# Contents

## Executive Summary

<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>ES.1</td>
<td>Summary of Proposed Project</td>
<td>ES-1</td>
</tr>
<tr>
<td>ES.2</td>
<td>Environmental Analysis</td>
<td>ES-3</td>
</tr>
<tr>
<td>ES.3</td>
<td>Areas of Controversy</td>
<td>ES-4</td>
</tr>
<tr>
<td>ES.4</td>
<td>Issues to be Resolved</td>
<td>ES-4</td>
</tr>
<tr>
<td>ES.5</td>
<td>Summary of Alternatives Analysis</td>
<td>ES-5</td>
</tr>
<tr>
<td>ES.6</td>
<td>Summary of Impacts and Mitigation Measures</td>
<td>ES-5</td>
</tr>
</tbody>
</table>

## A. Introduction

<table>
<thead>
<tr>
<th>Subsection</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>A.1</td>
<td>Purpose and Intended Uses of the EIR</td>
<td>A-1</td>
</tr>
<tr>
<td>A.2</td>
<td>Overview of the Proposed Project</td>
<td>A-1</td>
</tr>
<tr>
<td>A.3</td>
<td>Required Permits and Approvals</td>
<td>A-3</td>
</tr>
<tr>
<td>A.4</td>
<td>EIR Process</td>
<td>A-4</td>
</tr>
<tr>
<td>A.5</td>
<td>Organization of the EIR</td>
<td>A-6</td>
</tr>
</tbody>
</table>

## B. Project Description

<table>
<thead>
<tr>
<th>Subsection</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>B.1</td>
<td>Introduction</td>
<td>B-1</td>
</tr>
<tr>
<td>B.2</td>
<td>Project Objectives</td>
<td>B-1</td>
</tr>
<tr>
<td>B.3</td>
<td>Solar Project and Site Description</td>
<td>B-2</td>
</tr>
<tr>
<td>B.4</td>
<td>Solar Facility Components</td>
<td>B-5</td>
</tr>
<tr>
<td>B.5</td>
<td>Generation-Tie and Communication Line</td>
<td>B-10</td>
</tr>
<tr>
<td>B.6</td>
<td>Solar Project Construction</td>
<td>B-12</td>
</tr>
<tr>
<td>B.7</td>
<td>Solar Project Operation and Maintenance</td>
<td>B-15</td>
</tr>
<tr>
<td>B.8</td>
<td>Solar Project Decommissioning</td>
<td>B-17</td>
</tr>
</tbody>
</table>

## C. Environmental Setting, Analysis, and Mitigation Measures

<table>
<thead>
<tr>
<th>Subsection</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>C.1</td>
<td>Introduction to Environmental Analysis</td>
<td>C.1-1</td>
</tr>
<tr>
<td>C.1.1</td>
<td>Organization of Section C</td>
<td>C.1-1</td>
</tr>
<tr>
<td>C.1.2</td>
<td>Environmental Assessment Methodology</td>
<td>C.1-1</td>
</tr>
<tr>
<td>C.1.3</td>
<td>Cumulative Scenario and Methodology</td>
<td>C.1-2</td>
</tr>
<tr>
<td>C.1.4</td>
<td>Mitigation Measures</td>
<td>C.1-5</td>
</tr>
<tr>
<td>C.1.5</td>
<td>Mitigation Monitoring</td>
<td>C.1-5</td>
</tr>
<tr>
<td>C.2</td>
<td>Aesthetics</td>
<td>C.2-1</td>
</tr>
<tr>
<td>C.2.1</td>
<td>Environmental Setting</td>
<td>C.2-1</td>
</tr>
<tr>
<td>C.2.2</td>
<td>Regulatory Setting</td>
<td>C.2-6</td>
</tr>
<tr>
<td>C.2.3</td>
<td>Environmental Impacts and Mitigation Measures</td>
<td>C.2-6</td>
</tr>
<tr>
<td>C.2.4</td>
<td>Cumulative Impact Analysis</td>
<td>C.2-17</td>
</tr>
<tr>
<td>C.2.5</td>
<td>Level of Significance After Mitigation</td>
<td>C.2-18</td>
</tr>
<tr>
<td>C.3</td>
<td>Agricultural Resources</td>
<td>C.3-1</td>
</tr>
<tr>
<td>C.3.1</td>
<td>Environmental Setting</td>
<td>C.3-1</td>
</tr>
<tr>
<td>C.3.2</td>
<td>Regulatory Setting</td>
<td>C.3-4</td>
</tr>
<tr>
<td>C.3.3</td>
<td>Environmental Impacts and Mitigation Measures</td>
<td>C.3-5</td>
</tr>
<tr>
<td>C.3.4</td>
<td>Cumulative Impact Analysis</td>
<td>C.3-8</td>
</tr>
<tr>
<td>C.3.5</td>
<td>Level of Significance After Mitigation</td>
<td>C.3-8</td>
</tr>
<tr>
<td>C.4</td>
<td>Air Quality and Greenhouse Gases</td>
<td>C.4-1</td>
</tr>
<tr>
<td>C.4.1</td>
<td>Environmental Setting</td>
<td>C.4-2</td>
</tr>
<tr>
<td>C.4.2</td>
<td>Regulatory Setting</td>
<td>C.4-8</td>
</tr>
<tr>
<td>C.4.3</td>
<td>Environmental Impacts and Mitigation Measures</td>
<td>C.4-17</td>
</tr>
<tr>
<td>C.4.4</td>
<td>Cumulative Impact Analysis</td>
<td>C.4-23</td>
</tr>
<tr>
<td>Section</td>
<td>Title</td>
<td>Page</td>
</tr>
<tr>
<td>---------</td>
<td>-------</td>
<td>------</td>
</tr>
<tr>
<td>C.4.5</td>
<td>Level of Significance After Mitigation</td>
<td>C.4-25</td>
</tr>
<tr>
<td>C.5</td>
<td>Biological Resources</td>
<td>C.5-1</td>
</tr>
<tr>
<td>C.5.1</td>
<td>Environmental Setting</td>
<td>C.5-1</td>
</tr>
<tr>
<td>C.5.2</td>
<td>Regulatory Setting</td>
<td>C.5-14</td>
</tr>
<tr>
<td>C.5.3</td>
<td>Environmental Impacts and Mitigation Measures</td>
<td>C.5-21</td>
</tr>
<tr>
<td>C.5.4</td>
<td>Cumulative Impact Analysis</td>
<td>C.5-39</td>
</tr>
<tr>
<td>C.5.5</td>
<td>Level of Significance After Mitigation</td>
<td>C.5-40</td>
</tr>
<tr>
<td>C.6</td>
<td>Cultural and Paleontological Resources</td>
<td>C.6-1</td>
</tr>
<tr>
<td>C.6.1</td>
<td>Environmental Setting</td>
<td>C.6-1</td>
</tr>
<tr>
<td>C.6.2</td>
<td>Regulatory Setting</td>
<td>C.6-7</td>
</tr>
<tr>
<td>C.6.3</td>
<td>Environmental Impacts and Mitigation Measures</td>
<td>C.6-9</td>
</tr>
<tr>
<td>C.6.4</td>
<td>Cumulative Impact Analysis</td>
<td>C.6-15</td>
</tr>
<tr>
<td>C.6.5</td>
<td>Level of Significance After Mitigation</td>
<td>C.6-15</td>
</tr>
<tr>
<td>C.7</td>
<td>Geology and Soils</td>
<td>C.7-1</td>
</tr>
<tr>
<td>C.7.1</td>
<td>Environmental Setting</td>
<td>C.7-1</td>
</tr>
<tr>
<td>C.7.2</td>
<td>Regulatory Setting</td>
<td>C.7-10</td>
</tr>
<tr>
<td>C.7.3</td>
<td>Environmental Impacts and Mitigation Measures</td>
<td>C.7-12</td>
</tr>
<tr>
<td>C.7.4</td>
<td>Cumulative Impact Analysis</td>
<td>C.7-15</td>
</tr>
<tr>
<td>C.7.5</td>
<td>Level of Significance After Mitigation</td>
<td>C.7-15</td>
</tr>
<tr>
<td>C.8</td>
<td>Hazards and Hazardous Materials</td>
<td>C.8-1</td>
</tr>
<tr>
<td>C.8.1</td>
<td>Environmental Setting</td>
<td>C.8-1</td>
</tr>
<tr>
<td>C.8.2</td>
<td>Regulatory Setting</td>
<td>C.8-2</td>
</tr>
<tr>
<td>C.8.3</td>
<td>Environmental Impacts and Mitigation Measures</td>
<td>C.8-6</td>
</tr>
<tr>
<td>C.8.4</td>
<td>Cumulative Impact Analysis</td>
<td>C.8-10</td>
</tr>
<tr>
<td>C.8.5</td>
<td>Level of Significance After Mitigation</td>
<td>C.8-10</td>
</tr>
<tr>
<td>C.9</td>
<td>Hydrology and Water Quality</td>
<td>C.9-1</td>
</tr>
<tr>
<td>C.9.1</td>
<td>Environmental Setting</td>
<td>C.9-1</td>
</tr>
<tr>
<td>C.9.2</td>
<td>Regulatory Setting</td>
<td>C.9-8</td>
</tr>
<tr>
<td>C.9.3</td>
<td>Environmental Impacts and Mitigation Measures</td>
<td>C.9-12</td>
</tr>
<tr>
<td>C.9.4</td>
<td>Cumulative Impact Analysis</td>
<td>C.9-15</td>
</tr>
<tr>
<td>C.9.5</td>
<td>Level of Significance After Mitigation</td>
<td>C.9-16</td>
</tr>
<tr>
<td>C.10</td>
<td>Land Use, Population, and Recreation</td>
<td>C.10-1</td>
</tr>
<tr>
<td>C.10.1</td>
<td>Environmental Setting</td>
<td>C.10-1</td>
</tr>
<tr>
<td>C.10.2</td>
<td>Regulatory Setting</td>
<td>C.10-4</td>
</tr>
<tr>
<td>C.10.3</td>
<td>Environmental Impacts and Mitigation Measures</td>
<td>C.10-5</td>
</tr>
<tr>
<td>C.10.4</td>
<td>Cumulative Impact Analysis</td>
<td>C.10-12</td>
</tr>
<tr>
<td>C.10.5</td>
<td>Level of Significance After Mitigation</td>
<td>C.10-14</td>
</tr>
<tr>
<td>C.11</td>
<td>Noise</td>
<td>C.11-1</td>
</tr>
<tr>
<td>C.11.1</td>
<td>Environmental Setting</td>
<td>C.11-1</td>
</tr>
<tr>
<td>C.11.2</td>
<td>Regulatory Setting</td>
<td>C.11-4</td>
</tr>
<tr>
<td>C.11.3</td>
<td>Environmental Impacts and Mitigation Measures</td>
<td>C.11-7</td>
</tr>
<tr>
<td>C.11.4</td>
<td>Cumulative Impact Analysis</td>
<td>C.11-13</td>
</tr>
<tr>
<td>C.11.5</td>
<td>Level of Significance After Mitigation</td>
<td>C.11-13</td>
</tr>
<tr>
<td>C.12</td>
<td>Public Services, Utilities, and Service Systems</td>
<td>C.12-1</td>
</tr>
<tr>
<td>C.12.1</td>
<td>Environmental Setting</td>
<td>C.12-1</td>
</tr>
<tr>
<td>C.12.2</td>
<td>Regulatory Setting</td>
<td>C.12-4</td>
</tr>
<tr>
<td>C.12.3</td>
<td>Environmental Impacts and Mitigation Measures</td>
<td>C.12-5</td>
</tr>
<tr>
<td>C.12.4</td>
<td>Cumulative Impact Analysis</td>
<td>C.12-10</td>
</tr>
<tr>
<td>C.12.5</td>
<td>Level of Significance After Mitigation</td>
<td>C.12-11</td>
</tr>
</tbody>
</table>
C.13  Transportation and Traffic .......................................................... C.13-1
   C.13.1  Environmental Setting ......................................................... C.13-1
   C.13.2  Regulatory Setting .............................................................. C.13-2
   C.13.3  Environmental Impacts and Mitigation Measures ............... C.13-5
   C.13.4  Cumulative Impact Analysis .............................................. C.13-10
   C.13.5  Level of Significance After Mitigation .................................. C.13-10

D.  Alternatives .......................................................................................... D-1
   D.1  CEQA Requirements for Alternatives .................................... D-1
   D.2  Alternatives Evaluation Process ............................................. D-3
   D.3  Alternatives Retained for Analysis ......................................... D-4
   D.4  Alternatives Considered but Eliminated from Further Consideration ......................................................... D-16
   D.5  Comparison of Alternatives .................................................. D-19

E.  Other CEQA Considerations ............................................................. E-1
   E.1  Environmental Effects Found not to be Significant ............... E-1
   E.2  Growth-Inducing Effects ....................................................... E-3
   E.3  Significant Irreversible Environmental Changes ................... E-4
   E.4  Significant Effects that Cannot be Avoided ......................... E-5
   E.5  Energy Conservation .............................................................. E-6

F.  References ............................................................................................ F-1

G.  Glossary, Acronyms, and Abbreviations ......................................... G-1
   G.1  Terminology ............................................................................. G-1
   G.2  Acronyms and Abbreviations ................................................ G-5

H.  Preparers of the EIR ........................................................................... H-1

Tables
   Table E5-1  Summary of Impacts and Mitigation Measures ............... ES-6
   Table A-1  Permits and Approvals ................................................ A-3
   Table A-2  Scoping Comments ...................................................... A-4
   Table B-1  Construction Equipment and Trip Assumptions ........... B-14
   Table C.1-1  Cumulative Project List .............................................. C.1-3
   Table C.3-1  NRCS Soil Characteristics for the Project Site .......... C.3-2
   Table C.4-1  National and California Ambient Air Quality Standards ................................................. C.4-2
   Table C.4-2  Attainment Status for the MDAB ................................ C.4-3
   Table C.4-3  United States and California Greenhouse Gas Emissions  
                       (million metric tons CO\textsubscript{2}e.) ..................................... C.4-7
   Table C.4-4  Estimated Unmitigated Construction Emissions ....... C.4-19
   Table C.4-5  Estimated Mitigated Construction Emissions .......... C.4-19
   Table C.4-6  Estimated Maintenance Emissions ............................ C.4-19
   Table C.4-7  Greenhouse Gas Emissions ....................................... C.4-22
   Table C.4-8  Project Consistency with Applicable Plans, Policies, and Regulations for GHG Emissions ......................... C.4-22
   Table C.4-9  California GHG Reduction Strategies ....................... C.4-23
   Table C.5-1  Summary of Vegetation and Cover Types in the Study Area, Solar Generating Facility, and the Gen-tie and Communication Line Options ................................. C.5-5

June 2015  iii  Draft EIR
Table C.5-2 Known and Potential Occurrence of Special-Status Plant Taxa within the Study Area................................................................. C.5-10
Table C.5-3 Known and Potential Occurrence of Special-Status Wildlife within the Study Area................................................................. C.5-15
Table C.5-4 Example Construction and Operational Impacts to Plants and Wildlife................................................................. C.5-22
Table C.5-5 Native Vegetation Communities in the SGF ................................................................. C.5-24
Table C.5-6 Native Vegetation Communities along the Gen-tie and Communication Line Options ................................................................. C.5-25
Table C.6.1 New and Previously Identified Cultural Resources Within the Project Area............................... C.6-11
Table C.7-1 Significant Regional Active and Potentially Active Faults.................................................. C.7-9
Table C.9-1 Climate in the Antelope Valley Region................................................................. C.9-2
Table C.10-1 Surrounding Land Use Designations........................................................................ C.10-3
Table C.10-2 Regional Population Statistics.................................................................................. C.10-4
Table C.10-3 Policy Consistency Analysis.................................................................................. C.10-6
Table C.11-1 Ambient Noise Measurements........................................................................ C.11-2
Table C.11-2 Project Area Roadway Characteristics and Existing Traffic Conditions............................... C.11-4
Table C.11-3 OSHA Permissible Noise Exposure Standards.......................................................... C.11-4
Table C.11-4 Guidelines for Land Use Compatibility...................................................................... C.11-5
Table C.11-5 Noise Levels and Usage Factors for Construction Equipment........................................ C.11-8
Table C.12-1 Public Schools by District.................................................................................. C.12-2
Table C.13-1 Relationship Between Volume/Capacity Values and Levels of Service.......................... C.13-1
Table C.13-2 Study Area Roadway Characteristics and Existing Traffic Conditions............................... C.13-2
Table C.13-3 SCAG 2012 RTP/SCS Goals Compliance Table................................................................ C.13-4
Table C.13-4 Proposed Project Maximum Daily Construction Trips................................................. C.13-6
Table C.13-5 Study Area Roadway Characteristics and Existing Traffic Conditions............................... C.13-7
Table D-1 Alternative 2: Operational Average Daily Traffic........................................................................ D-13
Table D-2 Comparison of Alternatives.................................................................................. D-21
Table E-1 Effects Found Not To Be Significant........................................................................ E-1

Figures

Figure ES-1 Project Location............................................................................................................................ ES-2
Figure A-1 Project Location............................................................................................................................ A-2
Figure A-2 The EIR Process.......................................................................................................................... A-6
Figure B-1 Solar Generating Facility........................................................................................................ B-3
Figure B-2 Existing Land Uses...................................................................................................................... B-4
Figure B-3 Conceptual Site Plan.................................................................................................................. B-7
Figure B-4 Potential Generation Tie and Communication Line Routes...................................................... B-11
Figure C.1-1 Cumulative Projects................................................................................................................ C.1-6
Figure C.2-1 KOP Photo Key.................................................................................................................... C.2-2
Figure C.2-2a Existing Views: KOPs 1 and 2 ............................................................................................ C.2-4
Figure C.2-2b Existing Views: KOPs 3 and 4 ............................................................................................ C.2-5
Figure C.2-3a KOP 1: Existing View........................................................................................................ C.2-9
Figure C.2-3b KOP 1: Simulated View....................................................................................................... C.2-10
Figure C.2-4a KOP 2: Existing View........................................................................................................ C.2-11
Figure C.2-4b KOP 2: Simulated View....................................................................................................... C.2-12
Figure C.2-5a KOP 3: Existing View........................................................................................................ C.2-13
Figure C.2-5b KOP 3: Simulated View....................................................................................................... C.2-14
Figure C.2-6a KOP 4: Existing View........................................................................................................ C.2-15
<table>
<thead>
<tr>
<th>Figure</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>C.2-6b</td>
<td>KOP 4: Simulated View</td>
<td>C.2-16</td>
</tr>
<tr>
<td>C.5-1</td>
<td>Biological Resources Study Area</td>
<td>C.5-2</td>
</tr>
<tr>
<td>C.5-2A</td>
<td>Vegetation Communities and Land Covers</td>
<td>C.5-6</td>
</tr>
<tr>
<td>C.5-2B</td>
<td>Vegetation Communities and Land Covers</td>
<td>C.5-7</td>
</tr>
<tr>
<td>C.5-3A</td>
<td>CNDDDB within 10 Miles of Project</td>
<td>C.5-12</td>
</tr>
<tr>
<td>C.5-3B</td>
<td>CNDDDB within 5 Miles of Project</td>
<td>C.5-13</td>
</tr>
<tr>
<td>C.6-1</td>
<td>Geologic Map</td>
<td>C.6-2</td>
</tr>
<tr>
<td>C.7-1</td>
<td>Local Geologic Map</td>
<td>C.7-3</td>
</tr>
<tr>
<td>C.7-2</td>
<td>Regional Active Faults and Historic Earthquakes</td>
<td>C.7-8</td>
</tr>
<tr>
<td>C.9-1</td>
<td>Surface Water Features</td>
<td>C.9-4</td>
</tr>
<tr>
<td>C.9-2</td>
<td>Floodplains</td>
<td>C.9-6</td>
</tr>
<tr>
<td>C.11-1</td>
<td>Ambient Noise Measurement Locations</td>
<td>C.11.3</td>
</tr>
</tbody>
</table>

**Appendices**

- **Appendix 1** Notice of Preparation/Scoping
- **Appendix 2** Agricultural Resources
  - a. LESA Worksheets
  - b. NRCS Soil Survey
- **Appendix 3** Air Quality Technical Report
- **Appendix 4** Biological Resources Reports
  - a. Biological Resources Technical Report
  - b. Preliminary Jurisdictional Waters Delineation Report
- **Appendix 5** Cultural and Paleontological Resources Technical Report
- **Appendix 6** Preliminary Geotechnical Investigation Report
- **Appendix 7** Phase I and Limited Phase II Environmental Site Assessment Report
- **Appendix 8** Noise Technical Report
Executive Summary

This Draft Environmental Impact Report (EIR) has been prepared by the City of Lancaster (City) as the Lead Agency under the California Environmental Quality Act (CEQA). The City is the “public agency which has the principal responsibility for carrying out or approving the project,” and as such is the “Lead Agency” for the Del Sur Solar Project (proposed project) under CEQA, as defined in CEQA Guidelines Section 15367. CEQA requires the Lead Agency to consider the information contained in the EIR prior to taking any discretionary action. This EIR is intended to serve as an informational document to be considered by the City and other permitting agencies during deliberations on the proposed project.

This Draft EIR is being released for agency and public review for a 45-day comment period. After completion of the public review period, all comments received on the Draft EIR will be reviewed and written responses will be prepared. The Final EIR will include any necessary revisions to the Draft EIR along with the response to comments. The Final EIR will be considered by decision makers in their review and decision on the proposed project. The City’s Planning Commission will consider approval of the Conditional Use Permits (CUPs), and recommend a decision on the General Plan Amendment (GPA), and Zone Change (ZC) at a noticed public hearing after completion of the Final EIR. The City Council will have the final decision on the GPA and ZC.

During the public review period, the Draft EIR and appendices are available for review at the address noted below or online at www.cityoflancaster.org. All comments or questions about the Draft EIR should be addressed to:

City of Lancaster
Attn: Jocelyn Swain
Associate Planner - Environmental
44933 Fern Avenue
Lancaster, CA 93534

Comments may also be emailed to: jswain@cityoflancasterca.org or faxed to (661) 723-6182.

ES.1 Summary of Proposed Project

The Sustainable Power Group (sPower or applicant) proposes to construct and operate the proposed project. The proposed project is a 100 megawatt (MW) utility-scale solar generating facility (SGF) proposed on 725 acres in the City of Lancaster. Solar electricity generated by the proposed project would be delivered by an approximately 2 to 4-mile underground generation-tie (gen-tie) and communication line that would extend to two previously approved substations near the existing Southern California Edison (SCE) Antelope Substation on West Avenue J, south of the proposed SGF. The proposed project would operate year-round and produce electricity during daylight hours. See Figure ES-1 for the location of the proposed project.

The majority of the 725-acre project site is covered by Development Agreement No. 89-01. This Development Agreement was amended on June 26, 2012 to allow utility-scale solar development with a CUP without changing the existing general plan designations or zoning. A GPA and ZC would be required for two parcels (80 acres) that are not covered by the Development Agreement.
Figure ES-1

Project Location

Solar Generating Facility
Existing/Approved Collector Substations
Potential Underground Gen-tie and Communication Line Routes

County Jurisdiction
City of Lancaster

Del Sur Solar Project
EXECUTIVE SUMMARY

City of Lancaster
Lancaster
Antelope Substation
Del Sur Elementary School
Del Sur Solar Project
Project Location
Solar Generating Facility
Existing/Approved Collector Substations
Potential Underground Gen-tie and Communication Line Routes

County Jurisdiction
City of Lancaster

Del Sur Solar Project
EXECUTIVE SUMMARY

City of Lancaster
Lancaster
Antelope Substation
Del Sur Elementary School
Del Sur Solar Project
Project Location
Solar Generating Facility
Existing/Approved Collector Substations
Potential Underground Gen-tie and Communication Line Routes

County Jurisdiction
City of Lancaster
The proposed project would be constructed and operated for a period of at least 35 years. The applicant proposes to begin site preparation and construction of the facility in 2015 with construction completed in phases. The first phase of the facility would be commercially operational in late 2015 or early 2016, and the remaining phases would be completed by the end of 2016. The project would include the following elements: photovoltaic modules, module mounting system, balance of system and electrical boxes, electrical inverters and transformers, electrical AC collection system including switchgear, data monitoring equipment, gen-tie and communication lines, access roads, and security fencing. The proposed project is described in greater detail in Section B, Project Description.

**ES.2 Environmental Analysis**

The potential for significant impacts guides the identification of mitigation measures and of the alternatives that reduce these potential impacts. Table ES-1 at the end of this section provides a summary of these findings by issue area and identifies mitigation measures that reduce impacts of the proposed project. The following summarizes the key EIR findings:

- **Proposed Project.** The EIR evaluated the proposed project’s impact on 12 environmental issue areas. The assessment considered significance thresholds from Appendix G of the CEQA Guidelines in the development of the significance criteria. Nine of these issues required mitigation measures to reduce the impacts to a less than significant level, while the remaining four issues were less than significant without mitigation.

- **Cumulative Project Assessment.** The EIR also considered the proposed project’s impact with regard to other projects proposed in the project area. The cumulative project scenario identified 11 projects within the jurisdiction of the City and 12 projects within the jurisdiction of the County of Los Angeles, which are under review, in construction, approved but not constructed, or in operation in the project area. These projects were within a two-mile radius of the project or utility-scale projects within the western Antelope Valley. Based on this assessment, the EIR concluded that impacts to biological resources (habitat loss and special-status species) and to air quality (PM$_{10}$ during construction) were significant and unavoidable, when the project was considered in conjunction with these cumulative projects.

- **Growth-Inducing Effects.** The EIR considered the project’s potential for employment and population growth and increased power generation. The proposed project would include 250 workers during construction, however, because construction would be temporary, the construction would not trigger additional population growth and existing facilities (e.g. housing and services) in the region would be adequate to accommodate the workforce. During operation, the proposed project would only include one full-time employee, which would not cause any growth-inducing effects. With regard to power generation, the proposed project would supply energy to support existing and projected growth.

- **Significant Irreversible Environmental Changes.** CEQA defines an irreversible impact as an impact that uses nonrenewable resources during the initial and continued phases of the project. Compliance with all applicable building codes, as well as City policies and the mitigation measures identified in the EIR would ensure that all natural resources are conserved to the maximum extent possible.

- **Energy Conservation.** CEQA requires that EIRs include a discussion of potential energy impacts with an emphasis on avoiding or reducing inefficient, wasteful, and unnecessary consumption. As discussed in the EIR, the proposed project would not increase inefficiencies or unnecessary energy consumption from either a direct or indirect consequence of the proposed project.
ES.3 Areas of Controversy

Scoping comments are described in greater detail in Section A.4.2, Summary of Scoping Comments. The City prepared and transmitted a Notice of Preparation (NOP) for this EIR on February 3, 2015. The NOP was circulated for a 30-day public review period. A public scoping meeting was held on February 19, 2015 at the American Heroes Park Community Room. While no members of the public or agencies attended the scoping meeting, the City received eight comment letters during the 30-day scoping period. Pursuant to CEQA Guidelines Section 15123 (b) (2), areas of controversy that are known to the City or were raised during the scoping process for the EIR include:

- Air quality impacts resulting from grading and ground disturbance
- Water quality impacts from potential runoff
- Potential decline in property values
- Safety impacts on local residents, livestock, and horseback riders
- Safety impacts on nearby gas pipelines
- Protection of biological resources

ES.4 Issues to be Resolved

Section 15123 (b) (3) of the CEQA Guidelines requires the summary section of an EIR to identify any "issues to be resolved including the choice among alternatives and how to mitigate significant effects." The following issues will be addressed by the City in its decision process:

- Choose among alternatives;
- Determine whether the recommended mitigation measures should be adopted or modified; and
- Determine whether additional mitigation measures need to be applied to the proposed project.

ES.5 Summary of Alternatives Analysis

Section 15126.6 of the State CEQA Guidelines states that an EIR must address “a range of reasonable alternatives to the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives.” Several alternatives were considered in this analysis. The alternatives are summarized below and discussed in detail in Section D of this EIR.

- **Alternative 1 – Reduced Project, No GPA or Zone Change.** This alternative reduces the project site by 80 acres to reduce the project footprint and potential for impacts.

- **Alternative 2 – No Project, Build under Current Development Agreement.** This alternative allows the project site to be developed under the current development agreement that allows for residential and commercial uses.

- **Alternative 3 – No Project, No Build.** This alternative is required by CEQA and evaluates potential impacts of no development.
Alternatives Eliminated from Further Consideration

The following list outlines the four alternatives that were not carried forward for further review in the EIR. While these options are feasible, they do not meet project objectives or reduce the significant impacts of the proposed project.

- **Alternative Locations.** Other locations may not reduce the potential impacts to biological resources or air quality, and depending on location, may actually result in greater impacts than the proposed project.

- **Distributed Solar PV.** This alternative includes installing solar panels on residences, commercial buildings, or parking lots. Distributed generation alone cannot meet the goals of renewable energy generation. In addition, the City of Lancaster already has programs in place to actively support distributed generation in the city.

