives during all expected groundwater conditions. There is some uncertainty because the performance of the remedy would depend on future rainfall patterns and pumping rates at other wells near the Site. Alternatives 2a and 2b are ranked high in relation to the "Long-term Effectiveness and Permanence" criterion.

Alternative 3 is also expected to achieve remedial action objectives with a high level of certainty during all expected groundwater conditions and would have the capacity to maintain hydraulic containment during more extreme hydraulic conditions. Alternative 3 is also ranked high in relation to the "Long-term Effectiveness and Permanence" criterion.

There would also be differences in the contaminant mass removed due to the varying extraction and treatment capacity of the alternatives. Alternative 1 would remove an estimated 1,600 lbs. and 15,800 lbs. of TCE and perchlorate, respectively over 30 years. Alternatives 2a and 2b would remove approximately 1,900 lbs. and 19,300 lbs. of TCE and perchlorate, respectively and Alternative 3 would remove approximately 2,300 lbs. and 23,100 lbs. of TCE and perchlorate, respectively.

The "no action" alternative, in which no active remediation or monitoring would occur, is ranked low in relation to the "Long-term Effectiveness and Permanence" criterion. If no action is taken, contaminated groundwater will continue to spread, increasing the likelihood of future increases in contaminant concentrations in downgradient portions of the aquifer, and increasing the eventual cost, difficulty, and time required for containment or restoration of the aquifer.

Cost

The four action alternatives differ in cost. No direct costs are associated with the No-Action Alternative. The estimated Net Present Value (NPV) of the least expensive action alternative (Alternative 1) is $24.2 million. The estimated NPV of the most expensive alternative (Alternative 2b) is $40.5 million, primarily due to the high capital costs associated with the long pipeline from the treatment plant to the injection well locations, higher pumping costs, and the higher cost of biological treatment (compared to ion exchange). Alternatives 2a and 3 have estimated NPVs of $29.3 million and $36.8 million respectively. The NPV is a measure of the capital and operation and maintenance (O&M) costs over a period of 30 years. It is calculated as the sum of the capital cost and O&M costs, with O&M costs discounted to the present at a rate of 7% per year.

Implementability

The four action alternatives differ in how they are ranked in "Implementability." None of the alternatives are assigned a high ranking for this evaluation criterion, reflecting the need to arrange access for the construction of extraction wells, treatment facilities, and conveyance facilities, other difficulties associated with a construction project in a developed area, and agreements with water utilities needed to carry out Alternatives 1, 2a, and 3. The agreements would specify the amount of water each purveyor would accept, the treated water delivery location, and operational, liability, financial, and other arrangements, Alternative 1 is assigned a moderate to high ranking, reflecting the fact that it is the least complex alternative, probably requiring the fewest participating parties and fewest agreements. Alternatives 2a, 2b, and 3 are assigned a moderate ranking. Alternatives 2a, 2b, and 3 involve periodic distribution of larger volumes of water than Alternative 1 (up to 3,200 gpm for Alternatives 2a and 2b; up to 5,000 gpm for Alternative 3). In Alternatives 2a and 3, distributing this additional treated water may require arrangements with additional parties (particularly in Alternative 3). Alternative 2b would not require agreements to distribute water to local water utilities, but may pose additional obstacles due to the long pipeline needed to move water from the treatment plant to the injection wells.

Overall Protection of Human Health and Environment

The evaluation of Overall Protection of Human Health and Environment is based largely on the long-term effectiveness criterion. The no action alternative is ranked low. Alternatives 1 is ranked moderate and Alternatives 2a, 2b, and 3 are ranked high in relation to this criterion.

EPA's Preferred Alternative

EPA's preferred alternative includes the major elements of Alternative 2a, and some added flexibility in the extraction, treatment, conveyance, and groundwater use components as described below. The preferred alternative would be designed to hydraulically-contain contaminated groundwater in the targeted areas of contamination during all expected groundwater conditions. This would satisfy the remedial objectives of protecting water supply wells and groundwater resources downgradient of the 160-acre area and removing contaminants from the groundwater.

Table 2. Summary of Remedial Alternatives

Alternative	Estimated Average Extraction and Treatment Rate	Peak Extraction and Treatment Rate	Perchlorate Removal Technology	Water Use	Capital Cost	Operation and Maintenance Cost	Net Present Value (NPV)
No Action	—	—	—	—	—	—	—
1	1500 gpm	1650 gpm	Ion exchange	Drinking water	$9.6 M	$1.2M /yr	$24.2M
2A	1840 gpm	3200 gpm	Ion exchange	Drinking water	$13.1M	$1.3M /yr	$29.3M
2B	Same as 2a	Same as 2a	Biological treatment	Re-injection to the aquifer	$21.8M	$1.5M /yr	$40.5M
3	2200 gpm	5000 gpm	Ion exchange	Drinking water	$18.3M	$1.5M /yr	$36.8M

Note: Alternatives 1, 2a, 2b, and 3 all assume the use of two deep groundwater extraction wells, liquid phase granular activated carbon (LGAC) for VOC removal, disinfection, pipelines and pumps, and a groundwater monitoring program.

EPA's preferred alternative would include the construction and operation of the following (as in Alternative 2a):

- groundwater extraction wells to pump contaminated water to the surface approximately 1 ½ miles downgradient of the 160-acre area, at or near the location where the Intermediate Aquifer ends;
- water treatment systems to remove TCE and other volatile organic compounds from the groundwater to concentrations below MCLs;
- ion exchange water treatment systems to remove perchlorate from the groundwater to a concentration of 6.0 ug/L or less;
- pipelines and pumps to convey the contaminated water from the extraction wells to the treatment plant;
- pipelines and pumps to convey the treated water from the treatment plant to a local water utility for distribution to the utility's customers as drinking water supply (unless agreements cannot be reached with the utility in a reasonable period of time); and
- a groundwater monitoring program.

The extraction, treatment, and conveyance systems would be constructed with a capacity of 3,200 gpm to satisfy the hydraulic containment objective during all expected groundwater conditions, unless it is demonstrated to EPA's satisfaction during the remedial design process that more or less capacity is required to meet the remedial action objectives.

EPA's preferred alternative would include the flexibility to:

- refine the targeted area of groundwater contamination if new information demonstrates to EPA's satisfaction that contaminant concentrations in groundwater, or the location where the Intermediate Aquifer ends, differ from those assumed;
- use air stripping and/or an advanced oxidation process for VOC removal instead of or in addition to LGAC, if shown to be effective and feasible. If air stripping is used, requirements of the South Coast Air Quality Management District (SCAQMD) would be applicable or relevant and appropriate;
- deliver the treated water to WVWD at locations other than assumed in EPA's RI/FS evaluation, and to water utilities other than WVWD;
- change well locations, treatment plant location, and pipeline routes from those assumed in EPA's RI/FS evaluation; and
- re-inject the treated water (as described in Alternative 2b) if agreements cannot be reached to supply water to water utilities in a reasonable period of time.