- **Energy Storage Technologies.** The storage of excess power during periods of low demand for use when the demand is higher, has been discussed for many years now. This alternative was considered but it was not evaluated further because energy storage is not a proven technology at this time.

- **Conservation and Energy Demand Reduction.** This alternative involves the combination of many approaches to reduce electricity use and conservation; however, it is not technically feasible as an alternative to the proposed project.

Environmentally Superior Alternative

Consistent with CEQA Guidelines Section 15126.6 (d) and (e)(2), this section identifies the Environmentally Superior Alternative. Based on the evaluation in Section D, Alternatives, and on the impact analysis for the proposed project presented in Section C, **Alternative 1 – Reduced Project, No GPA or Zone Change** is the Environmentally Superior Alternative. While this alternative does not eliminate the significant impacts of the proposed project, it does reduce the project footprint by 80 acres and incrementally decreases the magnitude of most project impacts. However, as discussed in Section D, the applicant has power purchase agreements in place that require the development of the full project site to meet energy production requirements specified in these agreements. Selecting Alternative 1 would require the applicant to make up the difference in energy by developing a second project in the Antelope Valley in order to produce the full contracted amount of energy. The additional project at another location would still be required to interconnect to the main solar facility and would result in increased environmental impacts cost compared to the implementation of the full 100 MW proposed project.

ES.6 Summary of Impacts and Mitigation Measures

In accordance with CEQA, Table ES-1 summarizes all potential impacts associated with the proposed development, and the recommended mitigation measures to reduce significant impacts below a level of significance, where applicable. The analysis in this EIR, including the impact determinations summarized in Table ES-1, applies a uniform classification of the impacts based on the following definitions:

- **Class I:** Significant impact; cannot be mitigated to a level that is less than significant.

- **Class II:** Significant impact; can be mitigated to a level that is less than significant through the implementation of recommended mitigation measures.

- **Class III:** Adverse impact; but less than significant so mitigation is not normally recommended.

- **Class IV:** Beneficial impact; mitigation is not required.

- **No Impact.**
<table>
<thead>
<tr>
<th>Impact</th>
<th>Summary of Mitigation Measures</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>AES-1: Have a substantial adverse effect on a scenic vista</td>
<td>No mitigation is required</td>
<td>Class III – Less than Significant</td>
</tr>
<tr>
<td>AES-2: Substantially damage scenic resources</td>
<td>No mitigation is required</td>
<td>Class III – Less than Significant</td>
</tr>
<tr>
<td>AES-3: Substantially degrade the existing visual character or quality of the site and its surroundings</td>
<td>No mitigation is required</td>
<td>Class III – Less than Significant</td>
</tr>
<tr>
<td>AES-4: Create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area</td>
<td>No mitigation is required</td>
<td>Class III – Less than Significant</td>
</tr>
<tr>
<td>Cumulative aesthetics impacts</td>
<td>No mitigation is required</td>
<td>Class III – Less than Significant</td>
</tr>
<tr>
<td>AG-1: The proposed project would convert Important Farmland, as designated by the California Department of Conservation, to a nonagricultural use</td>
<td>No mitigation is required</td>
<td>Class III – Less than Significant</td>
</tr>
<tr>
<td>AG-2: The proposed project would conflict with existing zoning for agricultural use, or a Williamson Act contract</td>
<td>No mitigation is required</td>
<td>No Impact</td>
</tr>
<tr>
<td>AG-3: The proposed project would involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to a non-agricultural use</td>
<td>No mitigation is required</td>
<td>No Impact</td>
</tr>
<tr>
<td>Cumulative agricultural resources impacts</td>
<td>No mitigation is required</td>
<td>Class III – Less than Significant</td>
</tr>
<tr>
<td>AQ-1: The proposed project would be inconsistent with the applicable adopted AQMP</td>
<td>No mitigation is required</td>
<td>Class III – Less than Significant</td>
</tr>
<tr>
<td>AQ-2: The project would generate emissions of criteria air pollutants that would exceed AVAQMD significance thresholds</td>
<td>MM AQ-1: Prepare and implement a dust control plan</td>
<td>Class II – Less than Significant with Mitigation (construction); Class III – Less than Significant (operation)</td>
</tr>
<tr>
<td>AQ-3: The proposed project would generate emissions of toxic or hazardous air pollutants that exceed AVAQMD significance thresholds</td>
<td>No mitigation is required</td>
<td>Class III – Less than Significant</td>
</tr>
<tr>
<td>AQ-4: The proposed project would subject individuals to substantial risk of Valley Fever infection</td>
<td>MM AQ-1: Prepare and implement a dust control plan</td>
<td>Class II – Less than Significant with Mitigation</td>
</tr>
<tr>
<td>AQ-5: The proposed project would result in greenhouse gas emissions exceeding the AVAQMD significance threshold</td>
<td>No mitigation is required</td>
<td>Class IV – beneficial</td>
</tr>
<tr>
<td>Impact</td>
<td>Summary of Mitigation Measures</td>
<td>Level of Significance</td>
</tr>
<tr>
<td>-----------------------------------------------------------------------</td>
<td>-----------------------------------------------------------------------------------------------</td>
<td>--------------------------------------------</td>
</tr>
<tr>
<td>AQ-6: The proposed project would conflict with an applicable plan,</td>
<td>No mitigation is required</td>
<td>Class III – Less than Significant</td>
</tr>
<tr>
<td>policy, or regulation adopted for the purpose of reducing the</td>
<td></td>
<td></td>
</tr>
<tr>
<td>emissions of greenhouse gases</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cumulative air quality impacts (NOx, VOC, CO)</td>
<td>• MM AQ-2: Construction equipment will meet USEPA/CARB Tier 3 Emissions Standards</td>
<td>Class II – Less than Significant with Mitigation</td>
</tr>
<tr>
<td>Cumulative air quality impacts (PM10)</td>
<td>• MM AQ-1: Prepare and implement a dust control plan</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• MM AQ-2: Construction equipment will meet or exceed USEPA/CARB Tier 3 Emissions Standards</td>
<td></td>
</tr>
<tr>
<td>Biological Resources</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BR-1: Have a substantial adverse effect on any riparian habitat or</td>
<td>• MM BR-1: Implement a Worker Environmental Education Program</td>
<td>Class II – Less than Significant with Mitigation</td>
</tr>
<tr>
<td>other sensitive natural community identified in local or regional</td>
<td>• MM BR-2: Implement Best Management Practices</td>
<td></td>
</tr>
<tr>
<td>plans, policies, regulations, or by CDFW or USFWS</td>
<td>• MM BR-3: Compensation for permanent impacts to sensitive vegetation communities</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• MM BR-4: Prepare and implement a Weed Control Plan</td>
<td></td>
</tr>
<tr>
<td>BR-2: Have a substantial adverse effect, either directly or through</td>
<td>• MM BR-1: Implement a Worker Environmental Education Program</td>
<td>Class II – Less than Significant with Mitigation</td>
</tr>
<tr>
<td>habitat modifications on any species identified as a candidate,</td>
<td>• MM BR-2: Implement Best Management Practices</td>
<td></td>
</tr>
<tr>
<td>sensitive, or special status species in local or regional plans,</td>
<td>• MM BR-3: Compensation for permanent impacts to sensitive vegetation communities</td>
<td></td>
</tr>
<tr>
<td>policies, or regulations, or by CDFG or USFWS</td>
<td>• MM BR-4: Prepare and implement a Weed Control Plan</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• MM BR-5: Implement biological construction monitoring</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• MM BR-6: Prepare and implement a Bird and Bat Monitoring and Avoidance Plan</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• MM BR-7: Conduct pre-construction surveys for nesting and breeding birds and implement</td>
<td></td>
</tr>
<tr>
<td></td>
<td>avoidance measures</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• MM BR-8: Compensate for loss of Swainson’s hawk foraging habitat</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• MM BR-9: Conduct pre-construction surveys for special-status plants, implement avoidance</td>
<td></td>
</tr>
<tr>
<td></td>
<td>measures, and compensate for direct impacts</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• MM BR-10: Complete focused pre-construction burrowing owl surveys and implement avoidance</td>
<td></td>
</tr>
<tr>
<td></td>
<td>measures</td>
<td></td>
</tr>
</tbody>
</table>
## Table E5-1: Summary of Impacts and Mitigation Measures

<table>
<thead>
<tr>
<th>Impact</th>
<th>Summary of Mitigation Measures</th>
<th>Level of Significance</th>
</tr>
</thead>
</table>
| **BR-3:** Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means | • MM BR-1: Implement a Worker Environmental Education Program  
• MM BR-2: Implement Best Management Practices  
• MM BR-3: Compensation for permanent impacts to sensitive vegetation communities  
• MM BR-4: Prepare and implement a Weed Control Plan | Class II – Less than Significant with Mitigation |
| **BR-4:** Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites | • MM BR-1: Implement a Worker Environmental Education Program  
• MM BR-2: Implement Best Management Practices  
• MM BR-3: Compensation for permanent impacts to sensitive vegetation communities  
• MM BR-4: Prepare and implement a Weed Control Plan  
• MM BR-5: Implement biological construction monitoring  
• MM BR-6: Prepare and implement a Bird and Bat Monitoring and Avoidance Plan  
• MM BR 12: Conduct pre-construction surveys and implement impact avoidance measures for American badger and desert kit fox | Class II – Less than Significant with Mitigation |
| **BR-5:** Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinances | • MM BR-1: Implement a Worker Environmental Education Program  
• MM BR-2: Implement Best Management Practices  
• MM BR-3: Compensation for permanent impacts to sensitive vegetation communities  
• MM BR-4: Prepare and implement a Weed Control Plan  
• MM BR-5: Implement biological construction monitoring  
• MM BR-6: Prepare and implement a Bird and Bat Monitoring and Avoidance Plan | Class II – Less than Significant with Mitigation |
Table ES-1: Summary of Impacts and Mitigation Measures

<table>
<thead>
<tr>
<th>Impact</th>
<th>Summary of Mitigation Measures</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>MM BR-7: Conduct pre-construction surveys for nesting and breeding birds and implement avoidance measures</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MM BR-8: Compensate for loss of Swainson’s hawk foraging habitat</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MM BR-9: Conduct pre-construction surveys for special-status plants, implement avoidance measures, and compensate for direct impacts</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MM BR-10: Complete focused pre-construction burrowing owl surveys and implement avoidance measures</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MM BR-11: Conduct pre-construction maternity colony or hibernaculum surveys for sensitive bats, provide suitable roosting habitat, and exclude bats prior to eviction from roosts</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MM BR 12: Conduct pre-construction surveys and implement impact avoidance measures for American badger and desert kit fox</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cumulative biological resources impacts (special status species)</td>
<td>Implement a Worker Environmental Education Program</td>
<td></td>
</tr>
<tr>
<td>MM BR-2: Implement Best Management Practices</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MM BR-3: Compensation for permanent impacts to sensitive vegetation communities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MM BR-4: Prepare and implement a Weed Control Plan</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MM BR-5: Implement biological construction monitoring</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MM BR-6: Prepare and implement a Bird and Bat Monitoring and Avoidance Plan</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MM BR-7: Conduct pre-construction surveys for nesting and breeding birds and implement avoidance measures</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MM BR-8: Compensate for loss of Swainson’s hawk foraging habitat</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MM BR-9: Conduct pre-construction surveys for special-status plants, implement avoidance measures, and compensate for direct impacts</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MM BR-10: Complete focused pre-construction burrowing owl surveys and implement avoidance measures</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Class I – Significant and Unavoidable</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table E5-1: Summary of Impacts and Mitigation Measures

<table>
<thead>
<tr>
<th>Impact</th>
<th>Summary of Mitigation Measures</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cultural Resources</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>CR-1</strong>: The proposed project would cause a substantial adverse change in the significance of an historical resource as defined in §15064.5</td>
<td>• <strong>MM CR-1</strong>: Avoid known cultural resources</td>
<td>Class II – Less than Significant with Mitigation</td>
</tr>
<tr>
<td><strong>CR-2</strong>: The proposed project would cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5</td>
<td>• <strong>MM CR-2</strong>: Treat previously unidentified cultural resources appropriately</td>
<td>Class II – Less than Significant with Mitigation</td>
</tr>
<tr>
<td></td>
<td>• <strong>MM CR-3</strong>: Train construction personnel regarding cultural and paleontological resources</td>
<td></td>
</tr>
<tr>
<td><strong>CR-3</strong>: The proposed project would directly or indirectly destroy a unique paleontological resource or site or unique geologic feature</td>
<td>• <strong>MM CR-4</strong>: Conduct construction monitoring for paleontological resources</td>
<td>Class II – Less than Significant with Mitigation</td>
</tr>
<tr>
<td><strong>CR-4</strong>: The proposed project would disturb any human remains, including those interred outside of formal cemeteries</td>
<td>• <strong>MM CR-5</strong>: Treat human remains appropriately</td>
<td>Class II – Less than Significant with Mitigation</td>
</tr>
<tr>
<td><strong>Cumulative cultural resources impacts</strong></td>
<td>• <strong>MM CR-1</strong>: Avoid known cultural resources</td>
<td>Class II – Less than Significant with Mitigation</td>
</tr>
<tr>
<td></td>
<td>• <strong>MM CR-2</strong>: Treat previously unidentified cultural resources appropriately</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• <strong>MM CR-3</strong>: Train construction personnel regarding cultural and paleontological resources</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• <strong>MM CR-4</strong>: Conduct construction monitoring for paleontological resources</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• <strong>MM CR-5</strong>: Treat human remains appropriately</td>
<td></td>
</tr>
<tr>
<td><strong>Geology and Soils</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>GEO-1</strong>: Expose people or structures to potential risk of loss, injury, or death where there is high potential for seismically induced ground shaking</td>
<td>No mitigation is required</td>
<td>Class III – Less than Significant</td>
</tr>
<tr>
<td>Impact</td>
<td>Summary of Mitigation Measures</td>
<td>Level of Significance</td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
<td>-----------------------------------------------------------------------------------------------</td>
<td>-------------------------------------------</td>
</tr>
<tr>
<td>GEO-2: Results in triggering or acceleration of geologic processes,</td>
<td>No mitigation is required</td>
<td>Class III – Less than Significant</td>
</tr>
<tr>
<td>such as landslides, substantial soil erosion, or loss of topsoil</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GEO-3: Expose people or structures to potential risk of loss or</td>
<td>• MM GEO-1: Design measures for corrosion protection</td>
<td>Class II – Less than Significant with</td>
</tr>
<tr>
<td>injury where expansive soils or other unsuitable soils are present</td>
<td></td>
<td>Mitigation</td>
</tr>
<tr>
<td>Cumulative geology and soils impacts</td>
<td>No mitigation is required</td>
<td>Class III – Less than Significant</td>
</tr>
<tr>
<td><strong>Hazard and Hazardous Materials</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HAZ-1: Soil and Groundwater Contamination could result from</td>
<td>• MM HAZ-1: Prepare and implement a project-specific SWPP Plan</td>
<td>Class II – Less than Significant with</td>
</tr>
<tr>
<td>accidental spills or leaks and create a hazard to people or the</td>
<td>• MM HAZ-2: Prepare and implement an Emergency Response Plan</td>
<td>Mitigation</td>
</tr>
<tr>
<td>environment through the routine transport, use, or disposal of</td>
<td>• MM HAZ-3: Dispose of or recycle panels in accordance with current local, State, and federal</td>
<td></td>
</tr>
<tr>
<td>hazardous materials</td>
<td>regulations</td>
<td></td>
</tr>
<tr>
<td>HAZ-2: Emit hazardous emissions or handle hazardous or acutely</td>
<td>• MM HAZ-3: Dispose of or recycle panels in accordance with current local, State, and federal</td>
<td>Class II – Less than Significant with</td>
</tr>
<tr>
<td>hazardous materials, substances, or waste within one-quarter mile</td>
<td>regulations</td>
<td>Mitigation</td>
</tr>
<tr>
<td>of an existing or proposed school</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HAZ-3: Mobilization of existing contaminants could create a</td>
<td>• MM HAZ-4: Prepare and implement a Soil Management Plan</td>
<td>Class II – Less than Significant with</td>
</tr>
<tr>
<td>hazard to people or the environment</td>
<td></td>
<td>Mitigation</td>
</tr>
<tr>
<td>HAZ-4: Create a substantial hazard to people or the environment</td>
<td>• MM AQ-1: Prepare and implement a dust control plan</td>
<td>Class II – Less than Significant with</td>
</tr>
<tr>
<td>by mobilizing existing contamination or generating disease vectors</td>
<td></td>
<td>Mitigation</td>
</tr>
<tr>
<td>Cumulative hazards and hazardous materials impacts</td>
<td>No mitigation is required</td>
<td>Class III – Less than Significant</td>
</tr>
<tr>
<td><strong>Hydrology and Water Quality</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WQ-1: Substantially deplete local groundwater supplies or interfere</td>
<td>No mitigation is required</td>
<td>Class III – Less than Significant</td>
</tr>
<tr>
<td>with groundwater recharge</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WQ-2: Substantially alter the existing drainage pattern of the</td>
<td>No mitigation is required</td>
<td>Class III – Less than Significant</td>
</tr>
<tr>
<td>project site in a manner that results in flooding on- or off-site</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WQ-3: Construction activity and excavation could degrade water</td>
<td>No mitigation is required</td>
<td>Class III – Less than Significant</td>
</tr>
<tr>
<td>quality due to erosion and sedimentation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WQ-4: Creation of new impervious areas could cause increased</td>
<td>No mitigation is required</td>
<td>Class III – Less than Significant</td>
</tr>
<tr>
<td>runoff resulting in flooding or increased erosion downstream</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Table ES-1: Summary of Impacts and Mitigation Measures

<table>
<thead>
<tr>
<th>Impact</th>
<th>Summary of Mitigation Measures</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>WQ-5: Project features located in a floodplain or watercourse could</td>
<td>No mitigation is required</td>
<td>Class III – Less than Significant</td>
</tr>
<tr>
<td>result in flooding, flood diversions, or erosion</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WQ-6: Construction or operation of the proposed project could result</td>
<td>MM WQ-1: Prepare and implement a SWPPP</td>
<td>Class II – Less than Significant with Mitigation</td>
</tr>
<tr>
<td>in accidental releases of contaminants that could degrade water quality</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cumulative hydrology and water quality impacts</td>
<td>No mitigation is required</td>
<td>Class III – Less than Significant</td>
</tr>
</tbody>
</table>

### Land Use, Population, and Recreation

<table>
<thead>
<tr>
<th>Impact</th>
<th>Summary of Mitigation Measures</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>LU-1: The proposed project would conflict with any applicable land</td>
<td>All mitigation measures in this EIR</td>
<td>Class II – Less than Significant with Mitigation</td>
</tr>
<tr>
<td>use plan, policy, or regulation of an agency with jurisdiction over</td>
<td></td>
<td></td>
</tr>
<tr>
<td>the project (including, but not limited to the general plan, specific</td>
<td></td>
<td></td>
</tr>
<tr>
<td>plan, local coastal program, or zoning ordinance) adopted for the</td>
<td></td>
<td></td>
</tr>
<tr>
<td>purpose of avoiding or mitigating an environmental effect</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LU-2: The proposed project would preclude an existing or permitted</td>
<td>No mitigation is required</td>
<td>Class III – Less than Significant</td>
</tr>
<tr>
<td>land use, or create a disturbance that would diminish the function of</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a particular land use</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LU-3: The proposed project would substantially contribute to the</td>
<td>No mitigation is required</td>
<td>Class III – Less than Significant</td>
</tr>
<tr>
<td>loss or degradation of the factors that contribute to the value of</td>
<td></td>
<td></td>
</tr>
<tr>
<td>federal, State, or local recreational facilities or programs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LU-4: The proposed project would induce substantial population</td>
<td>No mitigation is required</td>
<td>Class III – Less than Significant</td>
</tr>
<tr>
<td>growth in an area, either directly (for example, by proposing new</td>
<td></td>
<td></td>
</tr>
<tr>
<td>homes and businesses) or indirectly (for example, through extension of</td>
<td></td>
<td></td>
</tr>
<tr>
<td>roads or other infrastructure)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cumulative land use, population, and recreation impacts</td>
<td>No mitigation is required</td>
<td>Class III – Less than Significant</td>
</tr>
</tbody>
</table>
### Table ES-1: Summary of Impacts and Mitigation Measures

<table>
<thead>
<tr>
<th>Impact</th>
<th>Summary of Mitigation Measures</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Noise</strong></td>
<td><strong>N-1:</strong> Construction noise would substantially disturb sensitive receptors and violate local rules, standards, and/or ordinances, such as the City of Lancaster General Plan and Municipal Code</td>
<td><strong>MM N-1:</strong> Limit noise generating construction activities near Del Sur Elementary School  <strong>MM N-2:</strong> Implement noise-reducing features on construction equipment  <strong>MM N-3:</strong> Limit unnecessary idling of construction equipment  <strong>MM N-4:</strong> Use electric-powered equipment where feasible  <strong>MM N-5:</strong> Limit use of noise-producing signals, alarms, etc.  <strong>MM N-6:</strong> No project-related public address system or music system shall be audible at any adjacent receptor  <strong>MM N-7:</strong> Locate material and equipment staging, parking, and maintenance as far as possible from adjacent receptors  <strong>MM N-8:</strong> Notify property owners prior to noise disturbances  <strong>MM N-9:</strong> Provide a project hotline for noise complaints  <strong>MM N-10:</strong> Route construction traffic away from noise-sensitive areas as feasible  <strong>MM N-11:</strong> Minimize project-related automobile trips</td>
</tr>
<tr>
<td><strong>N-2:</strong> Construction activity would temporarily cause excessive groundborne vibration or groundborne noise</td>
<td>No mitigation is required</td>
<td>Class III – Less than Significant</td>
</tr>
<tr>
<td><strong>N-3:</strong> Permanent noise levels in the project vicinity would substantially increase (greater than 5 dBA CNEL) due to operation of project-related stationary noise sources above levels existing without the project</td>
<td>No mitigation is required</td>
<td>Class III – Less than Significant</td>
</tr>
<tr>
<td><strong>N-4:</strong> Routine inspection and maintenance activities would substantially increase ambient noise levels (greater than 5 dBA CNEL) in the project vicinity above levels existing without the project</td>
<td><strong>MM N-12:</strong> Limit panel washing during operations to between the hours of 8:00 a.m. and 5:00 p.m. within 325 feet of occupied residences</td>
<td>Class II – Less than Significant with Mitigation</td>
</tr>
<tr>
<td>Cumulative noise impacts</td>
<td><strong>MM N-1:</strong> Limit noise generating construction activities near Del Sur Elementary School  <strong>MM N-2:</strong> Implement noise-reducing features on construction equipment  <strong>MM N-3:</strong> Limit unnecessary idling of construction equipment  <strong>MM N-4:</strong> Use electric-powered equipment where feasible  <strong>MM N-5:</strong> Limit use of noise-producing signals, alarms, etc.</td>
<td>Class II – Less than Significant with Mitigation</td>
</tr>
</tbody>
</table>
## Table E5-1: Summary of Impacts and Mitigation Measures

<table>
<thead>
<tr>
<th>Impact</th>
<th>Summary of Mitigation Measures</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MM N-6:</strong> No project-related public address system or music system shall be audible at any adjacent receptor</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>MM N-7:</strong> Locate material and equipment staging, parking, and maintenance as far as possible from adjacent receptors</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>MM N-8:</strong> Notify property owners prior to noise disturbances</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>MM N-9:</strong> Provide a project hotline for noise complaints</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>MM N-10:</strong> Route construction traffic away from noise-sensitive areas as feasible</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>MM N-11:</strong> Minimize project-related automobile trips</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Public Services, Utilities, and Service Systems</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PSU-1: The proposed project would result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for fire protection, police protection, schools, parks, or other public facilities</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>MM PSU-1:</strong> Coordinate with emergency service providers to avoid restricting the movements of emergency vehicles</td>
<td>Class II – Less than Significant with Mitigation</td>
<td></td>
</tr>
<tr>
<td>PSU-2: The proposed project would exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board</td>
<td>No mitigation is required</td>
<td>Class III – Less than Significant</td>
</tr>
<tr>
<td>PSU-3: The proposed project would require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects</td>
<td>No mitigation is required</td>
<td>Class III – Less than Significant</td>
</tr>
<tr>
<td>PSU-4: The proposed project would require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effect</td>
<td>No mitigation is required</td>
<td>Class III – Less than Significant</td>
</tr>
<tr>
<td>PSU-5: The proposed project would have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed</td>
<td>No mitigation is required</td>
<td>Class III – Less than Significant</td>
</tr>
<tr>
<td>PSU-6: The proposed project would result in a determination by the wastewater treatment provider that serves or may</td>
<td>No mitigation is required</td>
<td>Class III – Less than Significant</td>
</tr>
</tbody>
</table>
### Table ES-1: Summary of Impacts and Mitigation Measures

<table>
<thead>
<tr>
<th>Impact</th>
<th>Summary of Mitigation Measures</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>serve the project that it has adequate capacity to serve the project’s projected demand in addition to the provider’s existing commitments</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PSU-7: The proposed project would be served by a landfill with sufficient permitted capacity to accommodate the proposed project’s solid waste disposal needs</td>
<td>No mitigation is required</td>
<td>Class III – Less than Significant</td>
</tr>
<tr>
<td>PSU-8: The project would comply with federal, State, and local statutes and regulations related to solid waste</td>
<td>No mitigation is required</td>
<td>Class III – Less than Significant</td>
</tr>
<tr>
<td>Cumulative public services, utilities, and service systems impacts</td>
<td>No mitigation is required</td>
<td>Class III – Less than Significant</td>
</tr>
<tr>
<td><strong>Transportation and Traffic</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TRA-1: Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit</td>
<td>• MM TRA-1: Minimize peak period truck trips</td>
<td>Class II – Less than Significant with Mitigation</td>
</tr>
<tr>
<td>TRA-2: Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways</td>
<td>No mitigation is required</td>
<td>Class III – Less than Significant</td>
</tr>
<tr>
<td>TRA-3: Result in a change in air traffic patterns, including either an increase in traffic levels or change in location that results in substantial safety risks</td>
<td>No mitigation is required</td>
<td>Class III – Less than Significant</td>
</tr>
<tr>
<td>TRA-4: Substantially increase roadway hazards due to a design feature or incompatible uses</td>
<td>No mitigation is required</td>
<td>Class III – Less than Significant</td>
</tr>
<tr>
<td>TRA-5: Result in inadequate emergency access</td>
<td>• MM TRA-2: Prepare and implement a Traffic Control Plan</td>
<td>Class II – Less than Significant with Mitigation</td>
</tr>
<tr>
<td>TRA-6: Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities</td>
<td>No mitigation is required</td>
<td>No Impact</td>
</tr>
<tr>
<td>Cumulative transportation and traffic impacts</td>
<td>• MM TRA-1: Minimize peak period truck trips</td>
<td>Class II – Less than Significant with Mitigation</td>
</tr>
<tr>
<td></td>
<td>• MM TRA-2: Prepare and implement a Traffic Control Plan</td>
<td></td>
</tr>
</tbody>
</table>
A. Introduction

A.1 Purpose and Intended Uses of the EIR

This Environmental Impact Report (EIR) provides information regarding the environmental setting and potential environmental effects that may result from the construction and operation of the proposed Del Sur Solar Project (proposed project). This 100 megawatt (MW) renewable power generation facility and associated generation-tie (gen-tie) line and communication line is planned in the City of Lancaster, California. The project applicant is: Sustainable Power Group LLC (sPower or applicant), 2 Embarcadero Center, Suite 410, San Francisco CA 94111. A brief description of the proposed project is provided below in Section A.2. Section B (Project Description) provides a detailed project description.

sPower has submitted two Conditional Use Permit applications and a General Plan Amendment/Zone Change request to the City of Lancaster for review and decision. As Lead Agency under the California Environmental Quality Act (CEQA), the City of Lancaster has decided to prepare an EIR to evaluate the proposed project. CEQA requires the Lead Agency to consider the information contained in the EIR prior to taking any discretionary action on project-related applications. This EIR serves as a resource to the City and other permitting agencies during their respective permit processing of the proposed project.

As described in Section 15121(a) of the CEQA Guidelines, an EIR is an informational document that will inform public agencies and the public of the significant environmental effects of a project, identify possible ways to minimize any significant effects, and describe reasonable alternatives to the project. Therefore, the purpose of this EIR is to focus the discussion on those potential effects on the environment from construction, operation, maintenance and decommissioning of the proposed project, which the Lead Agency has determined are or may have the potential to be significant. In addition, feasible mitigation measures are recommended, where applicable, that could reduce or avoid significant environmental impacts.