Final decisions on the above components would be made during remedial design. The estimated cost of the preferred alternative, as a NPV, is $29.3 to $38.1 million, depending on whether the treated water is supplied to a water utility ($29.3 million) or re-injected ($38.1 million).

The most decisive considerations that affected the selection of the Preferred Alternative are:

- the increased effectiveness and modest increase in cost of increasing the extraction and treatment capacity from 1,650 to 3,200 gpm (the assumed capacities in Alternatives 1 and 2a);
- the lower cost, similar level of effectiveness, and easier implementation of an extraction and treatment system having a capacity of 3,200 gpm rather than 5,000 gpm (the capacities in Alternatives 2a and Alternative 3);
- the ability to increase pumping or make other modifications to the project if the groundwater monitoring program indicates that the remedial action objectives are not being achieved;
- the importance and lower cost of using the treated groundwater as a source of drinking water; and
- the lower cost, simpler operation, and potentially faster implementation of ion exchange (as in Alternative 2a) compared to biological treatment (as in Alternative 2b) for removal of perchlorate from the groundwater.

Staff of the California Regional Water Quality Control Board, Santa Ana Region, the lead agency for the State of California at the B.F. Goodrich Site, concurs with EPA's preferred alternative.

Based on information currently available, EPA believes the Preferred Alternative meets the threshold criteria and provides the best balance of tradeoffs among the other alternatives with respect to the balancing and modifying criteria. EPA expects the Preferred Alternative to satisfy the following statutory requirements of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 as amended: 1) be protective of human health and the environment; 2) comply with ARARs; 3) be cost-effective; 4) utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable; and 5) satisfy the preference for treatment as a principal element. The Preferred Alternative can change, however, in response to public comment and/or new information.

Technical Assistance Grant (TAG)

As part of the EPA Superfund program, EPA offers Technical Assistance Grants (TAG) to assist community groups in interpreting site-related technical information. One group at each Superfund site may obtain one grant for up to $50,000 in federal funds to be distributed over a three-year period. Some of the eligibility requirements include:

- Incorporated 501(c)3 non-profits demonstrating current or past interest in the Site
- Able to meet a 20% matching funds requirement (donated goods and services or other in-kind contributions are permissible), or obtain a waiver of this requirement
- Capable of preparing a plan to use technical assistance parallel with ongoing cleanup activities

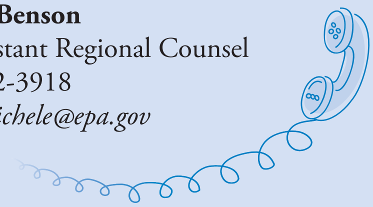
Please contact Alejandro Diaz for more information.

Contact Information:

Wayne Praskins
EPA Project Manager
(415) 972-3181
praskins.wayne@epa.gov

Alejandro Diaz
EPA Community Involvement Coordinator
(415) 972-3242 or (800) 231-3075
diaz.alejandro@epa.gov

Michele Benson
EPA Assistant Regional Counsel
(415) 972-3918
benson.michele@epa.gov



Site Repositories

The Administrative Record File, which includes the Remedial Investigation/Feasibility Study report and other Site documents, is available at:

Rialto Branch Library
251 West 1st St
Rialto, CA 92376
(909) 875-0144

Hours:
Monday, Tuesday, Wednesday: 10:00am – 8:00pm
Thursday and Friday: 10:00am – 6:00pm
Saturday: 9:00am – 5:00pm
Sunday: closed

EPA Superfund Records Center
95 Hawthorne Street, 4th floor
San Francisco, CA 94105
(415) 536-2000

Hours:
Monday through Friday: 8:00am – 5:00pm

An index of documents in the Administrative Record, selected Site documents, and additional information on the Site are also available at EPA's BF Goodrich Site web page at: **www.epa.gov/region09/bfgoodrich**

Mailing List Coupon

If you are not already on EPA's mailing list for the BF Goodrich Superfund Site, please send an email or return the coupon below to Alejandro Diaz.

Name ______________________________

Mailing Address ______________________________

City, State ______________________ Zip ____________

Telephone (optional) ______________________________

E-mail (optional) ______________________________

Affiliation (optional) ______________________________

B.F. Goodrich Superfund Site

EPA Seeks Public Comment on Groundwater Clean Up Plan

Printed on 30% Postconsumer Recycled/Recyclable Paper

United States Environmental Protection Agency, Region 9
75 Hawthorne Street (SFD-6-3)
San Francisco, CA 94105
Attn: Alejandro Diaz (BF Goodrich 1/10)

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U.S. EPA
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LINK TO THIS MAP

GEOTRACKER

LAYERS

☒ SIGNIFIES A CLOSED SITE

- ☑ Leaking Underground Tank (LUST) Cleanup Sites
- ☑ Other Cleanup Sites
- ☑ Land Disposal Sites
- ☑ Military Sites
- ☑ WDR Sites
- ☑ Permitted Underground Storage Tank (UST) Facilities
- ☑ Monitoring Wells*

* ZOOM IN TO SEE MWS

- ☐ DTSC Cleanup Sites
- ☐ DTSC Haz Waste Permit

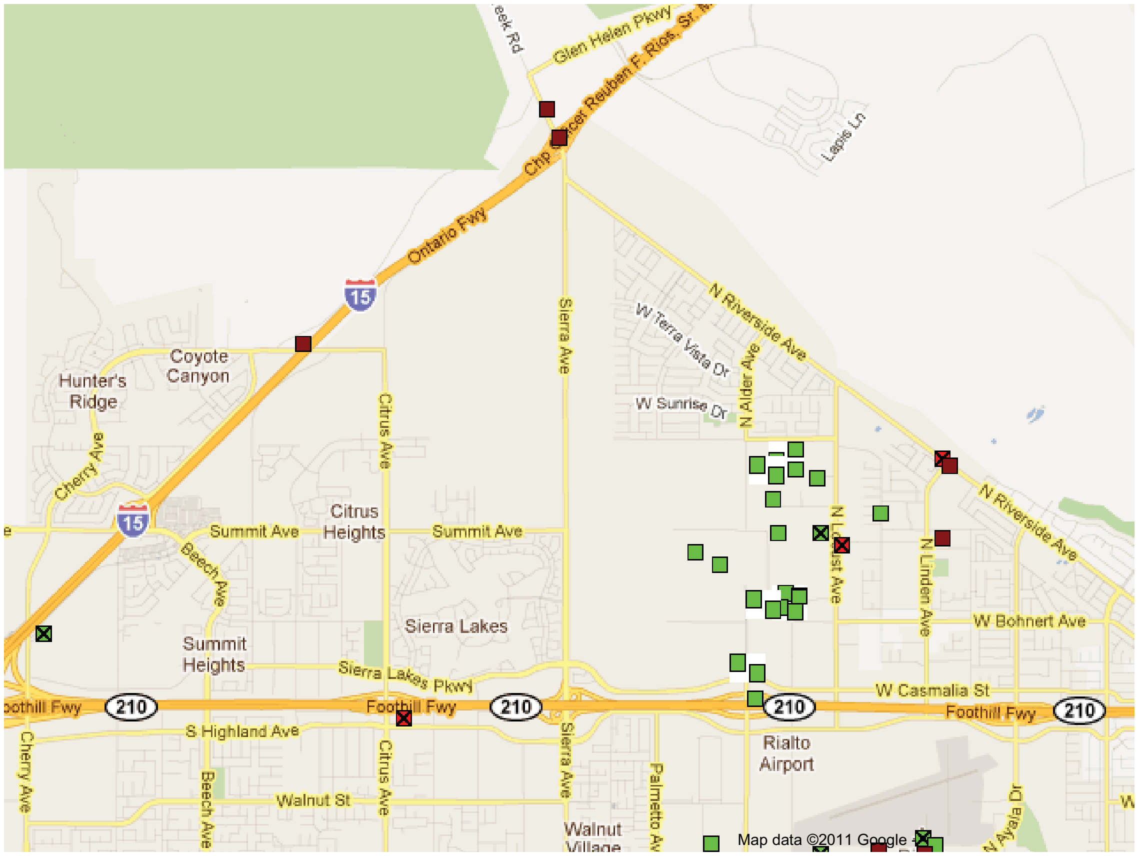
MAP SIZE

640x480

OPTIONS

☑ Site List - EXPORT TO EXCEL

38 Sites



☐ SHOW SITES WITHIN 1000 FEET OF THE FOLLOWING ADDRESS: highland Ave, Fontana, CA Go

SITE LIST

SITE NAME	GLOBAL ID	CLEANUP STATUS	ADDRESS	CITY
AG-6-M EGG RANCH	14496		4850 LYTLE CREEK RD	FONTANA
ART SCHOLL AVIATION, INC	15075		1700 MIRO WAY	RIALTO
CEMEX USA CONST MATERIALS	14533		3221 N RIVERSIDE AVE	RIALTO
CO-RIALTO SHERIFF'S OFC	14941		1776 MIRO WAY	RIALTO
DENOVA ENVIRONMENTAL INC.	SL0607183080	COMPLETED - CASE CLOSED	2610 NORTH ALDER	RIALTO
DENOVA-BROCO TSDF	T10000002430	OPEN - ASSESSMENT & INTERIM REMEDIAL ACTION	2610 ALDER AVE	RIALTO
E & M AIRCRAFT	SLT8R1294081	COMPLETED - CASE CLOSED	1480 LINDEN AVENUE N	RIALTO
FORMER GAS STATION	T0607108153	COMPLETED - CASE CLOSED	16173 HIGHLAND AVENUE	FONTANA
KAISER STEEL CORPORATION	SLT8R1484121	COMPLETED - CASE CLOSED	9400 CHERRY AVENUE	FONTANA
OWL ROCK PRODUCTS	T0607100299	COMPLETED - CASE CLOSED	3221 N RIVERSIDE AVE	RIALTO
RIB ROOF	T0607100145	COMPLETED - CASE CLOSED	2745 LOCUST AVE	RIALTO
RICHARD ENGLE	SL0607182719	COMPLETED - CASE CLOSED	2824 N. LOCUST	RIALTO
RIALTO MUNICIPAL AIRPORT PROPERTY	T10000002088	OPEN - SITE ASSESSMENT	1451 LINDEN AVENUE	RIALTO

MAP AN ADDRESS: Go!

LINK TO THIS MAP

GEOTRACKER

LAYERS

☒ SIGNIFIES A CLOSED SITE

- ☑ Leaking Underground Tank (LUST) Cleanup Sites
- ☑ Other Cleanup Sites
- ☑ Land Disposal Sites
- ☑ Military Sites
- ☑ WDR Sites
- ☑ Permitted Underground Storage Tank (UST) Facilities
- ☑ Monitoring Wells*

* ZOOM IN TO SEE MWS

- ☐ DTSC Cleanup Sites
- ☐ DTSC Haz Waste Permit

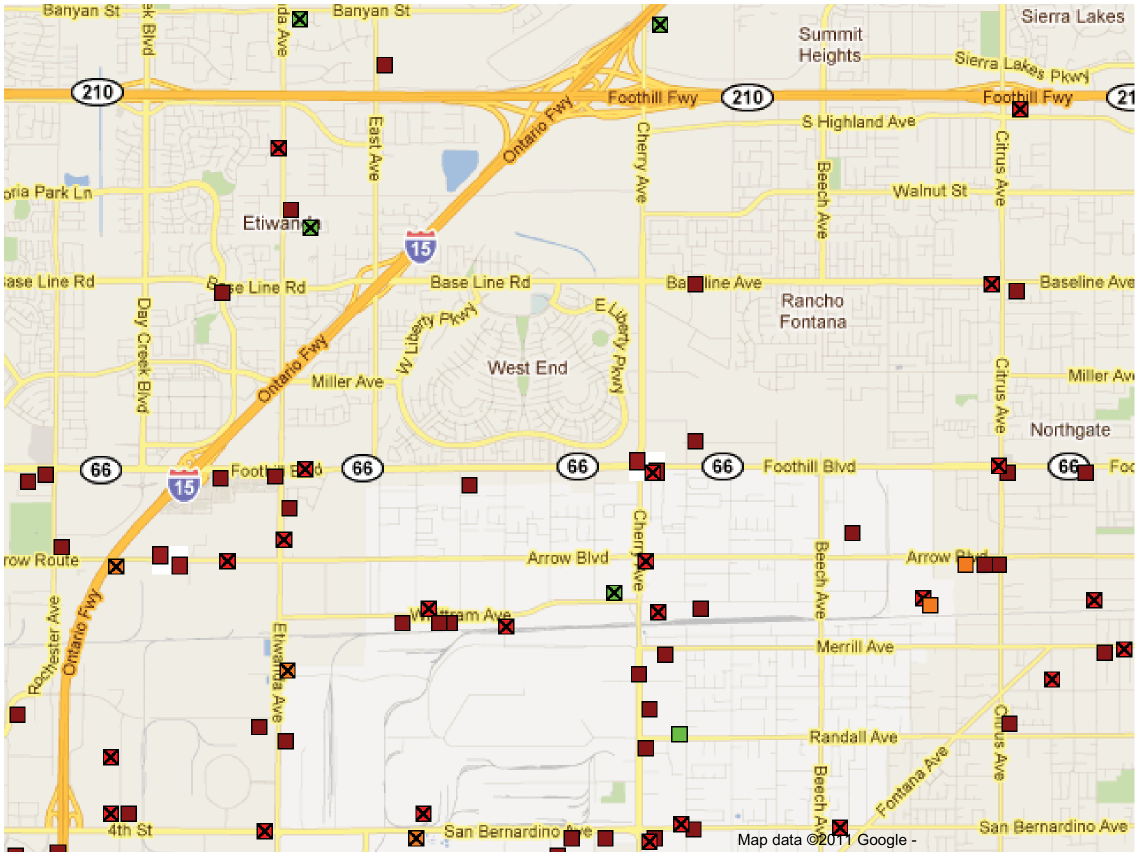
MAP SIZE

640x480

OPTIONS

☑ Site List - EXPORT TO EXCEL

80 Sites



☐ SHOW SITES WITHIN 1000 FEET OF THE FOLLOWING ADDRESS: highland Ave, Fontana, CA Go