A.2 Overview of the Proposed Project

The proposed project is located within the City of Lancaster in Los Angeles County, in an area known as the Antelope Valley. The solar generating facility is proposed on an approximately 725-acre site, which is generally bound by West Avenue G, West Avenue H, 107th Street West, and 93rd Street West (see Figure A-1). The proposed project would include construction and operation of a 100 MW photovoltaic (PV) solar electric generating facility as well as a gen-tie line and communication line to connect the facility to previously approved collector substation(s) on West Avenue J. The proposed project would be constructed in phases including site preparation, facility installation and commissioning. The proposed project’s planned operational lifespan is 35 years. The proposed project would consist of the following elements: photovoltaic modules, module mounting system, balance of system and electrical boxes, electrical inverters and transformers, electrical alternating current (AC) collection system including switchgear, data monitoring equipment, transmission and gen-tie line, communication line, and access roads and security fencing. The proposed project would not require the construction of an on-site operations and maintenance facility.

The proposed project would include a series of PV module arrays mounted onto racking systems. These systems are typically supported by a pile-driven foundation design. The foundation design would be determined based on a full geotechnical study to be completed by the applicant prior to construction and as part of final engineering. The module mounting system or racking system would be a fixed-tilt or tracker PV array configuration oriented to maximize the amount of incident solar radiation absorbed over the course of the year.
Figure A-1

 existing/Approved Collector Substations
 Potential Underground Gen-tie and Communication Line Routes
Other Solar Projects in the Area. There are four existing solar facilities east and south of the proposed solar generating facility and there are additional existing solar facilities along West Avenue J and 100th Street West. There are also four projects within the City that have been approved but have not been constructed and another project that is currently under review by the City. See Section C for a discussion of other solar projects either existing or proposed near the project site.

A.3 Required Permits and Approvals

The City’s zoning ordinance allows solar facilities on property zoned RR-2.5 (rural residential, minimum lot size 2.5 acres) with a Conditional Use Permit (CUP). The project site is designated as a mix of Urban Residential (UR), Open Space (O), Public Use (P), and Commercial (C) by the City’s General Plan and zoned R-15,000 (single family residential, minimum lot size 15,000 square feet), R-10,000 (single family residential, minimum lot size 10,000 square feet), R-7,000 (single family residential, minimum lot size 7,000 square feet), S (School), PK (Park), and CPD (commercial planned development). These designations do not allow for the development of utility-scale solar facilities. However, a majority of the project site (with the exception of APNs 3265-007-002 and 3265-007-008) is covered by Development Agreement No. 89-01. This Development Agreement was amended on June 26, 2012 to allow utility-scale solar development with a CUP without the need to change the existing general plan designations or zoning. A General Plan Amendment and Zone Change would be required for the two parcels (80 acres) that are not covered by the Development Agreement.

As noted earlier, sPower has submitted applications for CUPs, a General Plan Amendment, and zone change to the City of Lancaster. The footprint of the solar generating facility (SGF) is all within the jurisdiction of the City. However, depending on the final location of the gen-tie and communication line route, the applicant may also have to obtain ministerial permits and a possible franchise agreement from the County of Los Angeles because portions of the identified routes fall under the jurisdiction of the County of Los Angeles. Table A-1 (Permits and Approvals) provides a list of permits needed for the proposed project.

<table>
<thead>
<tr>
<th>Project Component</th>
<th>Development Agreement</th>
<th>Permit/Approval</th>
<th>Agency</th>
</tr>
</thead>
<tbody>
<tr>
<td>SGF- 10 APNs¹ (645 acres)</td>
<td>Applies</td>
<td>• CUP²</td>
<td>City of Lancaster</td>
</tr>
</tbody>
</table>
| SGF – 2 APNs² (80 acres) | Does not apply | • General Plan Amendment  
• Zone Change  
• CUP  
• Ministerial permits (e.g. building) | City of Lancaster |
| Gen-Tie and Communication Line Route | Does not apply | • Considered in CUP for SGF  
• Encroachment Permit | City of Lancaster |
| Gen-Tie and Communication Line Route | Does not apply | • Grading/Building Permit  
• Encroachment Permit  
• Franchise Agreement | County of Los Angeles |

Notes:
1) APN = Assessor’s Parcel Number
2) For financing purposes, the applicant may request separate CUPs for the proposed project.
3) This applies to Assessor Parcel Numbers: 3265-007-002 and 3265-007-008.
A.4 EIR Process

A.4.1 Distribution of NOP

In compliance with Sections 15082 and 15375 of the State CEQA Guidelines, a Notice of Preparation (NOP) was prepared by the City of Lancaster Development Services Department and distributed to the State Clearinghouse, Office of Planning and Research, Trustee and Responsible Agencies and other interested parties on February 3, 2015. The NOP was circulated for a 30-day public review period. The NOP was also provided to property owners located within 1,500 feet of the project site. In addition to distribution of the NOP, the City placed a newspaper notice in the Antelope Valley Press on February 11, 2015, and a sign was posted on the project site along West Avenue G regarding the proposed project and public scoping meeting.

A public scoping meeting was held on February 19, 2015 at the American Heroes Park Community Room. While no members of the public or agencies attended the scoping meeting, the City received eight comment letters during the 30-day scoping period. Appendix 1 contains a copy of the NOP, the newspaper notice, picture of the sign posted at the project site, and copies of the comment letters received on the proposed project. See the discussion below for a specific list of concerns raised in these comment letters as well as where in the Draft EIR these concerns are addressed.

A.4.2 Summary of Scoping Comments

The scoping comment period began on February 4, 2015 with the release of the NOP and ended on March 9, 2015. Scoping comments were received from trustee and responsible agencies, as well as private companies and citizens. Table A-2 (Scoping Comments) provides a summary of the comments received.

<table>
<thead>
<tr>
<th>Commenter</th>
<th>Comment Date</th>
<th>Commenter Type</th>
<th>Comment Summary</th>
<th>Addressed in:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antelope Valley Air Quality Management District</td>
<td>3/2/2015</td>
<td>Local Agency</td>
<td>The commenter requests that the proposed project comply with all applicable Rule 403 regulations. The commenter also suggests various measures related to grading and ground disturbance to reduce impacts.</td>
<td>Section C.4 Air Quality and Greenhouse Gas</td>
</tr>
<tr>
<td>California Department of Fish and Wildlife</td>
<td>3/4/2015</td>
<td>State Agency</td>
<td>The commenter highlights several areas for increased analysis in the Draft EIR including project phasing, gen-tie lines, biological inventories, migratory birds and raptors, and impacts on significant ecological areas. The commenter includes a discussion of laws and regulations applicable to the proposed project. The commenter also includes recommendations on information to be included in the Draft EIR to further aid in review and analysis.</td>
<td>Section C.5 Biological Resources</td>
</tr>
<tr>
<td>California Department of Transportation</td>
<td>3/5/2015</td>
<td>State Agency</td>
<td>The commenter requests that a traffic study including the project vicinity be prepared. The commenter also notes the potential need for an encroachment permit and a storm water management plan for potential run off.</td>
<td>Section C.13 Transportation and Traffic</td>
</tr>
</tbody>
</table>
Table A-2. Scoping Comments

<table>
<thead>
<tr>
<th>Commenter</th>
<th>Comment Date</th>
<th>Commenter Type</th>
<th>Comment Summary</th>
<th>Addressed in:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lisa and Dave Disbro</td>
<td>2/7/2015</td>
<td>Private Citizen</td>
<td>The commenter expressed concerns regarding declining property values, and potential safety hazards to horseback riders. The commenter requests an indefinite moratorium on all solar projects.</td>
<td>Section C.10 Land Use, Population, and Recreation</td>
</tr>
<tr>
<td>Lisa and Dave Disbro</td>
<td>2/15/2015</td>
<td>Private Citizen</td>
<td>The commenter expressed concern regarding personal and livestock safety. The commenter also expressed concern regarding the scoping meeting location and requested acknowledgement that the comments had been received.</td>
<td>Section A Introduction, Section C.3 Agricultural Resources, Section C.8 Hazards and Hazardous Materials</td>
</tr>
<tr>
<td>Southern California Association of Governments</td>
<td>3/9/2015</td>
<td>State Agency</td>
<td>The commenter requests environmental document be sent to them when available for review during public comment period. The commenter also provides multiple resources for use in document preparation and recommends a side-by-side comparison of SCAG goals in table format for ease of review.</td>
<td>Section C.12 Transportation and Traffic</td>
</tr>
<tr>
<td>Southern California Gas Company</td>
<td>2/17/2015</td>
<td>Private Utility</td>
<td>The commenter has gas pipelines near the proposed project, which may require agreements and alterations of existing utilities. The commenter also requests a vehicle loading survey be performed to protect the pipelines.</td>
<td>Section A Introduction and Appendix 1</td>
</tr>
<tr>
<td>County of Los Angeles Department of Public Works</td>
<td>4/2/2015</td>
<td>Local Agency</td>
<td>The commenter recommends revisions to the project site plan to show detail of roadways, requests requirement for a construction traffic management plan, requests notation on site plan regarding onsite grading, and requests additional information on the source of water for the project. The letter also requests a copy of the environmental document for review.</td>
<td>Most measures identified are not CEQA related issues, Section C.9 Hydrology and Water Quality – water source</td>
</tr>
</tbody>
</table>

A.4.3 Availability of Draft EIR

The Draft EIR will be circulated for review and comment by the public and other interested parties, agencies, and organizations for a period of 45 days. After completion of the 45-day review period, a Final EIR will be prepared that responds to comments on the Draft EIR submitted during the review period and modifies the Draft EIR as necessary. Public hearings on the proposed project will be held after completion of the Final EIR. Notice of the time and location of future public hearings will be noticed prior to each public hearing date. All comments or questions about the Draft EIR should be addressed to:

City of Lancaster
Attn: Jocelyn Swain
Associate Planner - Environmental
44933 Fern Avenue
Lancaster, CA 93534
jswain@cityoflancasterca.org
Figure A-2 provides a flowchart of the EIR process. The City has completed the initial steps of the EIR process as discussed in this section and will continue through the process as required by CEQA. As noted in the NOP for the proposed project, Section 15063 (a) of the CEQA Guidelines states that if a lead agency can clearly identify the need for an EIR, then an Initial Study is not required. The City determined that an EIR was needed for the proposed project and therefore began preparation of an EIR (without an Initial study) as allowed under CEQA.

A.5 Organization of the EIR

This EIR is organized as follows:

Executive Summary: A summary description of the proposed project, alternatives, environmental impacts, and mitigation measures.

Section A (Introduction): A discussion of the intended use of the EIR, brief description of the proposed project, and general organization of the EIR.

Section B (Project Description): A complete description of the proposed project including project location, facilities/components, and objectives.

Section C (Environmental Setting, Analysis, and Mitigation Measures): A comprehensive analysis and assessment of potential impacts and recommended mitigation measures for the proposed project. This section describes the assessment methodology and addresses 12 environmental issue areas (e.g. Aesthetics, Agricultural Resources, etc.).

Section D (Alternatives): A description of the alternatives evaluation process, description of alternatives considered but eliminated from further analysis, and the rationale for eliminating alternatives from the analysis. This section includes an analysis of potential impacts for the retained alternatives, including consideration of No Project Alternatives to the proposed project.

Section E (Other CEQA Considerations): A summary of environmental effects found to be less than significant as described in the NOP, potential growth inducing effects, energy conservation, and other CEQA required issues.

Section F (References): A listing of references by environmental issue areas that were used in the analysis contained within this EIR.
Section G (Glossary, Acronyms, and Abbreviations): A list of terms, acronyms and abbreviations used throughout the document.

Section H (Preparers of the EIR): A list of City and consultant team members that contributed to the preparation of the EIR.

Appendices: Technical reports, data, or background information supporting the analyses or contents in the EIR.
B. Project Description

B.1 Introduction

Sustainable Power Group (sPower or applicant) proposes to construct and operate the Del Sur Solar Project (proposed project). The proposed project is a 100 megawatt (MW) utility-scale solar generating facility (SGF) proposed on 725 acres in the City of Lancaster. Solar electricity generated by the proposed project would be delivered by an approximately 2 to 4-mile generation-tie (gen-tie) and communication line that would extend to two previously approved substations near the existing Southern California Edison (SCE) Antelope Substation south of the proposed SGF. The proposed project would operate year-round and produce electricity during daylight hours. The applicant proposes to begin site preparation and construction of the facility in 2015 with construction completed in phases. The first phases of the facility would be commercially operational in late 2015 or early 2016, and the remaining phases would be complete by the end of 2016. Figure A-1 in Section A (Introduction) provides the location of the project site and shows the City boundaries in relation to the proposed project including the potential routes for the gen-tie and communication line.

B.2 Project Objectives

According to sPower’s application, the proposed project would meet the increasing demand for electricity generated from renewable technology, and would assist in the effort to meet the Senate Bill (SB) 14 Renewable Energy Portfolio Standards (RPS). The proposed project qualifies as an eligible renewable energy resource as defined by the California Public Resources Code and would help the State meet the objective of increasing renewable energy generation.

The project objectives are to:

- Develop a utility-scale solar energy generating facility and accompanying infrastructure that qualifies as an eligible renewable energy resource;
- Contribute to the diversification of State and local energy portfolios;
- Support the reduction of greenhouse gas emissions in California by providing renewable energy resources; and
- Create green jobs in California.

The applicant’s planned objectives are to minimize impacts to the environment and the local community by:

- Using disturbed land or land that has been previously degraded from prior use;
- Using existing electrical distribution facilities, rights-of-ways (ROWs), roads, and other existing infrastructure where possible to minimize the need for new electrical support facilities;
- Minimizing impacts to threatened or endangered species or their habitats, wetlands and waters of the United States, cultural resources, and sensitive land use;
- Minimizing water use; and
- Reducing greenhouse gas emissions.

The following sections provide a detailed description of the proposed project.
B.3 Solar Project and Site Description

The proposed project is located within the City of Lancaster in the Antelope Valley of Los Angeles County. The proposed project consists of the construction, operation, maintenance, and decommissioning of a 100-MW solar photovoltaic (PV) electric generating facility on approximately 725 acres (see Figure B-1). It also includes a gen-tie line and communications line to connect the facility to up to two previously approved collector substations on West Avenue J. The proposed project would be constructed in phases and would operate for a period of 35 years.

The proposed project would be composed of the following elements:

- PV modules;
- Module mounting systems;
- Balance of system and electrical boxes;
- Electrical inverters and transformers;
- Electrical alternating current (AC) collection system, including switchgear;
- Data monitoring equipment;
- Gen-tie lines and communication line (co-located and placed underground); and
- Access roads and security fencing.

The proposed project does not require the construction of an onsite operations and maintenance (O&M) facility. The proposed project would require a Conditional Use Permit (CUP), Zone Change (ZC), and General Plan Amendment (GPA) from the City of Lancaster for facility construction and operation (see Section A for more information on these permits). The ZC and GPA would be required for the two parcels (80 acres) not covered by Development Agreement No. 89-01. The development agreement was amended on June 26, 2012 to allow for utility-scale solar development with a CUP without changing the existing general plan designations or zoning.

B.3.1 Current Site Conditions

The project site currently consists of mostly disturbed vacant land that was previously used for agricultural production. The project site has relatively flat topography. The applicant’s Phase I report prepared for the proposed project identifies six locations that include bermed areas (see Appendix 7). Three of these areas appear to be old retention basins. The basin in the southeast quadrant of the project site includes piles of concrete debris (identified as concrete demolition in the Phase 1 Report).

B.3.2 Surrounding Land Uses

Existing land uses surrounding the project site consist of rural residential, solar development, and agriculture. Figure B-2 identifies some of the key land uses near the project site. Rural residences are scattered in close proximity to the project site with Antelope Acres, a residential community, approximately ½ mile north of the project site. Residences near the SGF include:

- Two occupied residences (northeast of the site) near the corner of West Avenue G between 90th Street West and 93rd Street West.
Figure B-1
Solar Array Footprint
- Single-axis tracker
- Fixed-tilt

Solar Generating Facility
City of Lancaster
Solar Generating Facility
Figure B-2

Existing Land Uses

- Verified Occupied Residence
- Verified Unoccupied Residence
- Residence or Structure (Unverified)
- Dirt Road
- Paved Road
- Recreational Trail
- Del Sur Elementary
- Solar Facility
- Substation

Project Boundary
Gen-Tie Lines

Del Sur Elementary
Solar Facility
Substation

Existing Land Uses

Del Sur Solar Project

B. PROJECT DESCRIPTION

Del Sur Elementary
Substation

Antelope Substation

90Th St W
80Th St W
110Th St W
W Avenue I
95Th St W
100Th St W
97Th St W
100Th St W
95Th St W
105Th St W
W Avenue H8
100Th St W
95Th St W
105Th St W
W Avenue H
4000
1000
2000

1:32,000

Draft EIR

B-4

June 2015
The Del Sur Elementary School is located near the southeast corner of the project site. The Del Sur Substation is located across the street and southeast of the elementary school on the southeast corner of West Avenue H and 90th Street West. Additionally, four existing solar generating facilities are located near the proposed SGF and other solar facilities have been approved but have not been constructed both within the City and areas under the jurisdiction of the County of Los Angeles (see Section C, Cumulative Scenario and Methodology).

The Del Sur Elementary School’s solar panels are located east of the proposed SGF eastern boundary on school property. This solar installation is west of the school buildings. In addition to the solar panels at the elementary school, there are three existing solar facilities near the proposed project site. The first solar facility (CUP 12-08) is located to the east of the proposed SGF. This 12 MW facility is generally bounded by West Avenue G and 90th Street West. The second facility (CUP 11-03) is located directly south of the Del Sur Elementary School. This 9 MW facility is located at the southwest corner of West Avenue H and 90th Street West. The third facility (CUP 10-03) is located south of the proposed SGF. This 20 MW facility is generally bounded by West Avenue H, Lancaster Boulevard, 97th Street West, and 100th Street West. See Figure B-2 for the location of these existing solar facilities and the solar panels near the elementary school.

Several transmission lines (T/Ls) also traverse the project area. An existing T/L corridor containing multiple T/Ls extends in a southeast direction from west of 110th Street West to Antelope Substation. Segment 4 of the Tehachapi Renewable Transmission Line Project (500-kilovolt [kV] single-circuit transmission line) exits this T/L corridor and extends along 110th Street West before turning east on West Avenue J-6 to then turn north into the Antelope Substation. Another existing T/L corridor extends in a southwest direction from the Del Sur Substation at the southeast corner of West Avenue H and 90th Street West towards the Antelope Substation. A lower-voltage transmission line extends along 105th Street West.

All of the surrounding roads to the project site are unpaved, except for West Avenue G, West Avenue H (paved up to 93rd Street West), 90th Street West, and 110th Street West. Along the proposed gen-tie routes, 90th Street West, 110th Street West, and West Avenue J are paved. See Figure B-2 for the location of these paved and unpaved roads.

B.4 Solar Facility Components

B.4.1 Solar PV Generation Facility

The proposed project would include a series of PV module arrays mounted onto racking systems. These systems are typically supported by a pile-driven foundation design. The foundation design would be determined based on a full geotechnical study to be completed by the applicant prior to construction and as part of final engineering. The module mounting system or racking system would be a fixed-tilt or tracker
PV array configuration oriented to maximize the amount of incident solar radiation absorbed over the course of the year.

Electrical connections from a series of PV arrays would be channeled to combiner boxes located throughout the solar field. Electrical current would be collected and combined prior to feeding the current into the inverters. The solar field would be laid out in a common PV block design to allow adequate clearance for access roads and adequate access for maintenance.

Inverters would be consolidated in areas to minimize cable routing, trenching, and minimal electrical losses. The AC output from the inverters would be routed through an AC collection system and consolidated within system switchgear. The final output from the proposed project would be processed through a transformer to match the interconnection voltage. Electrical safety and protection systems would be provided to meet utility, California Independent System Operator, and regulatory codes and standards. The energy would ultimately be delivered to the SCE transmission network at the Antelope Substation. A more detailed description of the gen-tie line and its proposed route options is detailed below.

The applicant would install a 6- to 8-foot security perimeter fence with a three-strand barbed wire (no razor wire). Fencing would include appropriate signage for public protection and points of ingress/egress would include locked gates for access only by facility services and maintenance personnel, as required during operation.

**B.4.2 Photovoltaic Modules**

Based on the application, the actual total number of PV modules or panels would depend on the technology selected, optimization evaluation, and detailed design. The market conditions, economic considerations, and environmental factors would be taken into account during the detailed design process. The following PV module technologies or equivalent may be incorporated into the proposed project.

- PV thin-film technology;
- PV crystalline silicon technology;
- Stationary fixed-tilt modular configuration; and
- Tracking module configuration.

The modules would be oriented toward the south and angled at a degree to optimize solar efficiency. The project site plan includes the fixed tilt arrays on the southern portion of the project site and the tracker systems on the northern portion of the project site (see Figures B-1 and B-3). For the tracking configuration, the modules would rotate from east to west over the course of the day. Modules would be non-reflective and highly absorptive. During construction, the PV modules would be delivered to the project site to support the installation schedule. The construction staging area would be within the project site; no staging area is proposed offsite.

**B.4.3 Installation, Array Assembly, and Racking**

As noted above, the applicant has not selected the actual module system, which they have indicated would be determined using the final system design. The systems under consideration for the proposed project include fixed-tilt, single-axis trackers, and dual-axis trackers, which provide various levels of energy efficiencies.
The module mounting system provides the structure that supports the PV module arrays. The foundations are typically pipes/piles driven into the soil using pneumatic techniques, similar to hydraulic pile driving. The final foundation design would be determined based on the geotechnical survey for the proposed project. Once the foundation has been installed, the module racking system would be installed to support the PV modules. For a tracking configuration, motors would be installed to drive the tracking mechanism.

The module mounting system would be oriented in rows within the PV design block reflecting a standard and uniform appearance across the facility. The module configuration would be uniform in height and width, although the actual height of the arrays would vary due to ground elevations. The applicant has indicated that tracker panels would be approximately 4.5 feet in height when in a horizontal position and approximately 5.5 to 6 feet high when in a pitched position. Fixed panels would be approximately 5 to 6 feet high.

The proposed project includes minimal grading for roads, concrete pad areas, and to level existing bermed areas onsite. The applicant has committed to minimize dust generation throughout construction, during grading and other site activities, and during operation of the facility.

B.4.4 Direct Current Collection, Inverters, Alternating Current Collection and Transformers

Modules would be electrically connected into strings. Each string would be funneled by electrical conduit underground to combiner boxes located throughout the solar field power blocks. The output power cables from the combiner boxes would again be consolidated and feed the direct current (DC) electricity to inverters which convert the DC to AC. Similar to other solar facilities in the project area, each inverter would be fully enclosed, pad mounted, and stand approximately 95 inches (~8 feet) in height. The AC output of two inverters would be fed via underground cable into the low-voltage side of the inverter step-up transformer generally within 20 feet of the inverters. The underground electrical cables would be installed using standard trenching techniques.

B.4.5 SGF Switching Station

The switching station area would be excavated for the transformer equipment, control building foundation, and oil containment area. Reinforced concrete is used for foundations. The switching station would be placed on the southern end of the solar facility approximately 1,000 feet from the site boundary.

Structural components in the switching station would include:

- Transformers, switchgear, and safety systems and
- Footings and oil containment system for the transformers.

The transformer, approximately 87 inches (~7 feet) in height, would be pad mounted and enclosed together with switchgear and a junction box. The high-voltage output of the transformer would be combined in series via underground collector cable to the junction box of the transformer in closest proximity. Distances can range from 60 feet to 700 feet throughout the project site. The collector system cables would be tied at underground junction boxes to the main underground collector cables, composed of a larger gauge wire, to the location of the generator step-up transformer (GSU). The main collector cables would rise into the low-voltage busbar and protection equipment that is enclosed together with the GSU. The primary switchgear includes the main circuit breaker and utility metering equipment, and would be enclosed separately and pad mounted together with the GSU. Both the GSU and the primary switchgear stand approximately 87 inches (~7 feet) in height. The output of the switchgear would be the start of the gen-tie.
B.4.6 Data Collection System

The proposed project would be designed with a Supervisory Control and Data Acquisition (SCADA) system for remote monitoring of facility operations and/or remote control of critical components. Within the project site, the fiber optic or other cabling required for the monitoring system would be installed throughout the solar field leading to a centrally located (or series of appropriately located) SCADA cabinets. The telecommunications connections to the SCADA system cabinets are either wireless or hard wired.

The system would also include a meteorological (met) data collection system. The met station would have the following weather sensors: a pyranometer for measuring solar irradiance, a thermometer to measure air temperature, a barometric pressure sensor to measure atmospheric pressure, and two wind sensors to measure speed and direction. These sensors would be connected to a data logger to compile the data for transmission to the data collection center.

B.5 Generation-Tie and Communication Line

The SGF would connect to two previously approved collector substations located along West Avenue J between 105th Street West and the Antelope Substation through multiple 34-kV and 66-kV gen-tie lines. Once electricity reaches the collector substations it would be stepped up to 66 kV and 220 kV and would ultimately be delivered to the existing SCE Antelope Substation. Fiber optic communication lines would be collocated with the gen-tie lines.

To provide flexibility in the selection of the gen-tie and communication route, the applicant has identified several possible routes, which generally go south from the east, center, and west sides of the SGF. The gen-tie and communication routes would be placed underground and could be placed in any of the following roadways:

- West Avenue H between 90th Street West and 110th Street West;
- West Avenue J between 90th Street West and 110th Street West;
- 110th Street West, 100th Street West, and 90th Street West between West Avenue H and West Avenue J;
- Parallel to Lancaster Boulevard between 90th Street West and 105th Street West; and
- Private land between Lancaster Boulevard and West Avenue J and between 105th Street West and 100th Street West.

The applicant would use one main path of approximately 2- to 4-miles for the gen-tie and communication line route, but would like the flexibility to use any combination of paths or routes, if necessary, depending on the final project design and property negotiations. To provide this flexibility, this EIR identifies and describes the possible routes for the gen-tie and communication lines as separate routes even though any combination of routes could be developed as part of the proposed project. Figure B-4 shows the location of these routes. These routes have been defined as follows:

- **City Route:** This goes south from the center of the SGF along 100th Street West. This route would jog to the west just north of Lancaster Boulevard and then go south east of 105th Street W. This route would be completely within the jurisdiction of the City of Lancaster.
Figure B-4
Potential Generation Tie and Communication Line Routes

B. PROJECT DESCRIPTION

Existing/Approved Collector Substations
Gen-Tie and Communication Line Route

Solar Generating Facility
City of Lancaster
County Jurisdiction

Del Sur Solar Project

Del Sur Elementary School

Antelope Substation
- **Center Route**: This route extends south all the way from West Avenue H to West Avenue J along 100th Street West and would be primarily in the jurisdiction of the City of Lancaster. The southern portion of the route would be within the jurisdiction of the County of Los Angeles.

- **Western Route**: This potential route would leave the SGF and then veer west along West Avenue H to 110th Street West where it would go directly south to West Avenue J. On West Avenue J, the line would go east to the collector substations. This route would be primarily within the jurisdiction of the County of Los Angeles.

- **Eastern Route**: This potential route would leave the SGF and then veer east along West Avenue H to 90th Street West where it would go directly south to West Avenue J. On West Avenue J, the line would go west to the collector substations. This route would be within the jurisdiction of the City of Lancaster and the County of Los Angeles.

In addition to the potential gen-tie and communication line routes noted above, the proposed project includes a line extension from proposed switchgear that would be built as part of a separate and previously approved solar project. Figure B-4 shows this line extension going west from 95th Street West to 100th Street West; this line would originate from proposed switchgear near Lancaster Boulevard and 95th Street West and would go west into the proposed project gen-tie and communication corridor at 100th Street West. The line would then traverse south to connect into one of the collector substations on West Avenue J.

For those areas of the gen-tie and communication line routes that are within the jurisdiction of the County of Los Angeles, the applicant would need to obtain grading and building permits and possibly a franchise agreement from the County. These ministerial permits would be addressed after the decision on the City CUPs and GPA/ZC, which are discretionary actions.

### B.6 Solar Project Construction

Project construction would consist of three major phases:

1. Site preparation;
2. PV system installation, testing, and startup; and
3. Site cleanup and restoration.

The applicant would prepare a storm water pollution prevention plan (SWPPP), which would incorporate best management practices (BMPs) for erosion control. The proposed project would also comply with applicable post-construction water quality standards adopted by the Regional Water Quality Control Board or the State Water Resources Control Board. Construction of the proposed project, beginning with site preparation and grading, if required, through equipment set up and commencement of commercial operation, is expected to last up to 12 months. The applicant has committed to implementing all required measures and BMPs as determined by the City of Lancaster and responsible agencies.

#### B.6.1 Site Preparation

Construction of the PV facility would begin with initial clearing and grading (if required) of the staging areas. Access to the project site would be improved to appropriate construction standards. The onsite staging areas would typically include construction offices, a first aid station and other temporary buildings, worker parking, truck loading and unloading facilities, and an area for assembly. Road corridors would be surveyed, cleared, and graded to bring equipment, materials, and workers to the areas under construction. Buried electrical lines, PV array locations, and the locations of other facilities may be flagged.
and staked to guide construction activities. The applicant would install a security fence around the perimeter of the project site, which would include at least two gates. A secured controlled main access gate would be located at the entrance on West Avenue G.