SITE LIST

SITE NAME	GLOBAL ID	CLEANUP STATUS	ADDRESS	CITY
AIR LIQUIDE	T0607100393	COMPLETED - CASE CLOSED	12550 ARROW RTE	RANCHO CUCAMONGA
AMERON STEEL AND WIRE	T0607100046	COMPLETED - CASE CLOSED	12459 ARROW HWY	ETIWANDA
AMPHASTAR PAMCEUTICALS	15620		11570 6TH ST	RANCHO CUCAMONGA
ANGELUS BLOCK CO., INC.	T0607100304	COMPLETED - CASE CLOSED	14515 WHITTRAM AVE	FONTANA
ARCO #9693 (FORMER THRIFTY OIL #321)	T0607199301	COMPLETED - CASE CLOSED	16090 FOOTHILL BLVD	FONTANA
ARCO #9693/FORMER TOC#321	T0607100119	COMPLETED - CASE CLOSED	16090 FOOTHILL BLVD	FONTANA
ARCO AM PM #5924	130		14534 FOOTHILL BLVD	FONTANA
ARCO AM/PM	15499		11768 FOOTHILL BLVD	RANCHO CUCAMONGA
ARCO FAC #9693	15156		16090 FOOTHILL BLVD	FONTANA
ARCO FAC #9694	15454		8137 MULBERRY AVE	FONTANA
AZ FUEL STOP	T0607100635	COMPLETED - CASE CLOSED	14529 SAN BERNARDINO AVE	FONTANA

MAP AN ADDRESS: Go!

APPENDIX E
Certificate of Service and Mailing List

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We, John A. Hart, of Environmental Science Associates, and Stan Williams, of Phoenix1 Printing, certify that we have on this date caused the following:

Publication of the Draft EIR for SCE's Application to the California Public Utilities Commission pursuant to General Order (GO) 131-D to construct and operate the Falcon Ridge Substation Project. The Draft EIR is to be served by United Stated Postal Service (USPS) mail to owners of property adjacent to Project components. Copies of the Draft EIR for Responsible, Trustee, and other local, state, and federal public agencies whose jurisdiction falls within the Project area; planning departments of San Bernardino County and the cities of Fontana, Rialto, and Rancho Cucamonga are to be delivered via USPS certified mail or an overnight delivery service as documented in the comprehensive mailing list included in Appendix E of the Draft EIR.

I declare under penalty of perjury pursuant to the laws of the State of California that the foregoing is true and correct.

Executed on January 26, 2012 in San Francisco and Hayward, California.

John A. Hart

Stan Williams

**MASTER MAILING LIST:
AGENCIES, ORGANIZATIONS AND INDIVIDUALS
SENT A HARD COPY OF DRAFT EIR VIA OVERNIGHT DELIVERY SERVICE**

AGENCY/ORGANIZATION/ INDIVIDUAL	FIRST NAME	LAST NAME	STREET	CITY	STATE	ZIP CODE
LEAD AGENCY/APPLICANT						
Project Manager, California Public Utilities Commission	John	Boccio	505 Van Ness Avenue, Energy Division, Room 4A	San Francisco	CA	94102
Project Manager , Southern California Edison Company	Thomas	Diaz	2244 Walnut Grove Avenue Quad 3D/GO1	Rosemead	CA	91770
LOCAL AND STATE AGENCIES						
County of San Bernardino[1]	Dena	Smith	385 N. Arrowhead Avenue	San Bernardino	CA	92415
City of Fontana[2]	Charles	Fahie	8353 Sierra Avenue	Fontana	CA	92335
City of Rancho Cucamonga[3]	James	Troyer	10500 Civic Center Drive	Rancho Cucamonga	CA	91730
City of Rialto[4]	Gina	Gibson	150 S. Palm Avenue	Rialto	CA	92376
California Energy Commission	Melissa	Jones	1516 Ninth Street	Sacramento	CA	95814-5512
California Public Utilities Commission	Karen	Miller	505 Van Ness Avenue	San Francisco	CA	94102
California Public Utilities Commission	Julie	Fitch	505 Van Ness Avenue	San Francisco	CA	94102
California Public Utilities Commission	Karen	Clopton	505 Van Ness Avenue	San Francisco	CA	94102
California Public Utilities Commission	Paul	Clanon	505 Van Ness Avenue	San Francisco	CA	94102
California Department of Transportation	Randell	Iwasaki	PO Box 942873	Sacramento	CA	94273-0001
California Department of Transportation	Gary	Cathey	PO Box 942874	Sacramento	CA	94274-0001
California Department of Transportation	Ray	Wolfe	464 W. 4th Street	San Bernardino	CA	92401
California Department of Public Health	Ron	Chapman	1501 Capitol Avenue, Ste. 6001	Sacramento	CA	94234-7320
California Resources Agency	Mike	Chrisman	1416 Ninth Street, Ste. 1311	Sacramento	CA	95814
California Department of Fish and Game	Donald	Koch	1416 Ninth Street	Sacramento	CA	95814
California Department of Fish and Game	Jeff	Brandt	3602 Inland Empire Blvd., Ste. C-200	Ontario	CA	91764
California Department of Conservation	Elliott	Lum	801 K Street, MS-18-01	Sacramento	CA	95814
California State Water Resources Control Board	Dorothy	Rice	1001 “I” Street	Sacramento	CA	95814
California Air Resources Board	Richard	Corey	1001 “I” Street, PO Box 2815	Sacramento	CA	95812
California Regional Water Quality Control Board	Gerard	Thibeault	3737 Main Street, Ste. 500	Santa Ana	CA	92501-3339
South Coast Air Quality Management District	Barry	Wallerstein	21865 Copley Drive	Diamond Bar	CA	91765

[1] Four additional copies on CD sent to San Bernardino County.
[2] Four additional copies on CD sent City of Fontana.
[3] Three additional copies on CD sent to City of Rancho Cucamonga.
[4] Three additional copies on CD sent to City of Rialto.

AGENCY/ORGANIZATION/ INDIVIDUAL	FIRST NAME	LAST NAME	STREET	CITY	STATE	ZIP CODE
U.S. Army Corps of Engineers	Dan	Swenson	915 Wilshire Blvd., Ste. 1085	Los Angeles	CA	90017
Federal Aviation Administration	Victor	Globa	PO Box 92007	Los Angeles	CA	90009
Lewis Operating Corp.	Bryan	Goodman	1156 N. Mountain Avenue	Upland	CA	91786
Fontana Unified School District	Robert	Copeland	9851 Catawba Avenue	Fontana	CA	92335
Native American Heritage Commission	Katy	Sanchez	915 Capitol Mall, Room 364	Sacramento	CA	95814
	James	Constant	1603 Danbury Road	Claremont	CA	91711
	Robert	Constant	28872 Blythewood Drive	Palo Verdes	CA	90274
State Clearinghouse			1400 10th Street	Sacramento	CA	95814
LIBRARIES						
Fontana Lewis Library			8437 Sierra Avenue	Fontana	CA	92335
Carter Branch Library			2630 N. Linden Avenue	Rialto	CA	92377
Paul A. Biane Library			12505 Cultural Center Drive	Rancho Cucamonga	CA	91739
PUBLIC COMMENTERS						
Unitex Management Corp.	Jeffrey	Pierson	4001 Via Oro Avenue	Long Beach	CA	90810
J.W. Mitchell Land Company	Michael	Daudt	550 E. Hospitality Lane, Ste. 300	San Bernardino	CA	92408

MASTER MAILING LIST:
INDIVIDUALS AND PROPERTIES WITHIN 300 FEET OF THE PROJECT SITE SENT NOTICE OF AVAILABILITY AND CD COPY OF THE DRAFT EIR VIA UNITED STATES POSTAL SERVICE

MAILING ADDRESS	MAILING CITY/STATE	MAILING ZIP
Ray Allard, 8253 Sierra Avenue	Fontana, CA	92335
Donna Horowitz, 5583 Sugar Maple Way	Fontana, CA	92336
1 LIME ORCHARD	LAGUNA NIGUEL, CA	92677
1 N LEXINGTON AVE 620	WHITE PLAINS, NY	10601
1000 DOVE ST STE 100	NEWPORT BEACH, CA	92660
1000 NICOLLET MALL TPN-12B	MINNEAPOLIS, MN	55403
10070 ARROW ROUTE	RANCHO CUCAMONGA, CA	91730
10210 BASELINE RD SP 256	ALTA LOMA, CA	91701
10259 WILSON AVE	ALTA LOMA, CA	91737
10350 PARK MEADOWS DR	LITTLETON, CO	80124
10357 WINNETKA AVE	CHATSWORTH, CA	91311
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10645 NUEVO CT	FONTANA, CA	92337
10807 LAUREL ST	RANCHO CUCAMONGA, CA	91730
10955 BUCKSKIN AVE	MONTCLAIR, CA	91763
10960 WILSHIRE BLVD STE 1225	LOS ANGELES, CA	90024
1108 N E 17TH AVE	OCALA, FL	32670
1111 LOUISIANA RM 4473	HOUSTON, TX	77251
113 AMBIANCE	IRVINE, CA	92603

11431 MT PALOMAR	RANCHO CUCAMONGA, CA	91737
11512 STONECREST DR	RANCHO CUCAMONGA, CA	91730
1155 S WANAMAKER	ONTARIO, CA	91761
1156 N MOUNTAIN AVE	UPLAND, CA	91786
1165 PARKVIEW DR	OCEANSIDE, CA	92057
1170 W THIRD ST 2ND FLOOR	SAN BERNARDINO, CA	92410
12554 TEJAS CT	RANCHO CUCAMONGA, CA	91739
12951 NAPA ST	FONTANA, CA	92335
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13904 BLUE RIBBON LN	CORONA, CA	92880
14126 REMINGTON CT	FONTANA, CA	92336
1421 N IDAHO ST	LA HABRA, CA	90631
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15374 HOOVER LN	FONTANA, CA	92336
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1603 DANBURY DR	CLAREMONT, CA	91711
18201 MC DURMOTT STE A	IRVINE, CA	92614
1823 SAN ANTONIO	ONTARIO, CA	91762
1827 W 77TH ST	LOS ANGELES, CA	90047
1887 BUSINESS CENTER DR. #1B	SAN BERNARDINO, CA	92408-3400
19600 FAIRCHILD STE 150	IRVINE, CA	92612
2 CORPORATE PARK STE 108	IRVINE, CA	92606
2011 E PINEHURST ST	GLENDORA, CA	91741
2016 E 15TH ST	LOS ANGELES, CA	90021
2030 MAIN ST STE	IRVINE, CA	92614
20803 VALLEY BLVD # 206	WANUT, CA	91789
2112 RIVERSOUND DR	KNOXVILLE, TN	37922
2155 E GARVEY AVE NORTH STE B-18 2ND FL	WEST COVINA, CA	91791
2201 DUPONT DR STE 300	IRVINE, CA	92612
2219 N 3RD AVE	UPLAND, CA	91784
230 NEWPORT CENTER DR STE 300	NEWPORT BEACH, CA	92660
23113 PLAZA POINTE #A	LAGUNA HILLS, CA	92653
23382 MILL CREEK DR STE 105	LAGUNA HILLS, CA	92653
2472 VALLEY VIEW DR	CHINO HILLS, CA	91709
2605 MERCEDES	HIGHLAND, CA	92346
2611 VISTA DR	NEWPORT BEACH, CA	92663
2650 LOU MENK DR	FORT WORTH, TX	76131
2723 RAINBOW LN	BANNING, CA	92220
28871 BLYTHE WOOD DR	RANCHO PALOS VERDES , CA	90275
3184 COSBEY AVE	BALDWIN PARK, CA	91706
34197 PACIFIC COAST HIGHWAY # 110	DANA POINT, CA	92629
3500-B W LAKE CENTER DR	SANTA ANA, CA	92704
3765 MOUNTAIN VIEW AVE	LOS ANGELES, CA	90066