Best management practices for erosion control during site preparation would be employed during installation of initial erosion and sedimentation controls. In addition, water truck refilling stations (as required) would be established for dust control.

**B.6.2 PV System Installation**

PV system installation would include earthwork, grading, and erosion control, as well as erection of the PV modules, supports, and associated electrical equipment. System installation would begin with teams installing the mounting and steel piers support structures. The exact design would be finalized pending specific soil conditions. The pile installation methods will include hydraulic or vibratory driven piles. This activity would be followed by panel installation and electrical work.

Concrete may be required for the footings and foundations, and would be required for pads for the transformers. Concrete would be produced at an off-site location by a local provider and transported to the project site by truck. The enclosures housing the inverters would have pre-cast concrete bases. Final concrete specifications would be determined during detailed design engineering and would meet applicable building codes. The PV modules require a moderately flat surface for installation. Some earthwork, including grading, fill, compaction, and erosion control cultivation may be required to accommodate the placement of PV arrays, foundations or footings, access roads, and drainage features. Control of erosion during construction would be determined by a California Qualified SWPPP Developer ("QSD"). Construction of the PV arrays would include installation of support beams, module rail assemblies, PV modules, inverters, transformers, and buried electrical cables.

Wastes that would be generated during construction may include the following: cardboard, wood pallets, copper wire, scrap steel, common trash, and wood wire spools. The applicant does not expect to generate hazardous waste during construction of the proposed project. However, field equipment used during construction would contain various hazardous materials such as hydraulic oil, diesel fuel, grease, lubricants, solvents, adhesives, paints, and other petroleum-based products. To address these hazardous materials, the applicant would develop and implement a Hazardous Materials Management Plan.

**B.6.3 Construction Workers, Hours, and Equipment**

The construction activities are expected to be completed in approximately 12 months. The onsite workforce would consist of laborers, various skilled trades, supervisory personnel, support personnel, and construction management personnel. Proposed project construction would take 240 calendar days during daylight hours, Monday through Saturday, with the exception of water trucks that ensure dust control every day during the construction schedule.

Construction activities would be conducted consistent with City of Lancaster regulations regarding hours of construction. The proposed project would generate an estimated 250 new jobs during the construction phase and would provide approximately one full-time position (offsite) during operation and maintenance activities. The proposed project may generate an estimated 500 truck trips for delivery of supplies to the project site. Table B-1 provides detailed information on the construction equipment and timeframe for construction activities.
### Table B-1. Construction Equipment and Trip Assumptions

#### Phase 1 – Site Preparation (3 months; 0 - 90 calendar days; 76 working days)

<table>
<thead>
<tr>
<th>Off-Road Equipment Type</th>
<th>Number</th>
<th>Horsepower</th>
<th>Hours/Day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rollers/Mowers</td>
<td>2</td>
<td>87</td>
<td>4</td>
</tr>
<tr>
<td>Rough Terrain Forklift</td>
<td>2</td>
<td>93</td>
<td>6</td>
</tr>
<tr>
<td>Dozers</td>
<td>2</td>
<td>357</td>
<td>6</td>
</tr>
<tr>
<td>Tractors/Loaders/Backhoes</td>
<td>3</td>
<td>108</td>
<td>5</td>
</tr>
<tr>
<td>Skid Steer Loader</td>
<td>4</td>
<td>61</td>
<td>6</td>
</tr>
<tr>
<td>Utility Vehicles</td>
<td>4</td>
<td>49</td>
<td>4</td>
</tr>
</tbody>
</table>

#### On-Road Trips

<table>
<thead>
<tr>
<th>Trips</th>
<th>Miles/Trip</th>
<th>Unpaved/Trip</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employee Commute</td>
<td>2,000</td>
<td>30</td>
</tr>
<tr>
<td>Work Trucks</td>
<td>304</td>
<td>30</td>
</tr>
<tr>
<td>Heavy Haul Trucks</td>
<td>100</td>
<td>30</td>
</tr>
<tr>
<td>Water Truck</td>
<td>90</td>
<td>30</td>
</tr>
<tr>
<td>Fuel Truck</td>
<td>18</td>
<td>30</td>
</tr>
</tbody>
</table>

#### Phase 2 – Facility Installation (6 months; 21 - 200 calendar days; 155 working days)

<table>
<thead>
<tr>
<th>Off-Road Equipment Type</th>
<th>Number</th>
<th>Horsepower</th>
<th>Hours/Day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pile Driver Rigs (hydraulic/vibratory)</td>
<td>8</td>
<td>50</td>
<td>8</td>
</tr>
<tr>
<td>Crane</td>
<td>1</td>
<td>399</td>
<td>4</td>
</tr>
<tr>
<td>Rough Terrain Forklift</td>
<td>3</td>
<td>93</td>
<td>6</td>
</tr>
<tr>
<td>Trencher/Loaders/Backhoes</td>
<td>3</td>
<td>108</td>
<td>6</td>
</tr>
<tr>
<td>Skid Steer Loader</td>
<td>2</td>
<td>61</td>
<td>6</td>
</tr>
<tr>
<td>Utility Vehicles</td>
<td>3</td>
<td>49</td>
<td>4</td>
</tr>
</tbody>
</table>

#### On-Road Trips

<table>
<thead>
<tr>
<th>Trips</th>
<th>Miles/Trip</th>
<th>Unpaved/Trip</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employee Commute</td>
<td>38,750</td>
<td>30</td>
</tr>
<tr>
<td>Work Trucks</td>
<td>620</td>
<td>30</td>
</tr>
<tr>
<td>Heavy Haul Trucks (off-road equipment delivery/removal)</td>
<td>60</td>
<td>30</td>
</tr>
<tr>
<td>Heavy Haul Trucks (concrete)</td>
<td>388</td>
<td>30</td>
</tr>
<tr>
<td>Heavy Haul Trucks (other bulk materials)</td>
<td>125</td>
<td>30</td>
</tr>
<tr>
<td>Heavy Haul Trucks (panels and arrays)</td>
<td>600</td>
<td>60</td>
</tr>
<tr>
<td>Heavy Haul Trucks (balance of facility)</td>
<td>120</td>
<td>60</td>
</tr>
<tr>
<td>Miscellaneous Delivery Trips</td>
<td>400</td>
<td>30</td>
</tr>
<tr>
<td>Water Truck</td>
<td>540</td>
<td>30</td>
</tr>
<tr>
<td>Fuel Truck</td>
<td>129</td>
<td>30</td>
</tr>
</tbody>
</table>

#### Phase 3 – Commissioning/Finishing (1.5 months; 201 - 240 calendar days; 35 working days)

<table>
<thead>
<tr>
<th>Off-Road Equipment Type</th>
<th>Number</th>
<th>Horsepower</th>
<th>Hours/Day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Utility Vehicles</td>
<td>2</td>
<td>49</td>
<td>4</td>
</tr>
<tr>
<td>Skid Steer Loader</td>
<td>2</td>
<td>61</td>
<td>6</td>
</tr>
<tr>
<td>Trencher/Loader/Backhoe</td>
<td>4</td>
<td>108</td>
<td>6</td>
</tr>
<tr>
<td>Rough Terrain Forklift</td>
<td>2</td>
<td>93</td>
<td>6</td>
</tr>
</tbody>
</table>
Table B-1. Construction Equipment and Trip Assumptions

<table>
<thead>
<tr>
<th>On-Road Trips</th>
<th>Trips</th>
<th>Miles/Trip</th>
<th>Unpaved/Trip</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employee Commute</td>
<td>1,750</td>
<td>30</td>
<td>1</td>
</tr>
<tr>
<td>Work Trucks</td>
<td>140</td>
<td>30</td>
<td>10</td>
</tr>
<tr>
<td>Heavy Haul Trucks (off-road equip delivery/removal)</td>
<td>40</td>
<td>30</td>
<td>1</td>
</tr>
<tr>
<td>Heavy Haul Trucks (other/miscellaneous)</td>
<td>10</td>
<td>30</td>
<td>1</td>
</tr>
<tr>
<td>Water Truck</td>
<td>40</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>Fuel Truck</td>
<td>35</td>
<td>30</td>
<td>1</td>
</tr>
</tbody>
</table>

B.7 Solar Project Operation and Maintenance

Upon commissioning, the proposed project would enter the operational phase. For the duration of the operational phase, the proposed project would be operated on an unstaffed basis and monitored remotely, with regular on-site personnel visitations for security, maintenance, and system monitoring. While there would be one full-time personnel for operation and maintenance, there would be no personnel on-site during operation. As the proposed project's PV arrays produce electricity passively with minimal moving parts, maintenance requirements would be limited. Any required planned maintenance would be scheduled to avoid peak load periods, and unplanned maintenance would occur as needed depending on the event. An inventory of spare components would be readily available from a remote warehouse facility.

B.7.1 Operation

During operation of the proposed project, the applicant would:

- Respond to automated alarms based on monitored data, including actual versus expected tolerances for system output and other key performance metrics, and
- Communicate with customers, transmission system operators, and other entities involved in facility operation.

B.7.2 Maintenance

Maintenance performed on the project site would consist of equipment inspection and replacement. Maintenance would occur during daylight hours, when possible. However, maintenance activities on the PV modules and DC systems would be typically performed at night. The application identifies the following maintenance program elements:

- Managing a group of prequalified maintenance and repair firms who can meet the operation and maintenance needs of the facility throughout its life.
- Implementing a responsive, optimized cleaning schedule.
- Responding to facility emergencies and failures in a timely manner.
- Maintaining an inventory of spare parts to ensure timely repairs and consistent facility output.
- Maintaining a log to effectively record and track all maintenance problems.
- Performing maintenance on the project site as required to clear obstructive ground cover.
The applicant has estimated that maintenance staff would visit the project site approximately two times per year to clean the PV modules and would be on site seasonally to clear vegetation. The applicant may also use grazing animals to control vegetation on the site.

**B.7.3 Security Fencing**

To ensure the safety of the public and the facility, the property would be fenced and signs posted. The proposed project would include a 6- to 8-foot security fence with three-strand barbed wire. Security measures would be installed as necessary to mitigate and/or deter unauthorized access. Access to the project site would be controlled and gates installed at property entrances.

**B.7.4 Landscaping**

The proposed project would include a 10-foot wide landscape area around portions of the project site. The picture shows new landscaping completed on another solar project as an example of how the project would look with landscaping and perimeter fencing. The landscaping would include drought tolerant plants and would be placed along West Avenue G, along the eastern portion of West Avenue H, and on the western boundary of the project site (see Figure B-3).

**B.7.5 Water Use**

Approximately 196 acre-feet of water would be required during construction, with actual consumption strongly dependent upon climatic conditions. Construction water needs would be limited to soil conditioning and dust suppression. Potable water would be brought to the project site for drinking and domestic needs.

During the operational phase, solar PV facilities require minimal water use. The annual water consumption for operation of the facility, including periodic PV module washing, is expected to be 4.8 acre-feet.

Because solar panels are susceptible to damage and become inefficient with the use of poor-quality water, the purchase of high-quality water or the process of filtering water on-site may be necessary. If filtered water is used, no onsite pond or basin would be necessary for filtering water. Potential sources of water may include water from an established well on an adjacent property (with a water supply agreement) or reclaimed water. Reclaimed water is available from the Reclamation District at a filling station located at Division Street and West Avenue H, approximately ten miles from the project site.

**B.7.6 Fire Control**

The PV modules and ancillary equipment represent a negligible fire risk. The proposed project includes several 10,000 gallon fire water tanks, which would be placed at the entrances and exits to the project site as required and approved by the Los Angeles County Fire Department and the City. In addition, the applicant would adhere to all applicable requirements of the Los Angeles County Fire Department regulations.
B.7.7 Solid and Non-Hazardous Waste

The proposed project would produce a small amount of solid waste associated with maintenance activities. The SGF wastes may include broken and rusted metal, defective or malfunctioning modules, electrical hardware, empty containers, and other miscellaneous solid wastes, including the typical refuse generated by workers. These materials would be collected and separated for recycling where available. Any defective or broken solar modules would be returned to the manufacturer for recycling.

B.7.8 Hazardous Waste

The applicant anticipates the level of hazardous materials used or waste generated on the project site to be negligible. Used biodegradable dielectric fluid and mineral oil from the transformers and miscellaneous electrical equipment are potentially hazardous materials. The spent oil would be collected and delivered to a recycling company at the time it is removed from the equipment. This material would not be stored on-site.

B.8 Solar Project Decommissioning

The applicant would decommission and remove the system and its components at the end of the life of the facility. The project site could then be converted to other uses in accordance with applicable land use regulations in effect at that time. All decommissioning and restoration activities would adhere to the requirements of the appropriate governing authorities and would be in accordance with all applicable federal, State and City of Lancaster regulations. The applicant would employ a collection and recycling program to dispose of the site materials.
C. Environmental Setting, Analysis, and Mitigation Measures

C.1 Introduction to Environmental Analysis

Section C describes the environmental assessment methodology used to identify potential environmental impacts associated with the construction, operation, maintenance, and decommissioning of the proposed Del Sur Solar Project (proposed project). Each individual issue area discussion in Section C includes an overview of the project site’s regional, local, and regulatory setting. Section C.1.3 (Cumulative Scenario and Methodology) includes a list of related projects, which is used as the basis for the discussion of cumulative impacts discussed in this section.

C.1.1 Organization of Section C

Based on the California Environmental Quality Act (CEQA) requirements, Section C evaluates twelve issue areas. As discussed in Section A (Introduction), the City prepared and published a Notice of Preparation (NOP) in February 2015 and held a 30-day comment period as required by CEQA. Eight comment letters from agencies and the public were submitted in response to this NOP (see Table A-1 in Section A). The analysis in this Environmental Impact Report (EIR) considers the scoping comments received on the NOP prepared for the proposed project and distributed to the public, regulatory agencies, and other interested parties. Based on the NOP and the scoping comments, this EIR evaluates the following environmental issue areas:

- C.2 Aesthetics
- C.3 Agricultural Resources
- C.4 Air Quality and Greenhouse Gases
- C.5 Biological Resources
- C.6 Cultural and Paleontological Resources
- C.7 Geology and Soils
- C.8 Hazards and Hazardous Materials
- C.9 Hydrology and Water Quality
- C.10 Land Use, Population, and Recreation
- C.11 Noise
- C.12 Public Services, Utilities, and Service Systems
- C.13 Transportation and Traffic

C.1.2 Environmental Assessment Methodology

The methodology used to determine potential project impacts consists of four key components. Each of these components are summarized below and discussed in each issue area in Sections C.2 through C.13, which follow this introduction. Refer to Section C.1.3 for the Cumulative Scenario and Methodology, and Section D, Alternatives, for more information on project-related impacts.

- **Environmental Setting.** The environmental setting describes existing conditions on the project site that may change as a result of the construction, operation, maintenance, and decommissioning of the proposed project. Pursuant to CEQA Guidelines (Section 15125(a)), the environmental setting used for the impact analysis reflects the conditions at the time of the issuance of the NOP (February 2015).

- **Regulatory Setting.** Each issue area includes a description of current land use policies and requirements that apply to the proposed project.

- **Environmental Impacts and Mitigation.** This section evaluates the environmental impacts of the proposed project based on predetermined, specific significance criteria. In determining the significance of impacts, the assessment considers the ability of existing agency requirements to reduce potential
impacts. If an adverse impact is potentially significant despite existing requirements, mitigation measures are proposed to reduce or avoid the impact. Mitigation measures are only required for significant adverse impacts. Once impacts and mitigation measures, as applicable, are presented the “level of significance after mitigation” is determined.

- **Cumulative Impact Analysis.** This section addresses the geographic extent of the cumulative analysis and cumulative impacts for each environmental issue area.

**Impact Significance**

While the criteria for determining significant impacts are unique to each issue area, the analysis in this EIR applies a uniform classification of the impacts based on the following definitions:

- **Class I:** Significant impact; cannot be mitigated to a level that is less than significant.
- **Class II:** Significant impact; can be mitigated to a level that is less than significant through the implementation of recommended mitigation measures.
- **Class III:** Adverse impact; but less than significant so mitigation is not normally recommended.
- **Class IV:** Beneficial impact; mitigation is not required.
- **No Impact.**

**C.1.3 Cumulative Scenario and Methodology**

Cumulative effects are those impacts from related projects that would occur in conjunction with the proposed project. To document the process used to determine cumulative impacts, this section provides the CEQA requirements, the methodology used in the cumulative assessment, and the projects identified and applicable to the cumulative analysis. Sections C.2 through C.13 provide the analysis of cumulative impacts by environmental issue area.

**CEQA Requirements**

CEQA requires that cumulative impacts be analyzed in an EIR when the resulting impacts are cumulatively considerable, and therefore, potentially significant. The discussion of cumulative impacts must reflect the severity of the impacts, as well as the likelihood of their occurrence; however, the discussion does not need to be as detailed as the discussion of environmental impacts attributable to the proposed project alone. Further, the discussion is intended to be guided by the standards of practicality and reasonableness. As stated in Public Resources Code Section 21083(b), “a project may have a significant effect on the environment if the possible effects of a project are individually limited but cumulatively considerable.”

According to Section 15355 of the 2015 CEQA Statute and Guidelines:

> Cumulative impacts refer to two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts.

(a) The individual effects may be changes resulting from a single project or a number of separate projects.

(b) The cumulative impact from several projects is the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts
can result from individually minor but collectively significant projects taking place over a period of time.

Further, according to CEQA Guidelines Section 15130 (a)(1):

As defined in Section 15355, a cumulative impact consists of an impact which is created as a result of the combination of the project evaluated in the EIR together with other projects causing related impacts. An EIR should not discuss impacts which do not result in part from the project evaluated in the EIR.

In addition, as stated in the CEQA Guidelines, Section 15064(h)(4) it should be noted that:

The mere existence of significant cumulative impacts caused by other projects alone shall not constitute substantial evidence that the proposed project’s incremental effects are cumulatively considerable.

Therefore, the cumulative discussion in an EIR focuses on whether the impacts of the project under review are cumulatively considerable within the context of impacts caused by other past, present, or future projects. The technical analyses in Sections C.2-C.13 (Cumulative Impact Analysis) include the cumulative impact discussions for each issue area.

**Cumulative Development Scenario**

Table C.1-1 lists current development projects within a two-mile radius of the project site, and all utility-scale renewable energy projects within the western Antelope Valley (County of LA 2015a and 2015b). The location of cumulative projects are also depicted on Figure C.1-1.

**Table C.1-1. Cumulative Project List**

<table>
<thead>
<tr>
<th>Project</th>
<th>Type and Size</th>
<th>Location</th>
<th>Status</th>
<th>Map No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>City of Lancaster</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TA High Desert CUP 10-03</td>
<td>Solar – 20 MW 216 acres</td>
<td>Generally bounded by W Ave H, Lancaster Blvd, 97th St W, 100th St W</td>
<td>Operational</td>
<td>1</td>
</tr>
<tr>
<td>Portal Ridge Solar CUP 10-22</td>
<td>Solar – 38 MW 180 acres</td>
<td>Generally bounded by W Ave H, 90th St W, 80th St W, Ave H-4/Ave H-8</td>
<td>Approved, not constructed, construction anticipated to start in January 2016</td>
<td>2</td>
</tr>
<tr>
<td>TSK Solar CUP 11-02</td>
<td>Solar – 3.4 MW 18 acres</td>
<td>East side of 90th St W between Ave K-8 and Ave K-12</td>
<td>Operational</td>
<td>3</td>
</tr>
<tr>
<td>Rodeo &amp; Lancaster Dry Farm Ranch B CUP 11-03</td>
<td>Solar – 9 MW 67 acres</td>
<td>Southwest corner of 90th St W and W Ave H</td>
<td>Operational</td>
<td>4</td>
</tr>
<tr>
<td>Antelope Big Sky Ranch CUP 11-05</td>
<td>Solar – 20 MW 80 acres</td>
<td>East side of 80th St W between Ave J-4 and Ave J-8</td>
<td>Approved, not constructed</td>
<td>5</td>
</tr>
<tr>
<td>Plainview Solar CUP 11-07</td>
<td>Solar – 10 MW 40 acres</td>
<td>Southeast corner of 110th St W and W Ave J</td>
<td>Operational</td>
<td>6</td>
</tr>
<tr>
<td>Summer Solar CUP 12-08</td>
<td>Solar – 12 MW 135 acres</td>
<td>Generally bounded by W Ave H, W Ave G, 90th St W, and 93rd St W</td>
<td>Operational</td>
<td>7</td>
</tr>
<tr>
<td>Springtime Solar CUP 12-09</td>
<td>Solar – 40 MW 160 acres</td>
<td>Southwest corner of W Ave H and 100th St W</td>
<td>Approved, not constructed</td>
<td>8</td>
</tr>
<tr>
<td>Horn 4097 CUP 12-11</td>
<td>Solar – 1.5 MW 20 acres</td>
<td>Northwest corner of 80th St W and Ave H-12</td>
<td>Operational</td>
<td>9</td>
</tr>
</tbody>
</table>
**Table C.1-1. Cumulative Project List**

<table>
<thead>
<tr>
<th>Project</th>
<th>Type and Size</th>
<th>Location</th>
<th>Status</th>
<th>Map No.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>City of Lancaster</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Western Antelope Blue Sky Ranch A</td>
<td>Solar – 30 MW 254 acres</td>
<td>Generally bounded by W Ave J, Ave J-8, 110th St W, and 97th St W</td>
<td>10 MW operational, remainder anticipated to be constructed 2016</td>
<td></td>
</tr>
<tr>
<td>Lancaster Energy Center</td>
<td>Solar – 150 MW 1,191 acres</td>
<td>Generally bounded by W Ave K, the aqueduct, 105th St W, 80th St W</td>
<td>Under review</td>
<td>11</td>
</tr>
<tr>
<td><strong>Los Angeles County</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Antelope Solar Greenworks</td>
<td>Solar – 52 MW 256 acres</td>
<td>Generally bounded by W Ave I, W Ave J, 100th St W, and 85th St W</td>
<td>Approved</td>
<td>12</td>
</tr>
<tr>
<td>Silver Sun Greenworks</td>
<td>Solar – 20 MW 80 acres</td>
<td>W Ave I and W Lancaster Rd</td>
<td>Approved</td>
<td>13</td>
</tr>
<tr>
<td>West Antelope Solar Project</td>
<td>Solar – 20 MW 263 acres</td>
<td>West of 110th St West and W Ave J</td>
<td>Approved</td>
<td>14</td>
</tr>
<tr>
<td>Western Antelope Blue Sky Ranch</td>
<td>Solar – 40 MW 160 acres</td>
<td>West of 110th St West and north of W Ave K</td>
<td>Approved</td>
<td>15</td>
</tr>
<tr>
<td>American Solar Greenworks</td>
<td>Solar – 35 MW 140 acres</td>
<td>Southwest corner of W Ave G and 70th St W</td>
<td>Approved</td>
<td>16</td>
</tr>
<tr>
<td>Lancaster WAD</td>
<td>Solar – 5 MW 39 acres</td>
<td>North of Hwy 138 and west of 30th St W</td>
<td>Approved</td>
<td>17</td>
</tr>
<tr>
<td>Rutan</td>
<td>Solar – 4 MW 45 acres</td>
<td>Southeast corner of W Ave M and 20th St W</td>
<td>Approved</td>
<td>18</td>
</tr>
<tr>
<td>AV Solar Ranch One</td>
<td>Solar – 230 MW 2,100 acres</td>
<td>Generally bounded by 180th St W, 155th St W, Ave B-B, and Ave E</td>
<td>Approved</td>
<td>19</td>
</tr>
<tr>
<td>Antelope Valley Solar</td>
<td>Solar – 156 MW 1,238 acres</td>
<td>East of 170th St W and north of Ave D</td>
<td>Approved</td>
<td>20</td>
</tr>
<tr>
<td>Alpine Solar</td>
<td>Solar – 92 MW 800 acres</td>
<td>East of 210th St W and north of Ave D</td>
<td>Approved</td>
<td>21</td>
</tr>
<tr>
<td>Alpine Solar Addition</td>
<td>35 acres</td>
<td></td>
<td>Approved</td>
<td>22</td>
</tr>
<tr>
<td>Quail Lake Photovoltaic Solar</td>
<td>Solar – 100 MW 692 acres</td>
<td>East of 300th St W and north of W Lancaster Rd</td>
<td>Initial Review</td>
<td>23</td>
</tr>
</tbody>
</table>

**Cumulative Impact Methodology**

The area within which a cumulative effect can occur varies by resource. For example, air quality impacts tend to disperse over a large area, while traffic impacts are typically more localized. For this reason, the geographic scope for the analysis of cumulative impacts must be identified for each resource area.

The analysis of cumulative effects considers a number of variables including geographic (spatial) limits, time (temporal) limits, and the characteristics of the resource being evaluated. The geographic scope of each analysis is based on the topography surrounding the proposed project and the natural boundaries of the resource affected, rather than jurisdictional boundaries. The geographic scope of cumulative effects will often extend beyond the scope of the direct effects, but not beyond the scope of the indirect effects of the proposed project. In addition, each project (see Table C.1-1), has its own implementation schedule, which may or may not coincide or overlap with the proposed project’s schedule.
Cumulative impacts may represent a “worst-case” scenario because some of the related projects may not be built or some related projects may be completed prior to the initiation of proposed project construction. In addition, related projects would be subject to unspecified mitigation measures, which would reduce potential impacts.

C.1.4 Mitigation Measures

Where potentially significant impacts are identified in this section, mitigation measures are recommended. Each mitigation measure defines the specific requirements to reduce impacts, and also defines the relevant milestone (the timeframe within which the measure must be implemented).

C.1.5 Mitigation Monitoring

Public Resources Code Section 21081.6 establishes two distinct requirements for agencies involved in the CEQA process. Subdivisions (a) and (b) of the section relate to mitigation monitoring and reporting, and the obligation to mitigate significant effects where possible. Pursuant to subdivision (a), whenever a public agency completes an EIR and makes a finding pursuant to Section 21081(a) of the Public Resources Code taking responsibility for mitigation identified in the EIR, the agency must adopt a program of monitoring or reporting, which will ensure that mitigation measures are complied with during implementation of the project.

As required by CEQA and depending on the decision on the proposed project, the City would adopt a mitigation and monitoring program to ensure compliance with the recommended mitigation measures identified in this EIR. The mitigation and monitoring program for the proposed project will be included in the Final EIR consistent with CEQA requirements.
C. ENVIRONMENTAL SETTING, ANALYSIS, AND MITIGATION MEASURES

Figure C.1-1
Cumulative Projects
C.2 Aesthetics

This section evaluates potential visual impacts to the landscape associated with construction and operation of the proposed project, which would construct a solar generating facility (SGF) and supporting infrastructure on 725 acres within the western portion of the City of Lancaster. The study area for the aesthetics analysis is defined by four public viewpoints proximate to the project site.

C.2.1 Environmental Setting

The consideration of visual resources and general aesthetics utilizes resource-specific quantitative and qualitative terminology. The following terms are utilized within this section to describe visual resources:

- **Viewshed**: The landscape that can be directly seen under favorable atmospheric conditions, from a particular point/area or along a transportation corridor.
  - Foreground View: 0–1 mile.
  - Middleground View: 1–3 miles.
  - Background View: >3 miles.
- **Visual Quality**: The relative value of a landscape from a visual perception point of view.
- **Visual sensitivity**: The concern by viewers with changes to visual quality. Visual sensitivity is generally higher in natural or unmodified landscapes.
- **Visual Contrast**: Opposition or unlikeness of different forms, lines, colors, or textures in a landscape. Generally, increased visual contrast within foreground distances would be more noticeable to viewers than increased visual contrast within background distances.

Affected Environment

Existing land uses surrounding the project site consist primarily of open space and agricultural lands, rural residential, and ground mounted solar developments. From public observer positions, four locations were selected as key observation points (KOPs) that provide viewsheds of the project site. These KOPs represent the four locations found to have the highest potential for visual sensitivity and define the aesthetics study area for analysis. All KOP locations provide unobstructed public views of the project site. Figure C.2-1 illustrates the location and direction of each KOP in relation to the project site. As shown in Figure C.2-1:

- **KOP 1** represents public views from the intersection of West Avenue G and 110th Street West facing southeast, where an existing residence is located.
- **KOP 2** represents public views from 90th Street West, south of the residential area of Antelope Acres, looking to the southwest.
- **KOP 3** represents public views from 90th Street West, just north of Del Sur Elementary School and the intersection of West Avenue H, looking west.
- **KOP 4** represents public views from the intersection of 110th Street West and West Avenue I, looking northeast.
C. ENVIRONMENTAL SETTING, ANALYSIS, AND MITIGATION MEASURES

Del Sur Solar Project

Figure C.2-1
KOP Photo Key

1. Private Residential
2. Antelope Acres
3. Elementary School & 90th Street West
4. Northbound 110th Street West

Proposed Project Site

0 3000 6000 Feet

C-2.2
Figures C.2-2a and C.2-2b summarize existing views from KOPs 1 through 4. The following provides a description of each KOP viewshed.

**KOP 1**
At this location, the predominant visual elements are surface vegetation and existing electrical transmission infrastructure (Figure C.2-2a). The surface vegetation of low green and tan grasses creates coarse visual textures, creating a horizontal plane of tertiary cool colors in the foreground. However, the visual quality of foreground views is likely punctuated by the difference in season and browning of grasses. The foreground-middleground view is also dominated by the presence of tubular steel poles and an existing transmission line within the project site. The background view is framed by the skyline and rolling hills and eventual development of the San Gabriel Mountains within the Angeles National Forest to the south. The skyline is a focal point, drawing the viewer’s eye to the curving lines of the horizon. With the exception of the single transmission line, the landscape exhibits a moderately high degree of intactness and coherence of form and character without substantial visual variety. The presence of the transmission line within KOP 1 adds an inherent industrial character that diminishes the visual quality of the existing landscape.

**KOP 2**
Within the Lancaster General Plan Master Environmental Assessment, 90th Street West is designated as a Scenic Route (Lancaster 2009a). As shown in Figure C.2-2a, views from KOP 2 are similar to those described for KOP 1. However, KOP 2 extends foreground views of vegetation and open area, with views of existing transmission line less visible in the middleground. From this viewshed, the existing tree line horizontally frames background views of the San Gabriel Mountains to the southwest. The predominant visual elements across KOP 2 are surface vegetation and background mountain views. The landscape exhibits a moderately high degree of intactness and coherence of form and character, with the changing landscape only visible in the distant middleground view providing moderate visual quality.

**KOP 3**
Views from KOP 3 are similar to those described for KOPs 1 and 2. Similar to KOP 2, the view from KOP 3 contains only minimal urban development (transmission line) visible in the background (Figure C.2-2b). This transmission line is barely visible against background views of rolling hills and the San Gabriel Mountains to the west. The predominant visual elements across KOP 3 are surface vegetation and low-lying background mountain views. The landscape exhibits a moderately high degree of intactness and coherence of form and character, with the changing landscape only visible in the background thus providing moderate to high visual quality.

**KOP 4**
Views from KOP 4 show a similar surface texture and color as that of KOPs 1-3. However, KOP 4 shows a high degree of disturbance to the natural landscape form and character due to the presence of numerous electrical transmission lines in the foreground (Figure C.2-2b). Transmission structures create the predominant visual element in the foreground, creating sharp visual contrast with the horizon and disrupt background views of the Tehachapi Mountains to the north-northwest and skyline.
Del Sur Solar Project

C. ENVIRONMENTAL SETTING, ANALYSIS, AND MITIGATION MEASURES

Figure C.2-2a
Existing Views: KOPs 1 and 2
Figure C.2-2b
Existing Views:
KOPs 3 and 4
C.2.2 Regulatory Setting

Federal Regulations

No federal agency plans or policies related to the protection of visual resources apply to the proposed project.

State Regulations

There are no applicable statewide plans or policies pertaining to the regulation or analysis of visual resource impacts beyond the California Environmental Quality Act (CEQA), which this document has been prepared to comply with. Each jurisdiction’s General Plan regulates designated State Scenic Highways, as discussed below.

Local Regulations and Plans

City of Lancaster General Plan. The City of Lancaster General Plan was reviewed for goals and policies applicable to the proposed project. The following General Plan policies applicable to visual resources were identified (City of Lancaster, 2009b):

- **Plan for the Natural Environment, Objective 3.8**: Preserve and enhance important views within the City, and significant visual features that are visible from the City of Lancaster.
- **Plan for the Natural Environment, Policy 3.8.1**: Preserve views of surrounding ridgelines, slope areas and hilltops, as well as other scenic vistas.
- **Plan for Physical Development, Policy 19.2.6**: Minimize the visual impacts of utility corridors and their associated equipment.

C.2.3 Environmental Impacts and Mitigation Measures

In accordance with Appendix G to the State CEQA Guidelines, the proposed project would have a significant impact if it would:

- Have a substantial adverse effect on a scenic vista;
- Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway;
- Substantially degrade the existing visual character or quality of the site and its surroundings;
- Create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area.

Impact Assessment Methodology

As discussed in Section B.5 (Generation-Tie and Communication Line), the proposed 34-kilovolt (kV) and/or 66kV gen-tie lines and the communication line would be placed underground. Therefore, the aesthetics analysis is limited to permanent visual changes at each KOP created by above ground facilities associated with the SGF (Section B.4 Solar Facility Components).
A significant visual impact occurs when: (1) a project perceptibly changes existing or desired features of the physical environment so that they no longer appear to be fitting in the characteristic landscape; or (2) a project would introduce new features in the physical environment that are perceptibly uncharacteristic of, and discordant with, the subject landscape. Changes that seem uncharacteristic are those that appear out of place, discordant, or distracting, and do not repeat form, line, color, texture, pattern, or scale common to the valued landscape character being viewed. The degree of the visual impact depends upon how noticeable the adverse change may be, that is, the magnitude and extent of deviations from the existing visual conditions. The noticeability of a visual impact is a function of the visual characteristics of project features, as compared to existing visual conditions, degree of visual contrast, and viewing conditions (distance, duration of view, angle of view, public access to viewshed, etc.).

Environmental Impact Analysis

**Impact AES-1: Have a substantial adverse effect on a scenic vista. (Class III- Less than Significant)**

During construction, visual impacts would be temporary and result from the presence of construction activities and equipment within the project site. Vehicles, heavy equipment, project components, and workers would be visible, but primarily limited to viewers in close proximity to the project site. View durations would vary, ranging from momentary views to motorists and extended views should activities remain in the field of view of adjacent residences. However, affected viewers would be aware of the temporary and short-term nature of construction activities, which could decrease their sensitivity. Therefore, visual impacts are considered less than significant during construction.

The project site is relatively flat and does not contain any designated scenic vistas. As discussed earlier in Section C.2.1, 90th Street West is designated as a Scenic Route within the Lancaster General Plan Master Environmental Assessment (Lancaster 2009a). This roadway is the only designated scenic resource in the project area, with views from this roadway represented by KOPs 3 and 4.

As described in Section A (Project Description), the project would include a 10-foot wide landscape area around portions of the proposed SGF. The project would include use of drought-tolerant plants along the outside of the perimeter fencing and would be placed along West Avenue G, along the eastern portions of West Avenue H, and on the western boundary of the project site. The evaluation of the KOPs considered the proposed landscaping, although it is not readily visible in the simulated views of the KOPs.

The following discussion identifies potential impacts at KOPs 1-4 related to permanent visual changes associated with the proposed project:

**KOP 1.** Figures C.2-3a and C.2-3b provide existing and simulated (with project) views from KOP 1, which is considered a sensitive viewshed due to an existing residence at this location. While the proposed solar installation would cause a slight increase in the prominence of non-natural features and industrial character, the visual contrast would be minimal compared to existing conditions and is not considered to substantially alter the existing landscape or view quality. Due to the relatively low height of each row of solar modules, the proposed project blends with the horizon line at KOP 1. Visual contrast is further reduced by landscaping at the project fence line and the continued presence of natural grasses and open space in the foreground. From KOP 1, the solar module color scheme, white and blue, lends itself to blending with the background sky. Therefore, visual change from the proposed project at KOP 1 is considered low and would not significantly alter existing form, line, color, or texture of the landscape or visual character/quality. Potential impacts are considered less than significant.

**KOP 2.** Figures C.2-4a and C.2-4b provide existing and simulated (with project) views from KOP 2, which is considered a sensitive viewshed due to 90th Street West being designated a Scenic Route by the City of
Lancaster. Existing daily traffic volumes for southbound 90th Street West at KOP 2 are unavailable. However, based on existing traffic volumes in the area, the number of daytime southbound travelers (who represent those with views from KOP 2) is considered to be low (Lancaster 2009a).

While the proposed solar installation would cause a slight increase in the prominence of non-natural features and industrial character, visual contrast is considered minimal when compared to existing conditions. The proposed project would not substantially alter the existing landscape. The primary source of visual contrast is from the solar module frame, which clashes with dark background mountain colors on the horizon line. However, as shown, the presence of mature trees between proposed project facilities and KOP 2 minimizes the contrast by dotting the horizon with larger natural shapes and colors. In addition, landscaping would be installed at the project fence line, which would further reduce this contrast. At KOP 2, the continued presence of natural grasses and open space in the foreground remains the view’s focal point along with unobstructed background mountain views. Therefore, visual change from the proposed project at KOP 2 is considered low and would not significantly alter existing form, line, color, or texture of the landscape or visual character/quality. Potential impacts are considered less than significant.

**KOP 3.** Figures C.2-5a and C.2-5b provide existing and simulated (with project) views from KOP 3, which is considered a sensitive viewshed due to 90th Street West being designated a Scenic Route by the City of Lancaster. Existing daily traffic volumes for southbound 90th Street West at KOP 3 are unavailable. However, based on existing traffic volumes in the area, the number of daytime travelers at KOP 3 is considered to be low (Lancaster 2009a).

While the proposed solar installation would increase the prominence of non-natural features and industrial character, visual contrast is minimized by the presence of existing transmission line structures within the viewshed. Similar to KOP 2, each solar module frame (and massing of solar panels) slightly staggers views of the northern horizon. While the proposed facility is shown to contrast with background landscape colors at KOP 3, it would not substantially alter the existing view quality. As shown, the continued presence of natural grasses and open space in the foreground remains the focal point along with unobstructed background views of rolling hills and mountains. Therefore, visual change from the proposed project at KOP 3 is considered low and would not significantly alter existing form, line, color, or texture of the landscape or visual character/quality. Potential impacts are considered less than significant.

**KOP 4.** Figures C.2-6a and C.2-6b provide existing and simulated (with project) views from KOP 4. While KOP 4 is not considered a sensitive viewshed, it represents an additional location with public views of the project site. From this location, the proposed solar installation would only be slightly visible along the horizon line. Due to the relatively low height solar module rows, the proposed project blends with the form of the KOP 4 horizon line. From this location, the solar module color scheme lends itself to the background sky and reduces visual contrast. Furthermore, visual contrast is minimized by the presence of a number of existing transmission line structures within the viewshed. The continued presence of natural grasses and open space in the foreground remains a strong portion of the view’s focal point. Therefore, visual change from the proposed project at KOP 4 is considered low and would not significantly alter existing form, line, color, or texture of the landscape or visual character/quality. Potential impacts are considered less than significant.
C. ENVIRONMENTAL SETTING, ANALYSIS, AND MITIGATION MEASURES

Figure C.2-3a
KOP #1: Existing View
Figure C.2-3b
KOP 1:
Simulated View
Figure C.2.4a
KOP 2: Existing View
Del Sur Solar Project

C. ENVIRONMENTAL SETTING, ANALYSIS, AND MITIGATION MEASURES

Figure C.2-4b
KOP 2:
Simulated View
Figure C.2-5a

KDP 3:

Existing View
Figure C.2-5b
KOP 3:
Simulated View
Figure C.2-6a

KOP 4:
Existing View
C. ENVIRONMENTAL SETTING, ANALYSIS, AND MITIGATION MEASURES
**Impact AES-2: Substantially damage scenic resources. (Class III – Less than Significant)**

The analysis provided in Impact AES-1 also addresses the potential for the proposed project to substantially damage scenic resources. As discussed in Impact AES-1, visual change from the proposed project at KOPs 1 through 4 is considered low and would not significantly alter existing form, line, color, or texture of the landscape or visual character/quality. Potential impacts are considered less than significant.

**Impact AES-3: Substantially degrade the existing visual character or quality of the site and its surroundings. (Class III – Less than Significant)**

The analysis provided in Impact AES-1 also addresses the potential for the proposed project to substantially degrade the existing visual character or quality of the project site and its surroundings. As discussed in Impact AES-1, visual change from the proposed project at KOPs 1 through 4 is considered low and would not significantly alter existing form, line, color, or texture of the landscape or visual character/quality. Potential impacts are considered less than significant (Class III).

**Impact AES-4: Create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area. (Class III – Less than Significant)**

As described in Section B (Project Description), construction would occur only during daylight hours, Monday through Saturday. The proposed project would not include any permanent sources of nighttime lighting. Solar photovoltaic (PV) modules and arrays typically do not create significant glare. The PV modules are designed to absorb sunlight and the glass modules that protect the PV surface are typically formulated glass designed to allow sunlight to pass with minimal reflection. While some localized glare could occur to the south, southeast, and southwest (the general direction that panels would face and tilt), any glare is expected to be minor. As shown in Figures B-1 and B-2, the project site is buffered by open space, which would further decrease the potential for adverse glare to occur on motorists or within public areas. To date, no known complaints regarding significant glare have been received from a number of similarly sized solar installations in the area that utilize similar technology as the proposed project. Therefore, potential glare impacts are considered to be less than significant and would not adversely affect daytime views in the area.

**C.2.4 Cumulative Impact Analysis**

**Geographic Scope**

The geographic area of analysis for cumulative impacts to visual resources is limited to 1.0-mile of the project site. This area is defined because the proposed project’s permanent visual changes occur only slightly above surface grade. At distances greater than 1.0-mile, visual changes of the proposed project begin to blend in with existing views and would likely be shielded from view by the cumulative development.

Based on the geographic extent defined above, only cumulative projects #1, 2, 4, 7, and 8 are identified within this 1.0-mile area (refer to Figure C.1-1). However, as identified within Table C-1, cumulative projects # 1, 4, and 7 are identified as “operational.” Therefore, any visual changes from these projects are shown within the baseline photographs for KOPs 1-4 (Figures C.2-3a, C.2-3b, C.2-4a, C.2-4b, C.2-5a, C.2-5b, C.2-6a, and C.2-6b).

The following identifies the cumulative projects considered within this analysis:

- Map ID #2, 38 MW solar energy facility on 180 acres, located approximately 0.75 mile southeast of the project site.
- Map ID #8, 40 MW solar energy facility on 160 acres, located directly south of the project site.
Cumulative Effects of the Proposed Project

The overall visual quality of the project area has degraded with the addition of a number of solar energy facilities and electrical transmission lines. The two identified cumulative projects that could combine with the proposed project are each smaller in size and scale than the proposed project. However, both the residential receptor at KOP1 and motorists on 90th Street West (a designated Scenic Route) at KOP 4 could have views of the proposed project and these cumulative projects within the same viewshed.

The potential for cumulative impacts during construction is limited, as cumulative projects would need to be constructed simultaneously with the proposed project. While construction activities would include the presence of heavy equipment, because views of activities and equipment would be temporary, cumulative visual impacts are considered less than significant (Class III).

Cumulative project #2 would only be visible with the proposed project for motorists traveling on 90th Street West. However, because this project is located on the opposite side of the roadway, it is unlikely any location would provide view of both projects simultaneously. Cumulative project #8 would only be prominent than the proposed project, due to closer proximity (likely visible in the eastern foreground portion of Figure C.2-6b). However, visual contrast and change of the proposed project would remain minimal along the middleground horizon from this location. Therefore, the contribution of the proposed project to visual changes and contrast at KOP 4 would remain less than significant (Class III).

While cumulative projects #2 and #8 would result in permanent visual change and contrast from public views at adjacent viewsheds, the proposed project is not found to result in adverse permanent visual change or contrast that would substantially degrade the existing visual character or quality of the project site and its surroundings from any sensitive KOP. Therefore, the project would not contribute to cumulative adverse visual impacts, resulting in a less than significant impact (Class III).

The proposed project would not have any permanent source of nighttime lighting and would have no cumulative contribution to such impacts. With regard to a cumulative increase to glare, only cumulative project #8 is close enough to have the potential to combine with the proposed project. However, similar to the proposed project, this cumulative solar PV development is not expected to result in significant localized glare. Any potential glare from this facility would likely only affect viewers on West Avenue I. Because the proposed project is not expected to have any glare that could reach West Avenue I, it would not contribute to adverse cumulative glare impacts. Impacts would be less than significant (Class III).

C.2.5 Level of Significance After Mitigation

The proposed project is found to have less than significant impacts (Class III) with respect to aesthetics.
C.3 Agricultural Resources

This section describes effects on agricultural resources that would be caused by implementation of the proposed project. The following discussion addresses existing environmental conditions in the affected area, identifies and analyzes environmental impacts, and recommends measures to reduce, avoid, or otherwise mitigate adverse impacts anticipated from project construction and operation. In addition, existing laws and regulations relevant to agriculture are described.

Data collection was conducted through review of the following resources: soil classifications designated by the National Resource Conservation Service’s (NRSC) Web Soil Survey; the California Department of Conservation’s (DOC) Farmland Monitoring and Mapping Program (FMMP) and Williamson Act maps; the City’s general plan and municipal code; and aerial photography.

As related to agricultural resources, the study area for this analysis is defined as those lands that fall within the project site, as well as the active agricultural lands that surround the project site. The current condition and quality of these agricultural resources were used as the baseline against which to compare potential impacts of the proposed project. In addition, the Cumulative Scenario and Methodology is presented in Section C.1.3 and potential cumulative agricultural impacts are discussed in Section C.3.4, below.

C.3.1 Environmental Setting

This section presents information on agricultural resource conditions in the project area. The Regional Setting provides information on the baseline conditions in the project region, and the Project Setting describes baseline conditions for agricultural resources within the project site.

Regional Setting

The project site is located within the City of Lancaster in the Antelope Valley of Los Angeles County. As the site is at the western edge of the City, unincorporated County lands are located in various areas surrounding the project site. Agricultural production does not occur on the project site; however, there are active agricultural lands (a vineyard and alfalfa fields) and what appears to be recently fallow land located approximately a quarter of a mile east of the project site at West Avenue H and 90th Street West (northeast corner). In addition, a few local residences surrounding the project site consist of ranchettes that include barns and farm animals. As observed during a site visit on March 9, 2015, the project site and the parcels immediately surrounding the project site are actively used for sheep grazing.

Project Site Setting

The project site currently consists of disturbed vacant land that was previously used for agricultural production, and portions of the project site are currently in use for sheep grazing. The project site is 725 acres and does not include lands under the Land Conservation Act of 1965 (Williamson Act). Table C.3-1 describes the soil characteristics for the project site based on the NRCS’s Web Soil Survey. In addition, the description below includes the project site’s DOC’s FMMP designations and the water resources that are available for irrigation.

The existing zoning designations for the parcels within the project boundaries are R-7,000, R-10,000 and R-15,000 (single family residential, minimum lot sizes 7,000, 10,000, and 15,000 square feet, respectively), Park (Pk), School (S), and Commercial Planned Development (CPD). The proposed project would require a Zone Change (ZC) and General Plan Amendment (GPA) for two parcels (80 acres) that
are not covered by Development Agreement No. 89-01, which was amended on June 26, 2012 to allow for utility-scale solar development with a conditional use permit (CUP) without changing the existing general plan designations or zoning. The ZC would change the existing zoning on these two parcels (80 acres) to a rural residential zone (RR-2.5), which would allow for solar facilities with a CUP.

**Soil Types and Definitions by the NRCS**

Table C.3-1 provides the NRCS designations and ratings for the Farmland Classification, California Revised Storie Index, and Land Capability Classifications (LCC). Refer to Appendix 2 (NRCS 2015) for the soil reports generated by the Web Soil Survey. The soil surveys provide only a general overview of these agricultural resources. Accordingly, the baseline conditions to compare potential impacts of the proposed project may overestimate or underestimate the occurrence of particular soils on the project site.

The NRCS designations and ratings were used to run the Land Evaluation and Site Assessment (LESA) Model, which is a point-based approach for rating the relative importance of agricultural land resources based upon specific measurable features. This model evaluates measures of soil resource quality, a given project’s size, water resource availability, surrounding agricultural lands, and surrounding protected resource lands. For a given project, the factors are rated, weighted, and combined, resulting in a single numeric score. The project score assists with the significance determination for the impacts to agricultural resources (DOC 2013). The following are the definitions for each of the NRCS designations and ratings that apply to the project site.

<table>
<thead>
<tr>
<th>Table C.3-1. NRCS Soil Characteristics for the Project Site</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soil Type</td>
</tr>
<tr>
<td>--------------------------------------------------------</td>
</tr>
<tr>
<td>Adelanto coarse sandy loam (Aca)</td>
</tr>
<tr>
<td>Cajon loamy sand (CaA)</td>
</tr>
<tr>
<td>Dune land (DuD)</td>
</tr>
<tr>
<td>Greenfield sandy loam (GsA)</td>
</tr>
<tr>
<td>Hanford sandy loam (HbA)</td>
</tr>
<tr>
<td>Hanford sandy loam (HcA)</td>
</tr>
<tr>
<td>Hesperia fine sandy loam (HkA)</td>
</tr>
<tr>
<td>Ramona coarse sandy loam (Rcb)</td>
</tr>
<tr>
<td>Ramona loam (RIB)</td>
</tr>
</tbody>
</table>

Sources: NRCS, 2015

**Farmland Classification Definitions (NRCS Ratings).** Prime farmland is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops, and is also available for these uses (the land could be cropland, pastureland, rangeland, forest land, or other land, but not urban built-up land or water). It has the soil quality, growing season, and
moisture supply needed to economically produce sustained high yields of crops when treated and managed, including water management, according to acceptable farming methods. In general, prime farmlands have an adequate and dependable water supply from precipitation or irrigation, a favorable temperature and growing season, acceptable acidity or alkalinity, acceptable salt and sodium content, and few or no rocks. They are permeable to water and air. Prime farmlands are not excessively erodible or saturated with water for a long period of time, and they either do not flood frequently or are protected from flooding.

The Not Prime Farmland designation primarily consists of Class 6 and 7 soils, which are characterized by severe limitations that make them generally unsuitable for cultivation and restrict their use mainly to grazing, pasture, and rangeland (NRCS 2015).

**California Revised Storie Index.** The California Revised Storie Index is a method of rating soils used mainly for irrigated agriculture based on crop productivity data (UCANR 2008). The Storie Index assesses the productivity of a soil from the following four characteristics: Factor A, degree of soil profile development; factor B, texture of the surface layer; factor C, slope; and factor X, manageable features, including drainage, microrelief, fertility, acidity, erosion, and salt content. A score ranging from 0 to 100 percent is determined for each factor, and the scores are then multiplied together to derive an index rating. For simplification, Storie Index ratings have been combined into six grade classes as follows: grade 1 (excellent), 100 to 80; grade 2 (good), 79 to 60; grade 3 (fair), 59 to 40; grade 4 (poor), 39 to 20; grade 5 (very poor), 19 to 10; and grade 6 (nonagricultural), less than 10. (NRCS 2015)

**Land Capability Classifications.** The soil classes (see Table C.3-1) are defined as follows:

- Class 4 soils have very severe limitations that restrict the choice of plants or that require very careful management, or both.
- Class 7 soils have very severe limitations that make them unsuitable for cultivation and that restrict their use mainly to grazing, forestland, or wildlife habitat.
- Class 8 soils and miscellaneous areas have limitations that preclude commercial plant production and that restrict their use to recreational purposes, wildlife habitat, watershed, or esthetic purposes. (NRCS 2015).

Capability subclasses are soil groups within one class. They are designated by adding a small letter, e, w, s, or c, to the class numeral, for example, 2e. The letter e shows that the main hazard is the risk of erosion unless close-growing plant cover is maintained; w shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); s shows that the soil is limited mainly because it is shallow, droughty, or stony; and c, used in only some parts of the United States, shows that the chief limitation is climate that is very cold or very dry (NRCS 2015).

**California Farmland Classifications**

**Farmland Mapping and Monitoring Program.** The DOC’s FMMP also provides designations for Important Farmland throughout the State. The vast majority of the project site is designated as Grazing Land (approximately 660 acres). The remainder of the project site is within the Other Land designation (approximately 63 acres) and 1.5-acres of Prime Farmland (if irrigated) along the northeast boundary of the property. The following are the definitions for these designations:

- Grazing Land - Grazing land is land on which the existing vegetation is suited to the grazing of livestock.
- Other Land - Other land is land not included in any other mapping category. Common examples include low density rural developments, brush, timber, wetland, and riparian areas not suitable for
livestock grazing, confined livestock, poultry, or aquaculture facilities, strip mines, borrow pits, and water bodies smaller than 40 acres. Vacant and nonagricultural land surrounded on all sides by urban development and greater than 40 acres is mapped as other land.

- Prime Farmland – Prime farmland has the best combination of physical and chemical features able to sustain long-term agricultural production. This land has the soil quality, growing season, and moisture supply needed to produce sustained high yields. Land must have been used for irrigated agricultural production at some time during the four years prior to the mapping date. (DOC 2012)

Williamson Act. As described by the Department of Conservation, the Land Conservation Act enables local governments (counties and cities) to enter into contracts, i.e., Williamson Act contracts, with private landowners for the purpose of restricting specific parcels of land to agricultural or related open space use. In return, landowners receive property tax assessments that are much lower than normal because they are based upon farming and open space uses as opposed to full market value. (DOC 2013)

Based on the map for Williamson Act lands in Los Angeles County, there are no lands under Williamson Act contracts in the County, except on Santa Catalina Island (DOC 2013). Therefore, the proposed project would not be located within or adjacent to lands that are under Williamson Act contracts, and the Land Conservation Act is not an applicable regulation.

C.3.2 Regulatory Setting

Federal Regulations

Farmland Protection Policy Act (7 United States Code [USC] Section 4201). The purpose of the Farmland Protection Policy Act (FPPA) is to minimize the extent to which federal programs contribute to the unnecessary and irreversible conversion of farmland to nonagricultural uses. It additionally directs federal programs to be compatible with State and local policies for the protection of farmlands. Congress passed the Agriculture and Food Act of 1981 (Public Law 97-98) containing the FPPA—Subtitle I of Title XV, Section 1539-1549. The final rules and regulations were published in the Federal Register on June 17, 1994.

The FPPA is intended to minimize the impact federal programs have on the unnecessary and irreversible conversion of farmland to nonagricultural uses. It assures that, to the extent possible, federal programs are administered to be compatible with state, local units of government, and private programs and policies to protect farmland. Federal agencies are required to develop and review their policies and procedures to implement the FPPA every two years. The FPPA does not authorize the Federal Government to regulate the use of private or nonfederal land or, in any way, affect the property rights of owners.

For the purpose of FPPA, farmland includes prime farmland, unique farmland, and land of statewide or local importance. Farmland subject to FPPA requirements does not have to be currently used for cropland. It can be forest land, pastureland, cropland, or other land, but not water or urban built-up land.

State Regulations

California Department of Conservation, Farmland Mapping and Monitoring Program. The DOC’s FMMP applies the NRCS soil classifications to identify agricultural lands, and these agricultural designations are used in planning for the present and future of California’s agricultural land resources. The DOC has a minimum mapping unit of 10 acres, with smaller than 10-acre parcels being absorbed into the surrounding classifications. Grazing Land is mapped at a minimum scale of 40 acres. The FMMP designations are outlined in the setting, above.
Local Regulations and Plans

City of Lancaster General Plan. The City’s General Plan was reviewed for goals and policies applicable to the project. The following objective and policy were identified (City of Lancaster 2009).

- **Section II. Plan for the Natural Environment, Objective 3.5**: Preserve land resources through the application of appropriate soils management techniques and the protection and enhancement of surrounding landforms and open space.

- **Section II. Plan for the Natural Environmental, Policy 3.5.3**: Protect lands currently in agricultural production from the negative impacts created when urban and rural land uses exist in close proximity, while recognizing the possibility of their long-term conversion to urban or rural uses.

C.3.3 Environmental Impacts and Mitigation Measures

The following significance criteria were derived from Appendix G of the State California Environmental Quality Act (CEQA) Guidelines. The criteria from Appendix G that applies to forest lands have not been included as there are no forest lands in the vicinity of the proposed project. Therefore, impacts of the proposed project would be considered significant and would require mitigation if:

- The proposed project would convert Important Farmland, as designated by the California Department of Conservation, to a nonagricultural use;

- The proposed project would conflict with existing zoning for agricultural use, or a Williamson Act contract; or

- The proposed project would involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to a non-agricultural use.

Significance conclusions are presented regarding each identified agricultural impact, per the significance classification system provided in Section C.1.2 (Environmental Assessment Methodology).

Environmental Impact Analysis

*Impact AG-1: The proposed project would convert Important Farmland, as designated by the California Department of Conservation, to a nonagricultural use. (Class III – Less than Significant)*

According to the FMMP maps, the project site is designated as Grazing Land, Other Land, and a small portion of Prime Farmland (if irrigated) located at the northeast portion of the project site. As observed during a site visit, the project site (unauthorized) and areas surrounding the project site are actively used for sheep grazing. Therefore, based on the FMMP designations, construction of the proposed project would convert Grazing Land and a small portion of Prime Farmland to a nonagricultural use. However, the City does not have agricultural zoning; agricultural uses are only allowed under certain zones (RR-1 and RR-2.5). The project site and the areas along the gen-tie and communication line routes are zoned with a mix of residential, public facility, open space, and commercial planned development uses. If the site were not developed as a solar field, the site could be developed as a large residential development as currently allowed under the existing entitlements and under the existing City zoning.