382 W 22ND ST	UPLAND, CA	91784
385 N ARROWHEAD AVE	SAN BERNARDINO, CA	92415-0140
415 29TH ST	NEWPORT BEACH, CA	92663
4410 OHIO AVE	RICHMOND, CA	94804
4490 VON KARMAN AVE	NEWPORT BEACH, CA	92660
481 WORKMAN AVE	ARCADIA, CA	91007
482 CUMBRE ST	MONTEREY PARK, CA	91754
513 E 1ST ST B	TUSTIN, CA	92780
5149 TAHOE PL	RANCHO CUCAMONGA, CA	91739
5324 RUNNING CREEK LN	RANCHO CUCAMONGA, CA	91737
5504 PINE LEAF AVE	FONTANA, CA	92336
5505 PINE LEAF AVE	FONTANA, CA	92336
5511 CORALWOOD PLACE	FONTANA, CA	92336
5513 SUGAR MAPLE WY	FONTANA, CA	92336
5514 PINE LEAF AVE	FONTANA, CA	92336
5515 PINE LEAF AVE	FONTANA, CA	92336
5515 WOODSCENT CT	FONTANA, CA	92336
5516 WOODSCENT CT	FONTANA, CA	92336
5517 SUGAR MAPLE WY	FONTANA, CA	92336
5518 WOODSCENT CT	FONTANA, CA	92336-5909
5519 CORALWOOD PL	FONTANA, CA	92336
5520 CORALWOOD PL	FONTANA, CA	92336
5521 WOODSCENT CT	FONTANA, CA	92336
5522 CORALWOOD PL	FONTANA, CA	92336
5523 WOODSCENT CT	FONTANA, CA	92336
5524 SUGAR MAPLE WY	FONTANA, CA	92336
5525 PINE LEAF LN	FONTANA, CA	92336
5526 PINE LEAF AVE	FONTANA, CA	92335
5527 SUGAR MAPLE WY	FONTANA, CA	92336
5528 WOODSCENT CT	FONTANA, CA	92336
5529 CORALWOOD PL	FONTANA, CA	92336
5530 CORALWOOD PL	FONTANA, CA	92336
5532 SUGAR MAPLE WY	FONTANA, CA	92336
5534 WOODSCENT CT	FONTANA, CA	92336
5537 CORALWOOD PL	FONTANA, CA	92336
5538 SUGAR MAPLE WAY	FONTANA, CA	92336
5539 SUGAR MAPLE WY	FONTANA, CA	92336
5540 CORALWOOD PL	FONTANA, CA	92336
570 W 4TH ST	SAN BERNARDINO, CA	92401
5717 REAGAN DR	FONTANA, CA	92336
5731 REAGAN DR	FONTANA, CA	92336
5737 REAGAN DR	FONTANA, CA	92336
5741 REAGAN DR	FONTANA, CA	92336
5747 REAGAN DR	FONTANA, CA	92336
5751 MADISON LN	FONTANA, CA	92336
5761 REAGAN DR	FONTANA, CA	92336
5767 REAGAN DR	FONTANA, CA	92336
5773 REAGAN DR	FONTANA, CA	92336
5774 MADISON LN	FONTANA, CA	92336
5779 REAGAN DR	FONTANA, CA	92336

5785 REAGAN DR	FONTANA, CA	92336
5791 MONROE CT	FONTANA, CA	92336
5791 REAGAN DR	FONTANA, CA	92336
5797 REAGAN DR	FONTANA, CA	92336
5803 REAGAN DR	FONTANA, CA	92336
5809 REAGAN DR	FONTANA, CA	92336
5816 MONROE CT	FONTANA, CA	92336
5817 REAGAN DR	FONTANA, CA	92336
5823 REAGAN DR	FONTANA, CA	92336
5826 MONROE CT	FONTANA, CA	92336
5829 REAGAN DR	FONTANA, CA	92336
5835 JEFFERSON CT	FONTANA, CA	92336
5835 REGAN DR	FONTANA, CA	92336
5841 REAGAN DR	FONTANA, CA	92336
5847 REAGAN DR	FONTANA, CA	92336
5853 REAGAN DR	FONTANA, CA	92336
5860 JEFFERSON CT	FONTANA, CA	92336
5861 REAGAN DR	FONTANA, CA	92336
5874 ROOSEVELT DR	FONTANA, CA	92336
5882 ROOSEVELT DR	FONTANA, CA	92336
5901 FOREST GLEN DR	FONTANA, CA	92336
5907 FOREST GLEN DR	FONTANA, CA	92336
5913 CREEKSIDE DR	FONTANA, CA	92336
5915 FOREST GLEN DR	FONTANA, CA	92336
5921 CREEKSIDE DR	FONTANA, CA	92336
5927 CREEKSIDE DR	FONTANA, CA	92336
5928 FOREST GLEN DR	FONTANA, CA	92336
5935 CREEKSIDE DR	FONTANA, CA	92336
5941 CREEKSIDE DR	FONTANA, CA	92336
5947 CREEKSIDE DR	FONTANA, CA	92336
5961 CREEKSIDE DR	FONTANA, CA	92336
5962 COLD CREEK CT	FONTANA, CA	92336
5964 COLD CREEK CT	FONTANA, CA	92336
5967 CREEKSIDE DR	FONTANA, CA	92336
5968 COLD CREEK CT	FONTANA, CA	92336
5974 COLD CREEK CT	FONTANA, CA	92336
5975 CREEKSIDE DR	FONTANA, CA	92336
5980 COLD CREEK CT	FONTANA, CA	92336
5981 CREEKSIDE DR	FONTANA, CA	92336
5987 CREEKSIDE DR	FONTANA, CA	92336
5988 COLD CREEK CT	FONTANA, CA	92336
5994 COLD CREEK CT	FONTANA, CA	92336
6 S POND RD	CRESSKILL, NJ	07626
6002 COLD CREEK CT	FONTANA, CA	92336
6028 LILY ROCK DR	FONTANA, CA	92336
6059 HOMESTEAD WY	FONTANA, CA	92336
616 N SWEETZER AVE # 104	LOS ANGELES, CA	90048
6171 COLUMBUS CT	ALTA LOMA, CA	91701
6183 SIERRA AVE BLDG 2	FONTANA, CA	92336
6738 VANDERBILT PL	ALTA LOMA, CA	91701