In addition to analyzing the proposed project’s agricultural impacts based on the conversion of FMMP designated land, Appendix G of the CEQA Guidelines states that lead agencies may refer to the California Agricultural LESA Model, prepared by the DOC, as a model to determine a project’s impact to agricultural lands. The LESA Model defines an approach for rating the relative quality of land resources based upon specific measurable features. The formulation of the California Agricultural LESA Model is
the result of Senate Bill (SB) 850 (Stats. 1993, Ch. 812, Section 3), which charged the Resources Agency, in consultation with the Governor’s Office of Planning and Research, with developing an amendment to Appendix G of the CEQA Guidelines concerning agricultural lands. Such an amendment is intended “to provide lead agencies with an optional methodology to ensure that significant effects on the environment of agricultural land conversions are quantitatively and consistently considered in the environmental review process” (Public Resources Code Section 21095).

The California Agricultural LESA Model is composed of six different factors. Two “Land Evaluation” (LE) factors are based upon measures of soil resource quality. Four “Site Assessment” (SA) factors provide measures of a given project’s size, water resource availability, surrounding agricultural lands, and surrounding protected resource lands. For a given project, each of these factors is separately rated on a 100-point scale. The factors are then weighted relative to one another and combined, resulting in a single numeric score for a given project, with a maximum attainable score of 100 points. It is this project score that becomes the basis for making a determination of a project’s potential significance, based upon a range of established scoring thresholds (DOC 1997). The following discusses the LE and SA factors.

**Land Evaluation Factors**

Staff conducted the LESA Model for the project site in accordance with the detailed instructions provided in the LESA Model Instruction Manual. The completed LESA Model worksheets and soil surveys for the proposed project are included within Appendix 2 of this EIR. Also, a summary of the LESA classifications and ratings are provided in Table C.3-1. The LE factors are based on the Land Capability Classifications (LCC) and California Storie Index, which were obtained through the Web Soil Survey provided by the NRCS. To obtain the LCC rating, there are the “Irrigated” and “Nonirrigated” options. Due to the lack of current irrigation on the project site, the results of the Nonirrigated LCC survey were used for the LCC score. As shown in Appendix 2, the LCC rating Classes 4, 7 and 8 apply to the project site (refer to the setting in Section C.3.1 above for the descriptions of the LLC Classes).

Although the LCC ratings indicate that there are severe limitations for the types of crops that the project site is capable of sustaining, approximately 58% of the project site is rated as “Excellent” by the California Storie Index. This rating provides details regarding the project site’s soil properties that govern the potential for cultivation. The soil properties include the degree of soil profile development, texture of the surface layer, the slope, and other miscellaneous factors such as drainage, microlief, fertility, acidity, erosion and salt content. The high California Storie Index rating accounted for the majority of the project site’s LE score noted in the LESA worksheets.

**Site Assessment Factors**

The SA factors include the project site’s size, the water resource availability, surrounding agricultural land, and surrounding protected resource land. The project site is 725\(^1\) acres, which resulted in the highest possible score for the “Project Size” factor. The “Water Resource Availability” factor resulted in a moderate score due to the potential availability of groundwater for irrigation. However, to be conservative due to the severe drought, it was assumed that there would be physical and economic restrictions in accessing the groundwater.

Due to the sparse agricultural activities surrounding the project site, the “Surrounding Agricultural Lands” score was low. Lastly, because there are no Williamson Act lands or conservation zones near the project site, the score “Surrounding Protected Resource Lands” was zero.

---

\(^1\) The boundaries of the project site were manually entered into the NRCS Web Soil Survey; therefore, the boundaries are not exact. As shown in Appendix 2, the manually generated boundaries result in a 728-acre site.
**LESAscore and Significance Determination**

The subscore for the LE factors is 27.4, and 24.8 for the SA factors. The Final LESAscore for the project site is 52.2. Based on the California Agricultural LESAscore Thresholds, this score is considered significant if the LE and SA subscores are each greater than or equal to 20 points. Although the scores exceed the LESAscore threshold, the project site’s ability to sustain agricultural uses is low because the type of crops that grow in the project area are water intensive, and the source of water is not guaranteed for long-term agricultural use. After project decommissioning, there may be a potential for future agricultural uses on the project site because site grading would be minimal and would not strip the top soil.

Furthermore, the project site has a development agreement that allows for utility-scale solar projects with a CUP on 645 acres of the 725-acre project site. The project site also has existing entitlements that allow for construction of urban residential subdivisions, a school, park, and commercial uses. The development of the solar facility is consistent with the City’s long-term plans and compatible with existing and proposed land uses. The City does not have an agricultural zoning designation, and the project site is not currently used for agricultural production. The existing zoning allows for non-agricultural uses on the project site. Therefore, the impacts of the SGF on agricultural uses would be less than significant (Class III).

The proposed generation-tie (gen-tie) lines and communication line route would traverse land that is within the Grazing and Other Land FMMP designations. As noted in the setting discussion above, there are existing transmission and distribution lines within and around the project site. The current grazing activities occur alongside these transmission structures. Construction and decommissioning activities would temporarily disrupt any grazing activities that may occur along the gen-tie and communication lines routes. However, the gen-tie lines and communication line would be placed underground, which would not disturb grazing activities during facility operation. Therefore, impacts would be temporary and less than significant (Class III).

**Impact AG-2: The proposed project would not conflict with existing zoning for agricultural use, or a Williamson Act contract. (No Impact)**

The project site currently consists of disturbed vacant land that was previously used for agricultural production, and portions of the site (unauthorized) and areas near the gen-tie and communication line routes are currently in use for sheep grazing. However, the existing zoning designations for the parcels within the project boundaries are R-7,000, R-10,000, R-15,000, Pk, S, and CPD; the City has no agricultural zoning as noted earlier. These zoning designations do not allow for agricultural uses. There are no Williamson Act lands on or near the SGF project site. Therefore, the construction, operation and decommissioning activities associated with the proposed project would not conflict with an existing zoning designation or Williamson Act lands, and there would be no impact. No mitigation measures are necessary.

One of the proposed gen-tie lines and communication line routes would traverse City lands that are within the Rural Residential zoning designations. Two of the proposed route options would also cross lands under the jurisdiction of the County of Los Angeles. There are no Williamson Act lands along any of the proposed routes. Therefore, the activities associated with construction, operation and decommissioning of the proposed gen-tie lines and communication line route would not affect Williamson Act lands. Because the gen-tie and communication lines would be placed underground, the proposed project would have no impact to existing agricultural activities.
**Impact AG-3:** The proposed project would involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to a non-agricultural use. (No Impact)

The project site is currently vacant and not used for agriculture. The closest agricultural use is east of the site on 90th Street West. The construction, operation, maintenance, and decommissioning of the proposed project would not impact or convert agricultural uses on the project site (SGF) or in the surrounding areas. As discussed in Impact AG-1, the proposed project would not convert important farmland to a non-agricultural use. In addition, construction and operation of the gen-tie and communication lines would only result in a temporary disruption to agricultural activities and would not result in any permanent conversion of agricultural uses to a non-agricultural use. Therefore, there is no impact with regard to conversion of agricultural lands.

### C.3.4 Cumulative Impact Analysis

#### Geographic Extent

The geographic extent for the analysis of cumulative impacts related to agricultural lands is generally limited to areas within approximately one mile of the proposed project, including the gen-tie and communication lines and haul truck route (West Avenue G). This area is defined as the geographic extent because agricultural impacts would generally be localized.

If approved, the proposed project would be developed within one mile of approximately 13 solar projects, of which five are already operational, as shown in Figure C.1-1 and listed in Table C.1-1.

#### Cumulative Effects of the Proposed Project

As noted in Table C.1-1, several projects have been approved near the project site and one is expected to start construction in January 2016, which is in the same general timeframe as the proposed project. The project site for the SGF, however, is not in agricultural production and has current entitlements that allow the site to be developed with urban residential, school, and commercial uses. Therefore, constructing (and decommissioning) the proposed project in combination with the cumulative projects would not significantly contribute to the conversion of important farmland to a non-agricultural use (Class III). In addition, the construction (and decommission) of the gen-tie and communication line would not cumulatively contribute to the permanent conversion of agricultural land to non-agricultural uses because the lines would be placed underground and, once in operation, existing agricultural uses could continue.

If maintenance activities associated the proposed project and the adjacent solar projects were to occur at the same time, the potential exists for these maintenance activities to disrupt the nearby agricultural lands. However, given that maintenance activities are temporary, the proposed project’s contribution to this cumulative impact would be less than significant (Class III).

Decommissioning activities could result in temporary disruptions to agricultural land uses, such as fugitive dust or water runoff. However, it is unlikely that decommissioning for multiple solar facilities would occur at the same time. Therefore, the project’s contribution to cumulative agricultural impacts during decommissioning would be less than significant (Class III) and no mitigation is necessary.

### C.3.5 Level of Significance After Mitigation

The proposed project was found to have no impact or less than significant impacts (Class III) with respect to agricultural resources.
C.4 Air Quality and Greenhouse Gases

This section describes effects on air quality and greenhouse gases (GHG) that would be caused by the implementation of the proposed project. The following discussion addresses existing environmental conditions in the affected area, impacts caused by the proposed project, and recommends measures to reduce or avoid any significant impacts anticipated from proposed project construction, operation, maintenance, and decommissioning.

The project site is located in Lancaster, California, which is within the Mojave Desert Air Basin (MDAB) and is under the local air quality jurisdiction of the Antelope Valley Air Quality Management District (AVAQMD). The environmental setting of the project site is described in Section C.4.1. The affected regulatory jurisdictions for climate change include local, State, and federal agencies. The regulatory setting for climate change was determined through a review of existing regulations, plans, and standards from affected regulatory agencies. The applicable air quality regulations and policies are discussed in Section C.4.2 (Regulatory Setting).

Air Quality

The environmental and regulatory setting for air quality, including available representative ambient air pollutant data, was determined through a review of existing literature from local, State, and federal agency resources, which included but were not limited to, the following:

- United States Environmental Protection Agency (USEPA),
- State of California, Air Resources Board (CARB), and
- AVAQMD.

Data obtained and presented are based on the latest available existing data from the above sources.

Greenhouse Gases

The environmental and regulatory setting for the effects of GHG emissions (climate change), including available estimates of State, federal, and international GHG emissions, was determined through a review of existing literature from international and domestic resources, which included but were not limited to, the following:

- National Oceanic and Atmospheric Administration (NOAA),
- National Aeronautics and Space Administration (NASA),
- USEPA,
- CARB,
- State of California, Energy Commission (CEC),
- State of California, Environmental Protection Agency (CalEPA),
- Intergovernmental Panel on Climate Change (IPCC), and

Data obtained and presented are based on the latest available existing data from the above sources.
C.4.1 Environmental Setting

Air Quality

Air pollutants are defined as two general types: (1) “criteria” pollutants, representing six pollutants for which national and State health- and welfare-based ambient air quality standards have been established; and (2) toxic air contaminants (TACs), which may lead to serious illness or increased mortality even when present at relatively low concentrations. Generally, TACs do not have ambient air quality standards. The three TACs that do have ambient air quality standards (lead, vinyl chloride, and hydrogen sulfide) are pollutants that are not relevant to the proposed project.

Criteria Pollutants

The following is a general description of the criteria air pollutants that would be emitted by the proposed project during construction, operation and maintenance, and decommissioning; and the current attainment status of those pollutants. The National and California Ambient Air Quality Standards (NAAQS and CAAQS) relevant to the proposed project are provided in Table C.4-1.

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Averaging Time</th>
<th>California Standards</th>
<th>National Standards</th>
<th>Health Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ozone (O₃)</td>
<td>1-hour</td>
<td>0.09 ppm</td>
<td>--</td>
<td>Breathing difficulties, lung tissue damage</td>
</tr>
<tr>
<td></td>
<td>8-hour</td>
<td>0.070 ppm</td>
<td>0.075 ppm</td>
<td></td>
</tr>
<tr>
<td>Respirable particulate matter (PM₁₀)</td>
<td>24-hour</td>
<td>50 μg/m³</td>
<td>150 μg/m³</td>
<td>Increased respiratory disease, lung damage, cancer, premature death</td>
</tr>
<tr>
<td></td>
<td>Annual</td>
<td>20 μg/m³</td>
<td>--</td>
<td></td>
</tr>
<tr>
<td>Fine particulate matter (PM₂.₅)</td>
<td>24-hour</td>
<td>--</td>
<td>35 μg/m³</td>
<td>Increased respiratory disease, lung damage, cancer, premature death</td>
</tr>
<tr>
<td></td>
<td>Annual</td>
<td>12 μg/m³</td>
<td>12 μg/m³</td>
<td></td>
</tr>
<tr>
<td>Carbon monoxide (CO)</td>
<td>1-hour</td>
<td>20 ppm</td>
<td>35 ppm</td>
<td>Chest pain in heart patients, headaches, reduced mental alertness</td>
</tr>
<tr>
<td></td>
<td>8-hour</td>
<td>9.0 ppm</td>
<td>9 ppm</td>
<td></td>
</tr>
<tr>
<td>Nitrogen dioxide (NO₂)</td>
<td>1-hour</td>
<td>0.18 ppm</td>
<td>0.100 ppm²</td>
<td>Lung irritation and damage</td>
</tr>
<tr>
<td></td>
<td>Annual</td>
<td>0.030 ppm</td>
<td>0.053 ppm</td>
<td></td>
</tr>
<tr>
<td>Sulfur dioxide (SO₂)</td>
<td>1-hour</td>
<td>0.25 ppm</td>
<td>0.075 ppm²</td>
<td>Increases lung disease and breathing problems for asthmatics</td>
</tr>
<tr>
<td></td>
<td>3-hour</td>
<td>--</td>
<td>0.5 ppm</td>
<td></td>
</tr>
<tr>
<td></td>
<td>24-hour</td>
<td>0.04 ppm</td>
<td>--</td>
<td></td>
</tr>
</tbody>
</table>

Source: CARB, 2001; CARB, 2015a
Notes:
- ppm = parts per million; μg/m³ = micrograms per cubic meter; "--" = no standards
- The federal standard shown is the primary standard, the secondary standard is 15 μg/m³.
- The new federal 1-hour NO₂ and SO₂ standards are based on the 98th and 99th percentile of daily hourly maximum values, respectively.

The ambient air quality standards shown in Table C.4-1 are health-based standards established by the CARB and USEPA. The ambient air quality standards are set at levels to adequately protect the health of all members of the public, including those most sensitive to adverse air quality impacts such as the elderly, people with existing illnesses, children, and infants, including a margin of safety.

The USEPA, CARB, and local air districts classify an area as attainment, unclassified, or non-attainment depending on whether or not the monitored ambient air quality data shows compliance, insufficient data available, or non-compliance with the ambient air quality standards, respectively. Table C.4-2 summarizes the federal and State attainment status of criteria pollutants for the Los Angeles County portion of the MDAB based on the NAAQS and CAAQS, respectively.
Table C.4-2 Attainment Status for the MDAB ¹

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Federal</th>
<th>State</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ozone</td>
<td>Severe Nonattainment</td>
<td>Nonattainment</td>
</tr>
<tr>
<td>PM₁₀</td>
<td>Attainment</td>
<td>Nonattainment</td>
</tr>
<tr>
<td>PM₂.₅</td>
<td>Attainment</td>
<td>Unclassified</td>
</tr>
<tr>
<td>CO</td>
<td>Attainment</td>
<td>Attainment</td>
</tr>
<tr>
<td>NO₂</td>
<td>Attainment</td>
<td>Attainment</td>
</tr>
<tr>
<td>SO₂</td>
<td>Attainment</td>
<td>Attainment</td>
</tr>
</tbody>
</table>

Source: CARB 2015b; USEPA 2015a

1. For the portion of the MDAB in Los Angeles County surrounding the project.
2. The federal Attainment designations shown in this table may actually be unclassified/unclassifiable or cannot be classified designations that for regulatory purposes are the same as an attainment designation.

Recent ambient pollutant concentration data for the project area is provided in the Air Quality Technical Report (Appendix 3). Additionally, the regional climate and meteorology are discussed in Appendix 3.

**Toxic Air Contaminants**

Toxic air contaminants (TACs) are compounds that are known or suspected to cause adverse long-term (cancer and chronic) and/or short-term (acute) health effects. The Health and Safety Code defines a TAC as an air pollutant which may cause or contribute to an increase in mortality or serious illness, or which may pose a present or potential hazard to human health. Individual TACs vary greatly in the health risk they present; at a given level of exposure, one TAC may pose a hazard that is many times greater than another’s. There are almost 200 compounds designated in California regulations as TACs (17 California Code of Regulations [CCR] §§ 93000-93001). The list of TACs also include the substances defined in federal statute as hazardous air pollutants (HAPs) pursuant to Section 112(b) of the federal Clean Air Act (42 United States Code [USC] Section 7412(b)). Some of the TACs are groups of compounds, which contain many individual substances (e.g., copper compounds, polycyclic aromatic compounds). TACs are emitted from mobile sources, including diesel engines; industrial processes and stationary sources, such as dry cleaners, gasoline stations, paint and solvent operations, and stationary fossil fuel-burning combustion. Ambient TAC concentrations tend to be highest in urbanized and industrial areas near major TAC emissions sources or near major mobile TAC emissions sources, such as heavily traveled highways or major airports/seaports. Unlike for criteria pollutants, no monitoring studies of ambient TAC concentrations have been performed in the high desert portion of the MDAB.

**Valley Fever**

Coccidioidomycosis, often referred to as San Joaquin Valley Fever or Valley Fever, is one of the most studied and oldest known fungal infections. Valley Fever most commonly affects people who live in hot dry areas with alkaline soil and varies with the season. This disease, which affects both humans and animals, is caused by inhalation of arthroconidia (spores) of the fungus Coccidioides immitis (CI). CI spores are found in the top few inches of soil and the existence of the fungus in most soil areas is temporary. The cocc fungus lives as a saprophyte (an organism, especially a fungus or bacterium, which grows on and derives its nourishment from dead or decaying organic matter) in dry, alkaline soil. When weather and moisture conditions are favorable, the fungus "blooms" and forms many tiny spores that lie dormant in the soil until they are stirred up by wind, vehicles, excavation, or other ground-moving activities and become airborne. Agricultural workers, construction workers, and other people who are outdoors and are exposed to wind, dust, and disturbed topsoil are at an elevated risk of contracting Valley Fever (CDC 2013).
Most people exposed to the CI spores will not develop the disease and of 100 persons who are infected approximately 60 will have no symptoms, and 40 will have some symptoms. Of those with symptoms, 2 to 4 will have the more serious disseminated forms of the disease. After recovery nearly all, including the asymptomatic, develop a life-long immunity to the disease (Guevara 2014). African Americans, Asians, women in the 3rd trimester of pregnancy, and persons whose immunity is compromised are most likely to develop the most severe form of the disease (CDC 2013). In addition to humans, a total of 70 different species are known to be susceptible to Valley Fever infections, including dogs, cats, and horses; with dogs being the most susceptible (LACPH 2007).

The project site is located in an area designated as suspected endemic for Valley Fever by the Center for Disease Control (CDC 2013). Annual morbidity reports for 2002 through 2012 from Los Angeles County Public Health indicate that the Antelope Valley area of Los Angeles County has the highest incident rates for Valley Fever within the County, with the highest reported case rate of 24.9 per 100,000 population occurring in 2011 (LACPH 2015).

**Sensitive Receptors**

The impact of air emissions on sensitive members of the population is a special concern. Sensitive receptor groups include children and infants, pregnant women, the elderly, and the acutely and chronically ill. According to AVAQMD’s *California Environmental Quality Act (CEQA) and Federal Conformity Guidelines* guidance (AVAQMD, 2011, p. 6), sensitive receptor locations include residences, schools, daycare centers, playgrounds, and medical facilities.

Recreational land uses are considered moderately sensitive to air pollution. Although exposure periods are generally short, exercise places a high demand on respiratory functions, which can be impaired by air pollution. In addition, noticeable air pollution can detract from the enjoyment of recreation. Industrial and commercial areas are considered the least sensitive to air pollution. Exposure periods are relatively short and intermittent, as the majority of the workers tend to stay indoors most of the time. In addition, the working population is generally the healthiest segment of the public.

A land use survey was conducted to identify sensitive receptors (e.g., local residences, schools, hospitals, churches, recreational facilities) in the general vicinity of the proposed project. In general, most of the land in a one-half mile radius surrounding the project site is either unoccupied, or occupied residences with other solar projects or land in agricultural use. The Del Sur Elementary School is located approximately 750 feet east of the proposed project’s southeastern border. Between the project site and the school is an area of open land and a small solar facility that is on school property. There are also few scattered residences, less than one dozen, located within a half mile of the project site borders. At a mile from the project site, the land use is generally similar with the exception of a residential community, Antelope Acres, located to the northeast between 90th Street West and 95th Street West and West Avenue F and West Avenue F-8. The proposed generation-tie lines and communication line routes are surrounded by similar land uses as those within one-half mile of the project site.

**Greenhouse Gases**

While climate change has been a concern since at least 1998, as evidenced by the establishment of the United Nations and World Meteorological Organization’s Intergovernmental Panel on Climate Change (IPCC), efforts devoted to GHG emissions reduction and climate change research and policy have increased dramatically in recent years. Global Climate Change (GCC) refers to the impacts that occur from the accumulation of GHGs in the atmosphere combined with other sources of atmospheric warming. The accumulation of GHGs in the atmosphere regulates the Earth’s temperature. Without these natural GHGs,
the Earth’s surface would be approximately 61°F cooler (CalEPA 2006, p. 7); however, emissions from fossil fuel combustion for activities such as electricity production and vehicular transportation have elevated the concentration of GHGs in the atmosphere above natural levels. Scientific evidence indicates a trend of increasing global temperatures near the Earth’s surface over the past century due to increased human-induced levels of GHGs. Worldwide over the past 132-year record, the ten warmest years have all occurred since 1998, with the two hottest years on record being 2010 and 2005 (NASA 2013). According to “The Future Is Now: An Update on Climate Change Science Impacts and Response Options for California,” a California Energy Commission document, the American West is heating up faster than other regions of the United States (CEC 2009, p. 9). The California Climate Change Center (CCCC) reports that, by the end of this century, average global surface temperatures could rise by 4.7°F to 10.5°F due to increased GHG emissions (CCCC 2006a, p. 2).

According to NOAA, the atmospheric concentration of Carbon Dioxide (CO₂) measured at Mauna Loa, Hawaii in January 2015 was 399.96 parts per million (ppm) (NOAA 2015) compared to the pre-industrial levels of 280 ppm +/- 20 ppm (IPCC 2007a, Chapter 1 p. 100). NOAA’s Mauna Loa data also show that the mean annual CO₂ concentration growth rate is accelerating, where in the 1960s it was about 0.9 ppm per year and in the first decade of the 2000s it was almost 2 ppm per year. The IPCC constructed several emission trajectories of GHGs needed to stabilize global temperatures and climate change impacts. It concluded that stabilization of GHGs below approximately 400 ppm carbon dioxide equivalent (CO₂e) concentration is required to keep long-term global mean warming below 3.6°F from pre-industrial levels, which is assumed to be necessary to avoid a large contribution to sea level rise from the West Antarctic Ice Sheet (IPCC 2007a, Chapter 10 pp. 828, 831).

The impact to climate change due to the increase in ambient concentrations of GHGs differ from criteria pollutants in that GHG emissions from a specific project do not cause direct adverse localized human health effects. Rather, the direct environmental effect of GHG emissions is the cumulative effect of an overall increase in global temperatures, which in turn has numerous indirect effects on the environment and humans. The impacts of climate change include potential physical, economic and social effects. These effects could include: inundation of settled areas near the coast from rises in sea level associated with melting of land-based glacial ice sheets, exposure to more frequent and powerful climate events, changes in suitability of certain areas for agriculture, reduction in Artic sea ice, thawing permafrost, later freezing and earlier breakup of ice on rivers and lakes, a lengthened growing season, shifts in plant and animal ranges, earlier spring events such as the flowering of trees, and a substantial reduction in winter snowpack (IPCC 2007b).

Specifically, California could experience unprecedented heat, longer and more extreme heat waves, greater intensity and frequency of heat waves, and longer dry periods. More specifically, it is predicted that California could witness the following events by the end of the century: (CCCC 2006a, p. 15)

- Temperature rises between 3 and 10.5°F,
- 6 to 30 inches or greater rise in sea level,
- 2 to 4 times as many heat-wave days in major urban centers,
- 2 to 6 times as many heat-related deaths in major urban centers,
- 1.5 to 2.5 times more critically dry years,
- 30 to 90 percent loss in Sierra snowpack,
- 25 to 85 percent increase in days conducive to ozone formation,
- 3 to 20 percent increase in electricity demand,
7 to 30 percent decrease in forest yields (pine), and
10 to 55 percent increase in the risk of wildfires.

Similar major changes to existing weather patterns and associated impacts could occur world-wide, but these climate changes will not always result in less rainfall or warmer temperatures. In some areas, rainfall would increase and average temperatures would drop. However, it is not specifically drought or increased temperatures that create the environmental, social, and economic impacts from climate change; rather, it is the significant change from existing weather patterns and conditions that causes these impacts.

**Greenhouse Gas Emissions**

GHGs are gases that trap heat in the atmosphere and are emitted by natural processes and human activities. Examples of GHGs that are produced both by natural processes and industry include CO₂, methane (CH₄), and nitrous oxide (N₂O). The State of California and the USEPA have identified six GHGs generated by human activity that are believed to be the primary contributors to man-made global warming: (1) CO₂, (2) CH₄, (3) N₂O, (4) hydrofluorocarbons (HFCs), (5) perfluorocarbons (PFCs), and (6) sulfur hexafluoride (SF₆).

- **Carbon Dioxide (CO₂):** CO₂ enters the atmosphere through the burning of fossil fuels (oil, natural gas, and coal), solid waste, trees and wood products, and chemical reactions (e.g., the manufacture of cement, etc.). CO₂ is also removed from the atmosphere (or “sequestered”) when it is absorbed by plants as part of the biological carbon cycle.

- **Methane (CH₄):** CH₄ is emitted during the production and transport of coal, natural gas, and oil. CH₄ emissions also result from livestock and agricultural practices and the decay of organic waste in municipal solid waste landfills.

- **Nitrous Oxide (N₂O):** N₂O is emitted during agricultural and industrial activities as well as during combustion of fossil fuels and solid waste.

- **Fluorinated Gases:** HFCs, PFCs, and SF₆ are synthetic, powerful climate-change gases that are emitted from a variety of industrial processes. Fluorinated gases are often used as substitutes for ozone-depleting substances (i.e., chlorofluorocarbons, hydrochloro-fluorocarbons, and halons). These gases are typically emitted in smaller quantities, but because they are potent climate-change gases, they are sometimes referred to as high “Global Warming Potential” (GWP) gases.

GHGs have varying amounts of GWP, where the GWP is the ability of a gas or aerosol to trap heat in the atmosphere. By convention, CO₂ is assigned a GWP of 1. In comparison, SF₆ has a GWP of 22,800, which means that it has a global warming effect 22,800 times greater than CO₂ on an equal-mass basis (TCR 2014). To account for their GWP, GHG emissions are often reported as CO₂ equivalent (CO2e). The CO2e for a source is calculated by multiplying each GHG emission by its GWP, and then adding the results together to produce a single, combined emission rate representing all GHGs.

GHG emissions in the United States and the State of California come mostly from energy use. Energy-related CO₂ emissions, resulting from fossil fuel exploration and use account for approximately three-quarters of the human-generated GHG emissions in the United States, primarily in the form of CO₂ emissions from burning fossil fuels. More than half the energy-related emissions within the United States come from large stationary sources, such as power plants; approximately a third comes from transportation; while agriculture and forestry and other land uses (residential and commercial) make up a majority of the remainder of sources (USEPA 2014, p. ES-22). The United States and State of California emissions of GHGs in 1990 and later years are summarized in Table C.4-3.
Table C.4-3. United States and California Greenhouse Gas Emissions (million metric tons CO2e.)

<table>
<thead>
<tr>
<th>Inventory Sector 1</th>
<th>1990</th>
<th>2005</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States Emissions 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electric Power Industry</td>
<td>1,866.1</td>
<td>2,445.7</td>
<td>2,401.8</td>
<td>2,187.0</td>
<td>2,302.5</td>
<td>2,200.9</td>
<td>2,064.9</td>
</tr>
<tr>
<td>Transportation</td>
<td>1,553.2</td>
<td>2,012.3</td>
<td>1,916.5</td>
<td>1,839.1</td>
<td>1,853.5</td>
<td>1,832.2</td>
<td>1,815.5</td>
</tr>
<tr>
<td>Industry</td>
<td>1,527.9</td>
<td>1,403.5</td>
<td>1,367.6</td>
<td>1,217.2</td>
<td>1,297.3</td>
<td>1,290.5</td>
<td>1,273.9</td>
</tr>
<tr>
<td>Agriculture</td>
<td>518.1</td>
<td>583.6</td>
<td>615.3</td>
<td>605.3</td>
<td>600.9</td>
<td>612.7</td>
<td>614.1</td>
</tr>
<tr>
<td>Commercial</td>
<td>385.3</td>
<td>370.4</td>
<td>379.2</td>
<td>381.9</td>
<td>376.6</td>
<td>378.4</td>
<td>353.2</td>
</tr>
<tr>
<td>Residential</td>
<td>345.4</td>
<td>371.3</td>
<td>365.4</td>
<td>357.9</td>
<td>359.9</td>
<td>353.9</td>
<td>322.0</td>
</tr>
<tr>
<td>U.S. Territories</td>
<td>33.7</td>
<td>58.2</td>
<td>49.8</td>
<td>47.9</td>
<td>58.0</td>
<td>57.9</td>
<td>57.9</td>
</tr>
<tr>
<td>United States Total</td>
<td>6,229.6</td>
<td>7,244.9</td>
<td>7,095.5</td>
<td>6,636.3</td>
<td>6,848.6</td>
<td>6,726.6</td>
<td>6,501.5</td>
</tr>
</tbody>
</table>

| State of California Emissions 3 |      |      |      |      |      |      |      |
| Electricity Generation | 110.6 | 108.2 | 120.4 | 101.6 | 90.5 | 88.3 | 95.3 |
| Transportation | 150.7 | 192.0 | 181.3 | 174.9 | 174.0 | 171.7 | 171.0 |
| Industry | 103.7 | 101.5 | 97.5 | 95.2 | 99.3 | 99.7 | 100.7 |
| Commercial | 14.4 | 16.6 | 18.5 | 19.8 | 21.1 | 21.8 | 22.0 |
| Residential | 29.7 | 30.2 | 31.2 | 31.0 | 32.2 | 33.0 | 31.6 |
| Agriculture & Forestry | 16.9 | 36.5 | 38.0 | 35.8 | 37.7 | 36.3 | 37.8 |
| Not Specified | 1.3 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| California Total | 433.3 | 485.1 | 487.1 | 458.4 | 453.1 | 450.9 | 458.7 |


Note(s):
1. Sectors are as provided in each of the references used, with the in-state and out-of-state electricity generation values totaled.
2. Does not include the emissions sinks presented in this reference.
3. Emissions are the non-excluded emissions totals, not including emissions sinks, provided in the first two pages of the respective references rounded to the nearest tenth of a million metric ton.

For comparison with the emission data given above in Table C.4-3, the estimated global emissions of CO2e in 2010 are 50,911 million metric tons (EDGAR 2015). This indicates that the United States, which has about 4.4 percent of the global population, emits roughly 13 percent of the total global GHG emissions. The State of California, which has approximately 0.55 percent of the global population, emits just less than 0.9 percent of the total global GHG emissions.

A critical interpretation of the data provided in Table C.4-3, along with knowledge regarding other current events, regulatory actions, and population levels, provides for several potential conclusions regarding the California and United States GHG emission trends, such as:

- After peaking earlier in the first decade of this millennia, emissions from electricity generation are dropping, which is likely due to both the increased use of natural gas, reduced reliance on coal, and the increase in renewable power (e.g., solar, wind, etc.).
- Transportation emissions are dropping, likely primarily due to the impact of increased vehicle fuel efficiency standards.
- Commercial and agricultural emissions are increasing along with the increase in population.
- GHG emissions can fluctuate from year to year, where such fluctuations may be based on economic conditions, severe weather conditions, or other factors that relate to fuel consumption and consumer habits.
California has a significantly lower per capita GHG emissions footprint than the United States average (about 45 percent lower based on 2010 emissions and population).

GHG emissions for the proposed project would include both direct and indirect emissions that occur as a result of project actions. Direct emissions from construction activities include GHG emissions generated from construction equipment and vehicles. Direct emissions from operation activities include a small amount of GHG emissions generated from solar panel operation and maintenance activities and from leaks of SF₆ from the onsite switchyard electrical equipment.

Indirect GHG emissions sources can take many forms depending on the type of project. For the proposed project, the primary source of indirect GHG emissions is from the reduction in fossil fuel-fired electricity generation that would result from the proposed project, which results in a large reduction in GHG emissions. The proposed project would provide a renewable energy resource that would displace generation from higher GHG emitting sources. There would be a small amount of indirect GHG emissions from proposed project water use.

C.4.2 Regulatory Setting

Air Quality

Sources of air emissions in the area of the MDAB surrounding the project area are regulated by the USEPA, CARB, and AVAQMD. In addition, regional and local jurisdictions play a role in air quality management. The role of each regulatory agency and a description of the specific and general regulations that apply to the proposed project are provided below.

Federal Regulations

The federal Clean Air Act (CAA) of 1970 and its subsequent amendments form the basis for the nation’s air pollution control effort. The USEPA is responsible for implementing most aspects of the CAA. Basic elements of the Act include the establishment of NAAQS for the criteria air pollutants (see Section C.4.1), hazardous air pollutant standards, attainment plans, motor vehicle emission standards, stationary source emission standards and permits, acid rain control measures, stratospheric ozone protection, and enforcement provisions.

The CAA allows the delegation of the enforcement of many of the federal air quality regulations to the states. In California, the CARB is responsible for enforcing these air pollution regulations. In the Los Angeles County portion of the MDAB, the AVAQMD has been delegated this responsibility. In addition, the AVAQMD and the CARB are the responsible agencies for providing attainment plans and meeting attainment with the NAAQS; and the USEPA reviews and approves these plans and regulations which are designed to attain and maintain attainment with the NAAQS.

Specific federal regulations that are applicable to the proposed project, either directly or indirectly, and that are enforced by federal agencies are listed below.

Emission Standards for Non-Road Diesel Engines. The USEPA has established a series of cleaner emission standards for new off-road diesel engines culminating in the Tier 4 Final Rule of June 2004 (USEPA 2004a). The Tier 1, Tier 2, Tier 3, and Tier 4 standards require compliance with progressively more stringent emission standards. Tier 1 standards were phased in from 1996 to 2000 (year of manufacture), depending on the engine horsepower category. Tier 2 standards were phased in from 2001 to 2006, and the Tier 3 standards were phased in from 2006 to 2008.
The Tier 4 standards complement the latest 2007 and later non-road, heavy-duty engine standards by requiring 90 percent reductions in diesel particulate matter (DPM) and NO\textsubscript{X} when compared against current emission levels. The Tier 4 standards are currently being phased in, starting with smaller engines in 2008 until all but the very largest diesel engines meet NO\textsubscript{X} and PM standards in 2015.

**Non-Road Diesel Fuel Rule.** In May 2004, the USEPA set sulfur limits for non-road diesel fuel. Under this rule, sulfur levels in non-road diesel fuel are now limited to 15 ppm (USEPA 2004b, p. 4), which make it equivalent to sulfur content restrictions of the California Diesel Fuel Regulations (described below).

**Emission Standards for On-Road Trucks.** To reduce emissions from on-road, heavy-duty diesel trucks, the USEPA established a series of cleaner emission standards for new engines, starting in 1988. These emission standards regulations have been revised over time. The latest effective regulation, the 2007 Heavy-Duty Highway Rule, provides for reductions in PM, NO\textsubscript{X}, and non-methane hydrocarbon emissions that were phased in during the model years 2007 through 2010 (USEPA 2000, p. 2).

**State Regulations**

**California Clean Air Act.** In California, the CARB is designated as the responsible agency for all air quality regulations. The CARB, which became part of the California Environmental Protection Agency in 1991, is responsible for implementing the requirements of the federal CAA, regulating emissions from motor vehicles and consumer products, and implementing the California Clean Air Act of 1988 (CCAA). The CCAA outlines a program to attain the CAAQS for ozone, NO\textsubscript{2}, SO\textsubscript{2}, and CO by the earliest practical date. Since the CAAQS are often more stringent than the NAAQS, attainment of the CAAQS will require more emission reductions than what is required to demonstrate attainment of the NAAQS. Similar to the federal requirements, the State requirements and compliance dates are based on the severity of the ambient air quality standard violation within a region. Additional information regarding the CAAQS that are relevant to the proposed project is provided in Section C.4.1.

Other CARB regulations promulgated under the authority of the CCAA that are relevant, directly or indirectly, to the proposed project are as follows:

- **California Diesel Risk Reduction Plan.** CARB has adopted several regulations that are meant to reduce the health risk associated with on- and off-road and stationary diesel engine operation. This plan recommends many control measures with the goal of an 85 percent reduction in DPM emissions by 2020. The regulations noted below, which may also serve to significantly reduce other pollutant emissions, are all part of this risk reduction plan.

- **Emission Standards for On-Road and Off-Road Diesel Engines.** The CARB, similar to the USEPA on-road and off-road emissions standards, regulations described above, has established emission standards for new on-road and off-road diesel engines. These regulations have model year based emissions standards for NO\textsubscript{X}, hydrocarbons, CO, and particulate matter (PM).

**In-Use Off-Road Vehicle Regulation.** The State has also enacted a regulation for the reduction of DPM and criteria pollutant emissions from in-use off-road diesel-fueled vehicles (CCR Title 13, Article 4.8, Chapter 9, Section 2449). This regulation provides target emission rates for PM and NO\textsubscript{X} emissions from owners of fleets of diesel-fueled off-road vehicles and applies to off-road equipment fleets of three specific sizes and the target emission rates are reduced over time.

The construction contractor(s) who complete the construction activities for the proposed project, including the applicant if they use their own off-road equipment fleet, would have to comply with the requirements of this regulation.
Specific regulation requirements include:

- Imposes limits on idling, requires a written idling policy, and requires a disclosure when selling vehicles;
- Requires all vehicles to be reported to CARB (using the Diesel Off-Road Online Reporting System, DOORS) and labeled;
- Restricts the adding of older vehicles into fleets starting on January 1, 2014; and
- Requires fleets to reduce their emissions by retiring, replacing, or repowering older engines, or installing Verified Diesel Emission Control Strategies, VDECS (i.e., exhaust retrofits). (CARB, 2014b, p. 1)

**Heavy Duty Diesel Truck Idling Regulation.** This CARB rule became effective February 1, 2005, and prohibits heavy-duty diesel trucks from idling for longer than five minutes at a time, unless they are queuing, and provided the queue is located beyond 100 feet from any homes or schools (CARB, 2006).

**California Diesel Fuel Regulations.** In 2004, the CARB set limits on the sulfur content of diesel fuel sold in California for use in on-road and off-road motor vehicles (Title 13, CCR, Sections 2281-2285 and Title 17, CCR, Section 93114). Under this rule, sulfur content of diesel fuel would be limited to 15 ppm starting in June 2006 (CARB 2004).

**Statewide Portable Equipment Registration Program.** The Statewide Portable Equipment Registration Program (PERP) establishes a uniform program to regulate portable engines and portable engine-driven equipment units (CARB 2005). Once registered in the PERP, engines and equipment units may operate throughout California without the need to obtain individual permits from local air districts, as long as the equipment is located at a single location for no more than 12 months.

**Local Regulations and Plans**

**AVAQMD Regulations.** The AVAQMD is primarily responsible for planning, implementing, and enforcing federal and State ambient standards within this portion of the MDAB. As part of its planning responsibilities AVAQMD prepares Air Quality Management Plans and Attainment Plans as necessary based on the attainment status of the Los Angeles County portion of the MDAB that is within its jurisdiction (desert area). The AVAQMD is also responsible for permitting and controlling stationary source criteria and air toxic pollutants as delegated by the USEPA. The AVAQMD has developed the following federal and State attainment planning documents:

- 2004 Ozone Attainment Plan (State and federal attainment)
- List and Implementation Schedule for District Measures to Reduce PM (2005 - State attainment)
- Federal 8-Hour Ozone Attainment Plan (2008)
- 2014 Update to the Reasonably Available Control Technology State Implementation Plan (AVAQMD, 2015a)

Through the attainment planning process, the AVAQMD develops the AVAQMD Rules and Regulations to regulate sources of air pollution in the Los Angeles County portion of the MDAB (AVAQMD, 2015b). The AVAQMD rules that are applicable to the proposed project are listed below.

**Regulation II – Permits.** This regulation includes rule requirements for obtaining necessary permits to construct and operate that will be applicable to the proposed project’s portable or stationary construction equipment with engines greater than 50 horsepower that do not have permits under the CARB PERP program.
- **Rule 401 – Visible Emissions.** This rule prohibits discharge of air contaminants or other material, which are as dark or darker in shade as that designated No. 1 on the Ringelmann Chart.

- **Rule 402 – Nuisance.** This rule prohibits discharge of air contaminants or other material that cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public; or that endanger the comfort, repose, health, or safety of any such persons or the public; or that cause, or have a natural tendency to cause, injury or damage to business or property.

- **Rule 403 – Fugitive Dust.** The purpose of this rule is to control the amount of PM entrained in the atmosphere from man-made sources of fugitive dust. The rule prohibits emissions of fugitive dust from any active operation, open storage pile, or disturbed surface area to be visible beyond the emission source’s property line. This rule also requires other reasonable precautions be taken to minimize dust during construction activities and prevent track-out upon public roadways. These measures may include, adding freeboard to haul vehicles, covering loose material on haul vehicles, watering, using chemical stabilizers and/or ceasing all activities (such as during periods of high winds). In addition, a Dust Control Plan (DCP) would need to be submitted to the Air Pollution Control Officer (APCO) for approval if more than 5 acres would be disturbed or if more than 2,500 cubic yards of material will be excavated per day for at least three days (for each phase of the project as applicable).

- **Rule 1110.2 – Internal Combustion Engines.** This rule establishes emissions limits for stationary, non-road, and portable internal combustion engines rated at 50 or more brake horsepower (bhp). Permitting non-road and portable equipment through the CARB PERP program provide compliance with this rule.

- **Rule 1113 – Architectural Coatings.** This rule limits the volatile organic compound (VOC) content of paints applied to various surfaces that would be applicable to any construction painting operation.

- **Rule 1166 – Volatile Organic Compound Emissions from Decontamination of Soil.** This rule sets requirements to control emissions from excavating, grading, handling and treating VOC-contaminated soils that may be encountered during project construction. The project site does not have known contamination issues. Regardless if VOC contaminated soils are discovered during project construction, this rule would apply and the proposed project would have to comply with applicable parts of this rule.

The USEPA has a number of other regulations under the authority of the federal CAA (such as New Source Review, Prevention of Significant Deterioration, Title V permitting program, etc.) that have been delegated to AVAQMD for enforcement. However, the proposed project would not have any operating stationary emission sources that would trigger these permitting requirements.

There is at least one new rule currently on the AVAQMD Master Rule Development Calendar that would likely be directly applicable to the proposed project (AVAQMD 2015c). That rule is identified as “Rule 403.5 – Solar Projects – Fugitive Dust”. The specifics of this rule are not currently available, but if promulgated it is expected that this rule would apply to the proposed project.

The AVAQMD in their *California Environmental Quality Act (CEQA) and Federal Conformity Guidelines* document has recommended air quality analysis methodologies and has established recommended CEQA significant emissions levels for applicable criteria pollutant emissions as follows:

- Carbon Monoxide (CO) – 548 pounds per day, 100 tons per year
- Oxides of Nitrogen (NOx) – 137 pounds per day, 25 tons per year
- Volatile Organic Compounds (VOC) – 137 pounds per day, 25 tons per year
- Oxides of Sulfur (SOx) – 137 pounds per day, 25 tons per year
Particulate Matter (PM$_{10}$) – 82 pounds per day, 15 tons per year

Particulate Matter (PM$_{2.5}$) – 82 pounds per day, 15 tons per year (AVAQMD 2011, p. 7).

City of Lancaster General Plan. The City of Lancaster has an adopted General Plan that includes air quality related goals and policies (City of Lancaster 2009). The General Plan includes the following air resources policies:

- **Policy 3.3.1:** Minimize the amount of vehicular miles traveled.
- **Policy 3.3.2:** Facilitate the development and use of public transportation and travel modes such as bicycle riding and walking.
- **Policy 3.3.3:** Minimize air pollutant emissions generated by new and existing development.
- **Policy 3.3.4:** Protect sensitive uses such as homes, schools and medical facilities, from the impacts of air pollution.
- **Policy 3.3.5:** Cooperate with the AVAQMD and other agencies to protect air quality in the Antelope Valley.

General Plan policies 3.3.1 and 3.3.2 are not directly applicable to the proposed project as the project only has substantial vehicle traffic within a very short period of time during construction and the proposed project would not affect the use of public transportation. However, the other three policies apply and are being addressed through the CEQA process, including the incorporation of relevant air quality mitigation measures that would minimize pollutant emissions and protect sensitive uses.

Greenhouse Gases

All levels of government have some responsibility for the protection of air quality, and each level (federal, State, and regional/local) has specific responsibilities relating to air quality regulation. The regulation of GHGs is a relatively new component of air quality. Several legislative actions have been adopted to regulate GHGs on a federal, State, and local level, as detailed in this section.

Federal Regulations

United States Environmental Protection Agency. On April 2, 2007, in Massachusetts v. EPA, 549 U.S. 497 (2007), the Supreme Court found that GHGs are air pollutants covered by the Clean Air Act. In reaching its decision, the court also acknowledged that climate change results, in part, from anthropomorphic causes. The Supreme Court’s ruling paved the way for the regulation of GHG emissions by the USEPA under the CAA. The Court held that the USEPA must determine whether or not emissions of GHGs from new motor vehicles cause or contribute to air pollution that may reasonably be anticipated to endanger public health or welfare, or whether the science is too uncertain to make a reasoned decision. In making these decisions, the USEPA is required to follow the language of section 202(a) of the Clean Air Act. The Supreme Court decision resulted from a petition for rulemaking under section 202(a) filed by more than a dozen environmental, renewable energy, and other organizations.

On April 17, 2009, the Administrator signed proposed endangerment and cause or contribute findings for GHGs under Section 202(a) of the Clean Air Act. The USEPA held a 60-day public comment period, which ended June 23, 2009, and received over 380,000 public comments. These included both written comments as well as testimony at two public hearings in Arlington, Virginia, and Seattle, Washington. The USEPA carefully reviewed, considered, and incorporated public comments and has issued final Findings.

The USEPA found that the current and projected concentrations of the GHGs in the atmosphere threaten the public health and welfare of current and future generations. The USEPA also found that the combined emissions of these GHGs from new motor vehicles and new motor vehicle engines contribute to the GHG
air pollution that endangers public health and welfare under CAA section 202(a). These findings were based on careful consideration of the full weight of scientific evidence and a thorough review of numerous public comments received on the Proposed Findings published April 24, 2009. The findings became effective on January 14, 2010 (USEPA 2009).

USEPA has enacted a number of GHG regulations, and other environmental regulations that impact GHG emissions, including:

- Mandatory GHG Reporting,
- GHG Tailoring Rule for Prevention of Significant Deterioration Permits,
- Carbon Pollution Standards for Power Plants,
- Oil and Natural Gas Air Pollution Standards,
- GHG Vehicle Emissions Standards,
- Corporate Average Fuel Economy Standards,
- Renewables Fuel Standard, and
- Geologic Sequestration of Carbon Dioxide, under the Safe Drinking Water Act. (USEPA 2015b; USEPA 2015c)

None of these federal regulations are specifically relevant to the construction or operation of the proposed project; however, the vehicle and fuel-related standards would indirectly cause GHG emission reductions from the regulated vehicles used during construction and operation of the proposed project.

**State Regulations**

Climate change is a global phenomenon, and the regulatory background and scientific data are changing rapidly. In addition to the federal regulations and policies on climate change, several states, including California, are formally addressing climate change. As of 2013, California is one of 20 states that have set GHG emission targets (C2ES, 2013). Executive Order S-3-05 and Assembly Bill (AB) 32, the California Global Warming Solutions Act of 2006, promulgated targets to achieve reductions in GHG to 1990 GHG levels by the year 2020. This target-setting approach allows progress to be made in addressing climate change, and is a forerunner to setting emission limits. The CARB is designated as the responsible State agency for traditional air quality regulations. In addition, AB 32 vested CARB with regulatory authority for GHGs.

There are a variety of statewide rules and regulations that have been implemented or are in development in California that mandate the quantification or reduction of GHGs, or plan for adaptation for expected climate change scenarios. The relevant State actions are discussed below.

**Executive Order S-3-05.** Executive Order S-3-05 was signed by Governor Arnold Schwarzenegger in June 2005. Executive Order S-3-05 establishes the following statewide emission reduction targets through the year 2050:

- by 2010, reduce GHG emissions to 2000 levels;
- by 2020, reduce GHG emissions to 1990 levels; and
- by 2050, reduce GHG emissions to 80 percent below 1990 levels.

Executive Order S-3-05 also calls for the CalEPA to coordinate oversight in the efforts to meet these targets and to prepare biennial science reports on the potential impact of continued GCC on certain sectors of the California economy. The first of these reports, “Our Changing Climate: Assessing Risks to California”,

June 2015

C.4-13

Draft EIR
and its supporting document “Scenarios of Climate Change in California: An Overview” were published by the California Climate Change Center in 2006 (CCCC 2006a, CCCC 2006b). The Climate Action Team has prepared subsequent Executive Order S-3-05 mandated reports in 2007/2008, 2009, and 2010.

This Executive Order does not include any specific requirements that pertain to the proposed project. However, actions taken by the State to implement these goals may affect the proposed project, depending on the specific implementation measures that are developed.

**Assembly Bill 32.** In response to Executive Order S-3-05 (June 2005), which declared California’s particular vulnerability to climate change, the California Global Warming Solutions Act of 2006, AB 32, was signed into effect on September 27, 2006. In passing the bill, the California Legislature found that:

“Global warming poses a serious threat to the economic well-being, public health, natural resources, and the environment of California. The potential adverse impacts of global warming include the exacerbation of air quality problems, a reduction in the quality and supply of water to the state from the Sierra snowpack, a rise in sea levels resulting in the displacement of thousands of coastal businesses and residences, damage to marine ecosystems and the natural environment, and an increase in the incidences of infectious diseases, asthma, and other human health-related problems.” (California Health & Safety Code, Sec. 38500, Division 25.5, Part 1).

AB 32 was established to mandate the quantification and reduction of GHGs to 1990 levels by 2020, and is the first law to comprehensively limit GHG emissions at the State level. The law establishes periodic targets for reductions, and requires certain facilities to report emissions of GHGs annually. The bill also reserves the ability to reduce emissions targets lower than those proposed in certain sectors that contribute the most to emissions of GHGs, including transportation.

Additionally, the bill requires:

- GHG emission standards to be implemented by 2012; and
- CARB to develop an implementation program and adopt GHG control measures “to achieve the maximum technologically feasible and cost-effective GHG emission reductions from sources or categories of sources.” CARB issued a draft Climate Change Scoping Plan in December 2008.

The AB 32 Scoping Plan contains the main strategies California will use to reduce the GHGs that cause climate change. The Scoping Plan includes recommendations for reducing GHG emissions from most sectors of the California economy. The Scoping Plan has a range of GHG reduction actions, which include direct regulations, alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions, market-based mechanisms such as a cap-and-trade system, and an AB 32 cost of implementation fee regulation to fund the program. These measures were introduced through four workshops between November 30, 2007, and April 17, 2008. A draft Scoping Plan was released for public review and comment on June 26, 2008, followed by more workshops in July and August 2008. The proposed Scoping Plan was released on October 15, 2008, and approved at the Board hearing on December 12, 2008.

The draft of the First Update to the Scoping Plan was published in February 2014, followed by its accompanying Environmental Analysis (CEQA Equivalent Document) published in March 2014 and approved in June 2014 (CARB 2014c).

**California Renewable Portfolio Standard Program.** Senate Bill (SB) 1078 established California’s Renewable Portfolio Standard (RPS) program in 2002. The RPS program requires electrical corporations and electric service providers to purchase a specified minimum percentage of electricity generated by
eligible renewable energy resources. The bill requires the California Energy Commission to certify eligible renewable energy resources, to design and implement an accounting system to verify compliance with the RPS by retail sellers, and to allocate and award supplemental energy payments to cover above-market costs of renewable energy. Under SB 1078, each electrical corporation was required to increase its total procurement of eligible renewable energy resources by at least one percent per year so that 20 percent of its retail sales were procured from eligible renewable energy resources.

In 2006, SB 107 accelerated the RPS program by establishing a deadline of December 31, 2010, for achieving the goal of having 20 percent of total electricity sold to retail customers in California per year generated from eligible renewable energy resources.

The RPS goal was increased to 33 percent when Governor Schwarzenegger signed Executive Order S-14-08 in November 2008. Executive Order S-14-08 was later superseded by Executive Order S-21-09 on September 15, 2009. Executive Order S-21-09 directed the CARB to adopt regulations requiring 33 percent of electricity sold in the State come from renewable energy by 2020. On September 23, 2010, the CARB approved a Renewable Electricity Standard regulation.

The 33 percent RPS goal became law when SB X1-2 was signed into law by Governor Brown in April 2011. SB X1-2, which was codified into the California Public Resources Code (25740 through 25751) and Public Utilities Code (PUC 399.11 through 399.31), requires that all electricity retailers in the State meet a 33 percent RPS by the end of 2020, and also requires that they have met a 20 percent RPS by 2013, and will meet a 25 percent RPS by 2016.

Early in 2015, the Governor and Legislature started work to increase the RPS standard to 50 percent by the year 2030, but currently there is no official Executive Order or approved bill to enact this increase in the RPS into state law.

This law does not specifically apply to the proposed project, but the proposed project would help to enable electricity retailers to meet their RPS obligations required under this law.

**Senate Bill 1368.** SB 1368 was enacted in 2006, and required the California Public Utilities Commission (CPUC) to establish a CO₂ emissions standard for base load generation owned by or under long-term contract with publicly owned utilities. The CPUC adopted GHG requirements in the form of an Emissions Performance Standard for any long-term power commitments made by the State’s electrical utilities. Utilities are not allowed to enter into a long-term commitment to buy base load power from power plants that have CO₂ emissions greater than 1,100 pounds (0.5 metric tons) per megawatt-hour (MWh). The GHG Emissions Performance Standard applies to new power plants, new investments in existing power plants, and new or renewed contracts with terms of five years or more, including contracts with power plants located outside of California. SB 1368 also requires the posting of notices of public deliberations by publically owned companies on the CPUC website and establishes a process to determine compliance with the EPS. On May 23, 2007, the CEC also adopted a performance standard consistent with that adopted by the CPUC. Solar power plants are exempt from this regulation.

**Regulation for Reducing Sulfur Hexafluoride Emissions from Gas Insulating Gear.** This CARB regulation (17 CCR 95350) became effective on June 17, 2011. This regulation requires that owners of SF₆-containing gas insulating gear meet annual leakage rate limits, and requires that they measure, record, and report annual SF₆ emissions.

**California Senate Bill 97.** SB 97, enacted in 2007, amends the CEQA statute to clearly establish that GHG emissions and the effects of GHG emissions are appropriate subjects for CEQA analysis. It directs the Office
of Planning and Research (OPR) to develop draft CEQA guidelines “for the mitigation of greenhouse gas emissions or the effects of greenhouse gas emissions” by July 1, 2009, and directs the Resources Agency to certify and adopt the CEQA guidelines by January 1, 2010.

The OPR published a technical advisory on CEQA and Climate Change on June 19, 2008 (OPR 2008). The guidance did not include a suggested threshold, but stated that the OPR has asked the CARB to, “recommend a method for setting thresholds which will encourage consistency and uniformity in the CEQA analysis of greenhouse gas emissions throughout the state.” The OPR does recommend that CEQA analyses include the following components:

- Identify GHG Emissions,
- Determine Significance, and
- Mitigate Impacts.

On December 30, 2009, the California Natural Resources Agency adopted amendments to the CEQA Guidelines including GHG/Climate Change analysis guidelines. According to the California Natural Resources Agency, “due to the global nature of GHG emissions and their potential effects, GHG emissions will typically be addressed in a cumulative impacts analysis” (CNRA 2009, p. 17). Two GHG CEQA checklist items were included as part of the Guideline amendment; they are discussed further in Section C.4.3.

As discussed in Section 15064.4 of the CEQA Guidelines, the determination of the significance of GHG emissions calls for a careful judgment by the lead agency, consistent with the provisions in Section 15064. Section 15064.4 further provides that a lead agency should make a good-faith effort, to the extent possible, on scientific and factual data, to describe, calculate, or estimate the amount of GHG emissions resulting from a project.

A lead agency shall have discretion to determine, in the context of a particular project, whether to:

- Use a model or methodology to quantify GHG emissions resulting from a project, and which model or methodology to use. The lead agency has discretion to select the model or methodology it considers most appropriate provided it supports its decision with substantial evidence. The lead agency should explain the limitations of the particular model or methodology selected for use; and/or
- Rely on a qualitative analysis or performance based standards.

Section 15064.4 also advises a lead agency to consider the following factors, among others, when assessing the significance of impacts from GHG emissions on the environment:

- The extent to which the project may increase or reduce GHG emissions as compared to the existing environmental setting;
- Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project; and
- The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions.