7118 WAKE CT	FONTANA, CA	92336
7128 WAKE CT	FONTANA, CA	92336
7138 WAKE CT	FONTANA, CA	92336
7148 WAKE CT	FONTANA, CA	92336
7158 WAKE CT	FONTANA, CA	92336
7168 WAKE CT	FONTANA, CA	92336
7177 WAKE CT	FONTANA, CA	92336
7178 WAKE CT	FONTANA, CA	92336
7187 BIG SUR ST	FONTANA, CA	92336
7187 WAKE CT	FONTANA, CA	92336
7188 WAKE CT	FONTANA, CA	92336
7197 BIG SUR ST	FONTANA, CA	92336
7197 WAKE CT	FONTANA, CA	92336
7198 WAKE CT	FONTANA, CA	92336
7205A MARTIN WY EAST STE 131	OLYMPIA, WA	98516
7206 BIG SUR ST	FONTANA, CA	92336
7207 BIG SUR ST	FONTANA, CA	92335
7215 BODEGA ST	FONTANA, CA	92336
7216 BIG SUR ST	FONTANA, CA	92336
7217 BIG SUR ST	FONTANA, CA	92336
722 PORTILLO	UPLAND, CA	91786
7225 BODEGA ST	FONTANA, CA	92336
7226 BIG SUR ST	FONTANA, CA	92336
7235 BODEGA ST	FONTANA, CA	92336
7236 BIG SUR ST	FONTANA, CA	92336
7244 BODEGA ST	FONTANA, CA	91730
7245 BODEGA ST	FONTANA, CA	92336
7246 BIG SUR ST	FONTANA, CA	92336
7253 KITTY HAWK ST	FONTANA, CA	92336
7254 BODEGA ST	FONTANA, CA	92336
7255 BODEGA ST	FONTANA, CA	92336
7363 MEADE CT	FONTANA, CA	92336
7367 MEADE CT	FONTANA, CA	92336
7371 MC CLELLAN CT	FONTANA, CA	92336
7375 MCCLELLAN CT	FONTANA, CA	92336
7379 MCCLELLAN CT	FONTANA, CA	92336
7385 MCCLELLAN CT	FONTANA, CA	92336
7397 MC CLELLAN CT	FONTANA, CA	92336
7403 MCCLELLAN CT	FONTANA, CA	92336
7409 MC CLELLAN CT	FONTANA, CA	92336
7415 MCCLELLAN CT	FONTANA, CA	92336
7425 MC CLELLAN CT	FONTANA, CA	92336
7431 MCCLELLAN CT	FONTANA, CA	92336
7437 MCCLELLAN CT	FONTANA, CA	92336
7439 MCCLELLAN CT	FONTANA, CA	92336
7440 MCCLELLAN CT	FONTANA, CA	92336
7461 LONGSTREET LN	FONTANA, CA	92336
7543 LIBERTY PKWY # 736	FONTANA, CA	92336
7543 LIBERTY PKWY #692	FONTANA, CA	92336
7543 LIBERTY PKWY #731	FONTANA, CA	92336

7543 W LIBERTY PARKWAY #612	FONTANA, CA	92336
7543 W LIBERTY PARKWAY #621	FONTANA, CA	92336
7543 W LIBERTY PARKWAY #622	FONTANA, CA	92336
7543 W LIBERTY PARKWAY #623	FONTANA, CA	92336
7543 W LIBERTY PARKWAY #644	FONTANA, CA	92336
7543 W LIBERTY PARKWAY #691	FONTANA, CA	92336
7543 W LIBERTY PARKWAY #732	FONTANA, CA	92336
7543 W LIBERTY PARKWAY #756	FONTANA, CA	92336
7543 W LIBERTY PKWY # 651	FONTANA, CA	92336
7543 W LIBERTY PKWY # 735	FONTANA, CA	92336
7543 W LIBERTY PKWY #611	FONTANA, CA	92336
7543 W LIBERTY PKWY #615	FONTANA, CA	92336
7543 W LIBERTY PKWY #631	FONTANA, CA	92336
7543 W LIBERTY PKWY #634	FONTANA, CA	92336
7543 W LIBERTY PKWY #636	FONTANA, CA	92336
7543 W LIBERTY PKWY #645	FONTANA, CA	92336
7543 W LIBERTY PKWY #652	FONTANA, CA	92336
7543 W LIBERTY PKWY #653	FONTANA, CA	92336
7543 W LIBERTY PKWY #654	FONTANA, CA	92336
7543 W LIBERTY PKWY #656	FONTANA, CA	92336
7543 W LIBERTY PKWY #661	FONTANA, CA	92336
7543 W LIBERTY PKWY #662	FONTANA, CA	92336
7543 W LIBERTY PKWY #664	FONTANA, CA	92336
7543 W LIBERTY PKWY #665	FONTANA, CA	92336
7543 W LIBERTY PKWY #666	FONTANA, CA	92336
7543 W LIBERTY PKWY #671	FONTANA, CA	92336
7543 W LIBERTY PKWY #672	FONTANA, CA	92336
7543 W LIBERTY PKWY #673	FONTANA, CA	92336
7543 W LIBERTY PKWY #681	FONTANA, CA	92336
7543 W LIBERTY PKWY #682	FONTANA, CA	92336
7543 W LIBERTY PKWY #684	FONTANA, CA	92336
7543 W LIBERTY PKWY #685	FONTANA, CA	92336
7543 W LIBERTY PKWY #693	FONTANA, CA	92336
7543 W LIBERTY PKWY #694	FONTANA, CA	92336
7543 W LIBERTY PKWY #695	FONTANA, CA	92336
7543 W LIBERTY PKWY #696	FONTANA, CA	92336
7543 W LIBERTY PKWY #702	FONTANA, CA	92336
7543 W LIBERTY PKWY #713	FONTANA, CA	92336
7543 W LIBERTY PKWY #714	FONTANA, CA	82336
7543 W LIBERTY PKWY #715	FONTANA, CA	92336
7543 W LIBERTY PKWY #716	FONTANA, CA	92336
7543 W LIBERTY PKWY #721	FONTANA, CA	92336
7543 W LIBERTY PKWY #722	FONTANA, CA	92336
7543 W LIBERTY PKWY #723	FONTANA, CA	92336
7543 W LIBERTY PKWY #724	FONTANA, CA	92336
7543 W LIBERTY PKWY #726	FONTANA, CA	92336
7543 W LIBERTY PKWY #733	FONTANA, CA	92336
7543 W LIBERTY PKWY #734	FONTANA, CA	92336
7543 W LIBERTY PKWY #754	FONTANA, CA	92336
7543 W LIBERTY PKWY #755	FONTANA, CA	92336

7543 W LIBERTY PKWY 643	FONTANA, CA	92326
7543 W LIBERTY PKWY 703	FONTANA, CA	92336
7543 W LIBERTY PKWY 752	FONTANA, CA	92336
7543 W LIBERTY PKWY UNIT 632	FONTANA, CA	92336
7543 WEST LIBERTY PARKWAY #655	FONTANA, CA	92336
7545 BEAR CREEK DR	FONTANA, CA	92336
7551 BEAR CREEK DR	FONTANA, CA	92336
7557 BEAR CREEK DR	FONTANA, CA	92336
7563 BEAR CREEK DR	FONTANA, CA	92336
7575 BEAR CREEK	FONTANA, CA	92336
7577 CLASSICO PL	RANCHO CUCAMONGA, CA	91739
7581 BEAR CREEK DR	FONTANA, CA	92336
7585 CLASSICO PL	RANCHO CUCAMONGA, CA	91739
7587 BEAR CREEK DR	FONTANA, CA	92336
7593 BEAR CREEK DR	FONTANA, CA	92336
7599 BEAR CREEK DR	FONTANA, CA	92336
7602 BEAR CREEK DR	FONTANA, CA	92336
7605 BEAR CREEK DR	FONTANA, CA	92336
7608 BEAR CREEK DR	FONTANA, CA	92336
7614 BEAR CREEK DR	FONTANA, CA	92336
7617 BEAR CREEK DR	FONTANA, CA	92336
7620 BEAR CREEK DR	FONTANA, CA	92336
7623 BEAR CREEK DR	FONTANA, CA	92336
7623 EAST AVE	FONTANA, CA	92336
7625 EAST AVE	FONTANA, CA	92336
7626 BEAR CREEK DR	FONTANA, CA	92336
7629 BEAR CREEK DR	FONTANA, CA	92336
7632 BEAR CREEK DR	FONTANA, CA	92336
7635 BEAR CREEK DR	FONTANA, CA	92336
7638 BEAR CREEK DR	FONTANA, CA	92336
7641 BEAR CREEK DR	FONTANA, CA	92336
7644 BEAR CREEK DR	FONTANA, CA	92336
7647 BEAR CREEK DR	FONTANA, CA	92336
7650 BEAR CREEK DR	FONTANA, CA	92336
7655 BEAR CREEK DR	FONTANA, CA	92336
7656 BEAR CREEK DR	FONTANA, CA	92336
7662 BEAR CREEK DR	FONTANA, CA	92336
7668 BEAR CREEK DR	FONTANA, CA	92336
7775 SHERIDAN WY	FONTANA, CA	92336
7780 SHERIDAN WY	FONTANA, CA	92336
7783 SHERIDAN PL	FONTANA, CA	92336
7788 SHERIDAN WY	FONTANA, CA	92336
7791 SHERIDAN WY	FONTANA, CA	92336
7796 SHERIDAN WY	FONTANA, CA	92336
7801 SHERIDAN WY	FONTANA, CA	92336
7804 SHERIDAN WAY	FONTANA, CA	92336
7867 MARSHALL CT	FONTANA, CA	92336
7884 MARSHALL CT	FONTANA, CA	92336
7892 MARSHALL CT	FONTANA, CA	92336
79 CHESTNUT ST	RIDGEWOOD, NJ	07450

7900 MARSHALL CT	FONTANA, CA	92336
7908 MARSHALL CT	FONTANA, CA	92336
7912 MARSHALL CT	FONTANA, CA	92336
7918 MARSHALL CT	FONTANA, CA	92336
7922 MARSHALL CT	FONTANA, CA	92336
801 CORPORATE CENTER DR STE 201	POMONA, CA	91768-2641
801 JOHN BARROW RD 1	LITTLE ROCK, AR	72205
8113 CORNWALL AVE	RANCHO CUCAMONGA, CA	91739
8116 CORNWALL AVE	RANCHO CUCAMONGA, CA	91730
8131 CORNWALL AVE	RANCHO CUCAMONGA, CA	91739
8139 CORNWALL AVE	RANCHO CUCAMONGA, CA	91739
8149 CORNWALL AVE	ETIWANDA, CA	91731
8156 CORNWALL AVE	RANCHO CUCAMONGA, CA	91739
8157 CORNWALL AVE	RANCHO CUCAMONGA, CA	91739
8165 CORNWALL AVE	ETIWANDA, CA	91739
8173 CORNWALL AVE	RANCHO CUCAMONGA, CA	91739
8183 CORNWALL	ETIWANDA, CA	91739
8191 CORNWALL AVE	RANCHO CUCAMONGA, CA	91739
8198 CORNWALL AVE	RANCHO CUCAMONGA, CA	91739
8199 CORNWALL AVE	RANCHO CUCAMONGA, CA	91739
8199 CORNWALL AVE	RANCHO CUCAMONGA, CA	91739
8206 CORNWALL AVE	ETIWANDA, CA	91739
8211 CORNWALL AVE	ETIWANDA, CA	91739
8220 CORNWALL AVE	RANCHO CUCAMONGA, CA	91739
8227 CORNWALL AVE	RANCHO CUCAMONGA, CA	91739
8230 CORNWALL AVE	RANCHO CUCAMONGA, CA	91739
8237 CORNWALL AVE	ETIWANDA, CA	91739
8238 CORNWALL AVE	ETIWANDA, CA	91739
8245 CORNWALL AVE	ETIWANDA, CA	91739
8247 MONDAVI PL	RANCHO CUCAMONGA, CA	91730
825 EAST THIRD ST ROOM 207	SAN BERNARDINO, CA	92415-0832
8275 CORNWALL ST	RANCHO CUCAMONGA, CA	91739
8283 CORNWALL AVE	RANCHO CUCAMONGA, CA	91739
8353 SIERRA AVE	FONTANA, CA	92335
8589 ETIWANDA	RANCHO CUCAMONGA, CA	91739
8599 HAVEN AVE STE 205	RANCHO CUCAMONGA, CA	91730
8889 ETIWANDA AVE	RANCHO CUCAMONGA, CA	91739
8889 ETIWANDA AVE	RANCHO CUCAMONGA, CA	91739
9206 HIDDEN FARM RD	RANCHO CUCAMONGA, CA	91737
9229 VERBENA	OAK HILLS, CA	92344
9300 CHERRY AVE	FONTANA, CA	92335
9615 S NORWALK BLVD STE B	SANTA FE SPRINGS, CA	90670
9618 BLANCHARD	FONTANA, CA	92335
9620 CENTER AVE 100	RANCHO CUCAMONGA, CA	92336
9680 CITRUS AVE	FONTANA, CA	92335
ATTN: FRANK DEEGROFF/P O BOX 788	RIALTO, CA	92376
P O BOX 1045	RANCHO CUCAMONGA, CA	91729
P O BOX 1327	FONTANA, CA	92334
P O BOX 1429	GUASTI, CA	91743
P O BOX 2507	PEACHTREE CITY, GA	30269

P O BOX 320	APPLE VALLEY, CA	92307
P O BOX 410	LONG BEACH, CA	90801
P O BOX 54153	LOS ANGELES CA	90054
P O BOX 582	ALTA LOMA, CA	91764
P O BOX 638	RANCHO CUCAMONGA, CA	91729
P O BOX 7764	BURBANK, CA	91510-7764
P O BOX 807	RANCHO CUCAMONGA, CA	91730
P O BOX 8582	ALTA LOMA, CA	91701
P.O. BOX 1659	CORONA, CA	92878-1659
PO BOX 9456	MINNEAPOLIS, MN	55440-9456
PO BOX 1440	LONG BEACH CA	90801
PO BOX 1738	TOPEKA, KS	66601
PO BOX 2272	WEAVERVILLE, CA	96093
PO BOX 518	FONTANA, CA	92334
PO BOX 5222	GARDENA , CA	90249
PO BOX 54153	LOS ANGELES, CA	90054
PO BOX 548	RANCHO CUCAMONGA, CA	91729-0548