**Office of the California Attorney General.** The Office of the California Attorney General maintains a website with a list of resources that set forth potential CEQA mitigations for GCC impacts (OAG 2014). The Attorney General has listed reference documents that local agencies may consider to offset or reduce GCC impacts from a project. These references are examples that are not intended to be exhaustive and provide measures and policies that could be undertaken. Moreover, the measures cited may not be appropriate for every project, so the Attorney General recommends that the lead agency use its own informed
judgment in deciding which measures it would analyze, and which measures it would require for a given project.

The references, provided by in the Attorney General’s website, list energy efficiency measures that could be undertaken or funded by a diverse range of projects, including: renewable energy, water conservation and efficiency, solid waste measures, land use measures, transportation and motor vehicles, and carbon offsets (OPR 2008; CAPCOA 2009). However, most of the listed measures would not be applicable to the proposed project because they are more appropriate as measures to reduce long-term operational GHG emissions. However, these and other potential GHG emissions reduction measures listed by state agencies will be evaluated for applicability.

**Local Regulations and Plans**

Many local air pollution control agencies in California have proposed numerical or other GHG significance criteria. The AVAQMD, which has local regulatory authority over the air pollutant emissions, has established a recommended CEQA-significant emissions level (100,000 tons CO2e per year) for addressing GHG emissions (AVAQMD 2011, p. 7). However, the AVAQMD does not currently have any additional CEQA guidelines related to assessing GCC impacts or have current or proposed new specific local regulations related to GHG emissions (AVAQMD 2011; AVAQMD 2015b; AVAQMD 2015c).

Additionally, there are many jurisdictions (city and county) within California that have adopted climate change plans or climate action plans. However, the City of Lancaster does not have an adopted climate change plan or specific climate change policies within the City’s General Plan (City of Lancaster 2009).

**C.4.3 Environmental Impacts and Mitigation Measures**

The following significance criteria or thresholds were derived from Appendix G of the CEQA Guidelines. The criteria that applies to odor was addressed in the Notice of Preparation and identified as an environmental issue that did not need further analysis in the EIR. Refer to Section E (Other CEQA Considerations) and Appendix 1 for the assessment of this issue. The analysis of air quality and greenhouse gas emissions includes consideration of the criteria below.

**Air Quality.** An air quality impact would be considered significant if the proposed project would:

- Be inconsistent with the applicable adopted Air Quality Management Plan (AQMP).
- Generate emissions of criteria air pollutants that would exceed AVAQMD significance thresholds.
- Generate emissions of toxic or hazardous air pollutants that exceed AVAQMD significance thresholds.
- Subject individuals to substantial risk of Valley Fever infection.

**Greenhouse Gas Emissions.** A greenhouse gas emissions impact would be considered significant if the proposed project would:

- Result in greenhouse gas emissions exceeding the AVAQMD significance threshold of 100,000 Metric tons per year of CO2e.
- Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Construction and Operation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Annual Threshold</td>
</tr>
<tr>
<td>NOx</td>
<td>25 tons/year</td>
</tr>
<tr>
<td>VOC</td>
<td>25 tons/year</td>
</tr>
<tr>
<td>PM10</td>
<td>15 tons/year</td>
</tr>
<tr>
<td>PM2.5</td>
<td>15 tons/year</td>
</tr>
<tr>
<td>SOx</td>
<td>25 tons/year</td>
</tr>
<tr>
<td>CO</td>
<td>100 tons/year</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Impact</th>
<th>Impact Threshold</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cancer Risk</td>
<td>≥ 10 in 1 million</td>
</tr>
<tr>
<td>Chronic Hazard Index</td>
<td>≥ 1</td>
</tr>
<tr>
<td>Acute Hazard Index</td>
<td>≥ 1</td>
</tr>
</tbody>
</table>
Environmental Impact Analysis

**Impact AQ-1:** The proposed project would be inconsistent with the applicable adopted AQMP. (Class III – Less than Significant)

The AVAQMD has federal and State air quality plans for ozone and a State air quality planning document for PM$_{10}$. The AVAQMD is in federal and State attainment of the other criteria pollutants, so no air quality plans are required for those pollutants (PM$_{2.5}$, CO, NOx, and SOx).

**Ozone**

The AVAQMD 2004 Ozone Attainment Plan (AVAQMD 2004), 2008 Federal 8-Hour Ozone Attainment Plant (AVAQMD 2008), 2006 8-Hour Reasonably Available Control Technology – State Implementation Plan Analysis (RACT SIP Analysis) (AVAQMD 2006), and the 2014 update to the 2006 RACT SIP analysis (AVAQMD, 2014) do not propose any new control measures that would be applicable to the proposed project beyond those in their current rules and regulations. The proposed project would have to comply with Rule 1110.2 (Emissions from Stationary, Non-road and Portable Internal Combustion Engines), which would require that the construction contractor provide recordkeeping of hours and fuel use for all non-road and portable internal combustion engines and obtain appropriate local or State portable equipment engine permits (the proposed project is not proposing any stationary engines); and Rule 1113 (Architectural Coatings), where the construction contractor would have to ensure that the paints and other coatings used onsite comply with the VOC limits of this rule. Therefore, assuming compliance with existing rules and regulations the proposed project would be consistent with the Ozone Air Quality Management Plan for Antelope Valley.

**PM$_{10}$**

The AVAQMD prepared a list of measures to reduce PM emissions in 2005 (AVAQMD 2005). Of the new control measures listed, the only applicable measures are fugitive dust control measures that would be integrated into Rule 403 – Fugitive Dust or added as new “403.x” rules. The AVAQMD has proposed, on their rule development calendar, a fugitive dust rule specific to controlling fugitive dust emissions from operating solar projects, Rule 403.5; however, AVAQMD has no timeline for completing this rule. To comply with Rule 403 the construction contractor would have to submit a dust control plan meeting the mitigation requirements of the rule prior to initiation of construction and follow the measures outlined in that plan.

**Summary**

The proposed project would have to comply with all rules and regulations applicable at the time of the proposed project’s construction, operation and decommissioning and therefore would not conflict with the approved AVAQMD Air Quality Management Plans. No mitigation is necessary.

**Impact AQ-2:** The project would generate emissions of criteria air pollutants that would exceed AVAQMD significance thresholds. (Class II – Less than Significant with Mitigation [construction]; Class III – Less than Significant [operation])

The proposed project would have emissions during construction, operation and decommissioning. The proposed project’s construction and operation emissions are estimated in Appendix 3.

The project’s construction shall limit grading operations, and mass site grading shall not occur. Onsite unpaved roads shall be graded and compacted to meet Fire Department standards; the remainder of the project site can be rolled, not graded. Other excavation and ground disturbance shall be limited to trenching and preparation of pads for inverters, transformers, etc. (portions of the project site that will be paved).
The uncontrolled construction emissions estimate includes all of these construction method assumptions. Table C.4-4 includes estimates of the proposed project’s uncontrolled construction emissions.

### Table C.4-4. Estimated Unmitigated Construction Emissions

<table>
<thead>
<tr>
<th></th>
<th>Average Daily Emissions (lbs/day)</th>
<th>Total Project Emissions (Tons)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NOx</td>
<td>VOC</td>
</tr>
<tr>
<td>Project Total</td>
<td>71.40</td>
<td>8.40</td>
</tr>
<tr>
<td>Significance Thresholds¹</td>
<td>137</td>
<td>137</td>
</tr>
<tr>
<td>Exceeds Thresholds?</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

Source: Appendix 3.
Note: ¹The thresholds refer to AVAQMD significance thresholds.

The only pollutant that exceeds AVAQMD thresholds before mitigation is PM10 emissions. The majority of the PM10 emissions come from fugitive dust. Therefore, the mitigated construction emissions only assumed fugitive dust control measures that are comprised of the following: water exposed areas, water unpaved roads, and reduce vehicle speed on unpaved roads to 15 miles per hour (mph). Table C.4-5 provides the fugitive dust mitigated construction emissions estimate.

### Table C.4-5. Estimated Mitigated Construction Emissions

<table>
<thead>
<tr>
<th></th>
<th>Average Daily Emissions (lbs/day)</th>
<th>Annual Project Emissions (Tons)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NOx</td>
<td>VOC</td>
</tr>
<tr>
<td>Project Total</td>
<td>71.40</td>
<td>8.40</td>
</tr>
<tr>
<td>Significance Thresholds¹</td>
<td>137</td>
<td>137</td>
</tr>
<tr>
<td>Exceeds Thresholds?</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

Source: Appendix 3.
Note: ¹The thresholds refer to AVAQMD significance thresholds.

After mitigation the estimated proposed project construction emissions for all pollutants are below AVAQMD emissions significance thresholds.

The proposed project’s operation is limited to inspection activities twice a week and mirror cleaning events twice per year. The emission estimates for these operations and maintenance activities are provided in Table C.4-6.

### Table C.4-6. Estimated Maintenance Emissions

<table>
<thead>
<tr>
<th></th>
<th>Average Daily Emissions (lbs/day)</th>
<th>Annual Project Emissions (Tons)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NOx</td>
<td>VOC</td>
</tr>
<tr>
<td>Project Total</td>
<td>0.20</td>
<td>0.02</td>
</tr>
<tr>
<td>Significance Thresholds¹</td>
<td>137</td>
<td>137</td>
</tr>
<tr>
<td>Exceeds Thresholds?</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

Source: Appendix 3.
Note: ¹The thresholds refer to AVAQMD significance thresholds.

Operational emissions are minimal and are below all AVAQMD emissions significance thresholds. The PM10 and PM2.5 emissions are much higher than the rest due to the conservative assumptions used to determine the unpaved road dust emissions and the wind erosion emissions from the disturbed areas of the project site.
The proposed project’s decommissioning emissions were not quantitatively estimated as the extent of activities and emissions factors for equipment and vehicles at the time of decommissioning are unknown. The overall activity would be anticipated to be somewhat less than project construction and the emissions from off-road and on-road equipment may be much less than project construction. However, without changes in fugitive dust control methods it is likely that fugitive dust emissions would be closer to those estimated for construction. Overall, similar to construction, with appropriate fugitive dust controls the decommissioning emission would be less than significant based on current AVAQMD significance thresholds.

**Summary**

The proposed project’s construction would have the potential to exceed the AVAQMD PM$_{10}$ emissions thresholds without sufficient fugitive dust controls. However, with the implementation of Mitigation Measure AQ-1 the proposed project would have less than significant criteria emissions impacts during construction (Class II). The proposed project would have less than significant criterial emissions impacts during operation (Class III). The proposed project would have less than significant criteria emission impacts during decommissioning with appropriate fugitive dust mitigation (Class II).

**Mitigation Measure**

**MM AQ-1**

A dust control plan shall be prepared, submitted, and approved by the AVAQMD per Rule 403 requirements prior to initiation of proposed project construction and prior to initiation of project decommissioning. All proposed fugitive dust mitigation measures shall be designed so that visible dust emission do not exceed 20 percent opacity. The ongoing compliance of these control measures shall be ensured by a qualified Construction Mitigation Manager (CMM). The CMM shall have the authority to require the implementation of additional dust control measures if conditions warrant. The Dust Control Plan shall include the following measures or requirements, or others as allowed by Rule 403, where determined to be more appropriate:

- Vehicle speeds on unpaved roads shall be limited to 15 miles per hour.
- Track-out onto paved public roads shall be controlled using wheel washing system, wheel shaker/wheel spreading device, a washed gravel pad that is 30 feet long and 50 feet long, or equivalent means.
- Unpaved roads, active construction areas, storage piles, and other disturbed areas shall be watered or chemical/organic stabilizers/suppressants applied at a frequency necessary to limit visible dust emissions below 20 percent opacity.
- Vegetation shall be maintained (mowed/cut/grazed) in areas that do not require removal of vegetation for fire prevention purposes, in order to control dust.
- When wind speeds exceed 25 miles per hour the sources of visible dust emissions shall temporarily halt operations or additional control measures shall be applied to eliminate the visible dust emissions, and in the case of dust emission from inactive disturbed areas during high winds additional watering or dust suppressants shall be applied to reduce the visible dust emissions.
- Bulk material storage piles shall be covered, or stored in areas with wind barriers and water/dust suppressants applied to reduce dust emissions.
Bulk materials shall be transported in trucks with covers, or using a minimum freeboard of 12 inches.

Construction site signs meeting the number and other requirements of Rule 403 Appendix A shall be installed during project construction.

**Impact AQ-3:** The proposed project would generate emissions of toxic or hazardous air pollutants that exceed AVAQMD significance thresholds. (Class III – Less than Significant)

The proposed project’s emissions of toxic air pollutants is minimal and would consist primarily of DPM (diesel particulate matter) emissions during project construction activities. No other toxic air pollutant emissions sources other the construction employee’s commuting gasoline-fueled vehicle emissions are proposed to be used during project construction or operation. A review of the emissions calculation results provided in Appendix 3 indicates that the onsite off-road equipment and on-road vehicle tailpipe particulate emissions, which are primarily DPM emissions, for construction and operation annualized over the 30 year project life would be less than 16 pounds per year before mitigation, and would be reduced another 33 percent with implementation of Mitigation Measure AQ-2 (see Section C.4.4 Cumulative Impacts Analysis). The DPM emissions would be emitted and then dispersed over the several hundred acre project site. Therefore, considering the low annual quantity of toxics emissions and their dispersion over the large project site these emissions would not cause any local receptor to incur a cancer risk above 10 in a million or an acute or chronic hazard index of 1 or more. Therefore, the air toxic pollutant impacts would be less than significant.

**Impact AQ-4:** The proposed project would subject individuals to substantial risk of Valley Fever infection. (Class II – Less than Significant with Mitigation)

Valley fever is endemic in the northern portion of Los Angeles County, so fugitive dust emissions from the proposed project could cause exposure to the arthroconidia (spores) of the fungus Coccidioides immitis. This exposure to the spores could cause construction workers, area residents, or Del Sur Elementary School children to contract the disease. The primary way to avoid valley fever is to limit exposure to the spores, and the construction methods and mitigation measure (see Mitigation Measure AQ-1 above) would limit the amount of excavation required and would provide significant control of the fugitive dust emissions during construction. The impacts during operation and decommissioning would be lower than those for construction. Therefore, it is concluded that the potential risk from valley fever infection due to the proposed project is less than significant after mitigation.

**Impact AQ-5:** The proposed project would result in greenhouse gas emissions exceeding the AVAQMD significance threshold. (Class IV – beneficial)

The project’s direct and indirect emissions were calculated and those calculations and the assumptions used in those calculations are provided in Appendix 3. Table C.4-7 provides a summary of the results of the GHG emissions calculations, compared to the AVAQMD GHG emissions significance threshold.

Project decommissioning emissions were not calculated as the equipment and fuel types that would exist 30 or more years in the future are unknown, but it is anticipated that the decommissioning emissions would be lower than the construction emissions. Regardless, the proposed project’s annual indirect GHG emissions from the displacement of fossil fuel fired electricity generation is orders of magnitude greater than the proposed project’s annualized direct and indirect emissions sources, so the overall effect of the proposed project is to reduce GHG emissions. Therefore, the proposed project would have a beneficial GHG emissions impact (Class IV).
Table C.4-7. Greenhouse Gas Emissions

<table>
<thead>
<tr>
<th>Emissions Source</th>
<th>GHG Emissions (Tons CO2e)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annualized Construction Emissions¹</td>
<td>53.9</td>
</tr>
<tr>
<td>Total Annual Operation Emissions²</td>
<td>-120,448.4</td>
</tr>
<tr>
<td><strong>Total Annualized Emissions</strong></td>
<td><strong>-120,394.5</strong></td>
</tr>
<tr>
<td>AVAQMD Significance Threshold³</td>
<td>110,250</td>
</tr>
<tr>
<td>Exceeds Threshold</td>
<td>NO</td>
</tr>
</tbody>
</table>

Source: Appendix 3.

1. This represents the total construction emissions amortized over the project life (30 years).
2. Includes a conservative estimate for the GHG emissions during operation (O&M, SF₆ equipment leaks, operating water use indirect emissions, and loss of CO₂ uptake from land disturbance) and the emissions avoided due to the displacement of fossil fuel fired electricity generation.
3. Metric Ton threshold of 100,000 tons per year converted to short tons.

**Impact AQ-6:** The proposed project would conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases. (Class III – Less than Significant)

As noted in Section C.4.2, there are no federal, State, or local climate change or GHG emissions regulations that directly affect the proposed project’s construction. The proposed project is proposing SF₆-containing equipment, which would be subject to the CARB Regulation for Reducing Sulfur Hexafluoride Emissions from Gas Insulating Gear (17 CCR 95350). Additionally, there are a number of federal, State, and local plans and policies, and GHG emissions reduction strategies that are potentially applicable to the proposed project, either directly or indirectly. A summary of the compliance with all potentially applicable GHG plans, policies, and regulations is provided in Table C.4-8.

Table C.4-8. Project Consistency with Applicable Plans, Policies, and Regulations for GHG Emissions

<table>
<thead>
<tr>
<th>Adopted Plan, Policy, or Regulation</th>
<th>Consistency</th>
<th>Proposed Project Consistency</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FEDERAL</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>40 CFR Part 98. Mandatory Reporting of Greenhouse Gases Rule.</td>
<td>Not Applicable</td>
<td>The proposed project would not have emissions sources that would be subject to this regulation.</td>
</tr>
<tr>
<td>40 CFR Part 52. Proposed Prevention of Significant Deterioration and Title V Greenhouse Gas Tailoring Rule.</td>
<td>Not Applicable</td>
<td>The proposed project would not have emissions sources that would be subject to this regulation.</td>
</tr>
<tr>
<td><strong>STATE</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AB 32. Regulation for Reducing Sulfur Hexafluoride Emissions from Gas Insulating Gear (17 CCR 95350)</td>
<td>Consistent</td>
<td>The proposed project’s new SF₆ containing equipment would be subject to this regulation and the project owner would be required to comply with the requirements of this regulation.</td>
</tr>
<tr>
<td>AB 32. Annual GHG Emissions Reporting</td>
<td>Not Applicable</td>
<td>The proposed project does not include emissions sources that would be subject to this regulation.</td>
</tr>
<tr>
<td>AB 32. Cap-and-Trade</td>
<td>Not Applicable</td>
<td>The proposed project does not include emissions sources that would be subject to this regulation.</td>
</tr>
</tbody>
</table>

| California Renewable Portfolio Standard Program                 | Consistent                |                                |

Table C.4-9 identifies current California emission reduction strategies to reduce GHGs, identifies the applicability of each strategy, and the proposed project design feature or mitigation measure that is proposed to comply with the applicable strategies.
Table C.4-9. California GHG Reduction Strategies

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Project Design/Mitigation to Comply with Strategy</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Vehicle Climate Change Standards</strong>: AB 1493 (Pavley) required the State to develop and adopt regulations that achieve the maximum feasible and cost-effective reduction of climate change emissions emitted by passenger vehicles and light duty trucks. Regulations were adopted by CARB in September 2004.</td>
<td>These are CARB enforced standards; vehicles that access the project site during construction and operation are required to comply with the standards addressed under these strategies.</td>
</tr>
<tr>
<td><strong>Other Light Duty Vehicle Technology</strong>: New standards would be adopted to phase in beginning in the 2017 model.</td>
<td></td>
</tr>
<tr>
<td><strong>Heavy-Duty Vehicle Emission Reduction Measures</strong>: Increased efficiency in the design of heavy-duty vehicles and an education program for the heavy-duty vehicle sector.</td>
<td></td>
</tr>
<tr>
<td><strong>Diesel Anti-idling</strong>: In July 2004, CARB adopted a measure to limit diesel-fueled commercial motor vehicle idling.</td>
<td></td>
</tr>
<tr>
<td><strong>Achieve 50 percent (50%) Statewide Recycling Goal</strong>: Achieving the State’s 50 percent (50%) waste diversion mandate as established by the Integrated Waste Management Act of 1989, (AB 939, Sher, Chapter 1095, Statutes of 1989), will reduce climate change emissions associated with energy intensive material extraction and production as well as methane emission from landfills. A diversion rate of 48 percent (48%) has been achieved on a statewide basis. Therefore, a 2 percent (2%) additional reduction is needed.</td>
<td>The proposed project would comply with these strategies by composting or other beneficial use of vegetative waste during construction and operation, as feasible.</td>
</tr>
<tr>
<td><strong>Zero Waste - High Recycling</strong>: Additional recycling beyond the State’s 50 percent (50%) recycling goal.</td>
<td></td>
</tr>
<tr>
<td><strong>Building Energy Efficiency Standards in Place and in Progress</strong>: Public Resources Code 25402 authorizes the California Energy Commission to adopt and periodically update its building energy efficiency standards (that apply to newly constructed buildings and additions to and alterations to existing buildings).</td>
<td>Not applicable as no new buildings are proposed.</td>
</tr>
<tr>
<td><strong>Green Buildings Initiative</strong>: Green Building Executive Order, S-20-04 (CA 2005), sets a goal of reducing energy use in public and private buildings by 20 percent (20%) by the year 2015, as compared with 2003 levels.</td>
<td>Not Applicable</td>
</tr>
</tbody>
</table>

Source: OPR, 2008; CAPCOA, 2009

In summary, the proposed project would conform to State and local GHG emissions/climate change regulations and policies/strategies and have less than significant impacts.

C.4.4 Cumulative Impact Analysis

Geographic Extent

The geographic extent for the analysis of cumulative impacts related to air quality is generally limited to areas within approximately one mile of the project site. This area is defined as the geographic extent of the project site as the air quality cumulative impact area would generally be localized and the general construction emissions are small in comparison to the main project site construction emissions. It is possible that air pollutant emissions from different sources could combine to create a significant impact to receptors in the same downwind direction. At distances greater than one mile air pollutants have had time to disperse to concentrations that would not be of concern. The baseline for assessing cumulative air quality impacts includes the ambient air quality in the project area and existing projects and land uses.

Greenhouse gas emissions impacts are analyzed as a global cumulative impact, so additional separate cumulative impacts analysis was not performed.

If approved, the project site as defined by the solar site fence line, and not including the linear construction route, would be developed within one mile of approximately 5 solar projects, of which three are already operational, as shown in Figure C.1-1 and listed in Table C.1-1.
Cumulative Effects of the Proposed Project

If construction of the two cumulative projects were to occur at the same time as the proposed project, which could occur, the cumulative air quality emissions would increase. Assuming the two cumulative projects and the proposed project are constructed on similar timeframes, based on their overall size, the NOx and PM10 emissions would have the potential to cumulatively exceed the AVAQMD emissions significance thresholds. The proposed project would contribute a large fraction of these PM10 emissions because combined the two cumulative projects are smaller than the proposed project. The project’s PM10 emissions have been mitigated with measure MM AQ-1, but NOx emissions mitigation can also be implemented to reduce potential cumulative impacts. Requiring Tier 3 or better engines on all off-road equipment as large as or larger than 50 horsepower would provide substantial NOx emissions mitigation. With the implementation of MM AQ-2, described below, and assuming all relevant off-road equipment were to have Tier 3 compliant engines the overall NOx emissions for the proposed project would be reduced by almost 36 percent. Additional benefits of this mitigation measure would be reductions in VOC emissions (45 percent), CO emissions (11 percent), and exhaust PM10/DPM emissions (33 percent). With this mitigation the cumulative NOx emissions would be less than significant. However, even after mitigation, the concurrent construction of the three solar projects would result in a significant and unavoidable (temporary) cumulative impact from PM10 emissions.

Air toxics emissions would be minimal for all of these solar projects, and so there would be less than significant cumulative impacts. Cumulative valley fever and nuisance impacts would also be less than significant cumulatively as long as all of the projects have adequate dust control requirements. Conformance with approved air quality plans is not a subject for cumulative impact determination.

Operation of the proposed project would not result in substantial increase in air pollutant emissions (see Table C.4-6); therefore, the proposed project’s contribution would not be cumulatively considerable. It is expected that the other solar projects in the area would also result in similar or lower emission levels after they are built and operating. Therefore, the proposed project with the other local cumulative projects would have less-than-significant cumulative air quality impacts during project operation.

Prior to decommissioning of the proposed project, all of the known cumulative projects identified in Table C.1-1 are assumed to be operational, and would have much lower operations versus construction emissions. Additionally, given the time frame prior to decommissioning, many other factors will have changed the ambient air quality setting, both in terms of additional development and likely further significant emissions reductions from source categories such as mobile and off-road equipment. The decommissioning activities and emissions associated with the proposed project are assumed to be similar but lesser in nature than proposed project construction. Therefore, given the reduced cumulative projects’ emissions in comparison to the proposed project’s construction period, the cumulative emissions impacts during decommissioning, assuming appropriate fugitive dust emissions mitigation, would be less than significant.

Mitigation Measure

MM AQ-2 Off-road equipment with engines equal to or larger than 50 horsepower shall have engines that meet or exceed U.S. EPA/CARB Tier 3 Emissions Standards. Exceptions will be allowed only on a case by case basis for two specific situations: (1) an off-road equipment item that is a specialty, or unique, piece of equipment that cannot be found with a Tier 3 or better engine after a due diligence search; and/or (2) an off-road equipment item that will be used for a total of no more than 5 days.
C.4.5 Level of Significance After Mitigation

With implementation of Mitigation Measure AQ-1 the fugitive dust emissions during construction would be reduced so that all pollutant emissions are below AVAQMD emissions significance criteria, and would ensure valley fever and nuisance impacts are also less than significant. Implementation of Mitigation Measure AQ-2 would ensure that cumulative NOx emissions are less than significant. However, cumulative PM$_{10}$ air quality impacts during construction could be significant and unavoidable depending on the construction schedule of other nearby solar projects. All other air quality and GHG impacts are less than significant, or beneficial, and do not require mitigation.
C.5 Biological Resources

This section describes effects to biological resources from the implementation of the proposed project and recommends measures to reduce or avoid impacts anticipated from the construction, operation, maintenance, and decommissioning of the facility. In addition, existing laws and regulations relevant to biological resources are summarized in Section C.5.2. Appendix 4a (Biological Resources Technical Report) and Appendix 4b (Preliminary Jurisdictional Waters/Wetlands Delineation Report) provide supporting information to the analysis in this section, and are referenced in this discussion where applicable.

C.5.1 Environmental Setting

Baseline Data Collection Methodology

Information used in preparing this section were derived from a number of sources including biological technical reports prepared by Aspen, review of existing literature, consultation with technical experts, and reconnaissance and focused surveys of the project site. Biological resource data included, but were not limited to, the following:

- Reconnaissance-level surveys for common and sensitive species,
- Focused surveys for Swainson’s hawks (*Buteo swainsoni*) and burrowing owl (*Athene cunicularia*),
- Habitat assessments for sensitive animal species,
- Vegetation mapping, and
- Focused surveys for sensitive plants.

Surveys were conducted within the project footprint and adjacent areas; collectively referred to as the Study Area. The Study Area includes all portions of the project site, gen-tie and communication line routes, and a buffer that extends a minimum of 500 feet from the solar generating facility (SGF) boundary, and 500 feet on either side of the gen-tie and communication line route centerline (1,000 feet on either side of the centerline for one segment of the gen-tie and communication line routes). The Study Area comprises approximately 2,346 acres. Figure C.5-1 identifies the project components and Study Area. Surveys for Swainson’s hawk nesting substrates were conducted within the Study Area and an additional half-mile buffer.

Literature Review

Sensitive biological resources known to occur in the region or potentially present were identified through a review of existing literature sources including biological technical reports for other projects in the vicinity, the California Department of Fish and Wildlife’s (CDFW’s) California Natural Diversity Data Base (CNDDB) (CDFW 2015a), Inventory of Rare and Endangered Vascular Plants of California (CNPS 2010), and Consortium of California Herbaria (CCH 2015). The Study Area is located within the United States Geologic Survey (USGS) Del Sur, California 7.5’ topographic quadrangle. The Del Sur quadrangle, along with the eight adjacent quadrangles, were included in the database search due to their proximity to the Study Area.

Additional data regarding the potential occurrence of special-status species and policies relating to these sensitive natural resources were gathered from the following sources:

- State and federally listed endangered and threatened animals of California (CDFW 2015b);
- Special Animals List (CDFW 2015c);
C. ENVIRONMENTAL SETTING, ANALYSIS, AND MITIGATION MEASURES

Figure C.5-1

Biological Resources Study Area

Source: Bing Imagery, 2014
California Wildlife Habitat Relationships (CDFG 2008);
City of Lancaster General Plan (City of Lancaster 2009);
Draft County of Los Angeles General Plan: Proposed Significant Ecological Areas (County of LA 2014);
Biological Technical Reports for nearby solar facilities.

Collection of Field Data

Reconnaissance-level surveys and habitat assessments were conducted on 26-27 February, 2015 and focused botanical surveys were conducted on March 10 and April 11, 2015. Protocol burrowing owl surveys were conducted April 6 through April 9, 2015, and three follow-up surveys were conducted on April 30 to May 1, May 27 and May 29, and June 18, 2015. Surveys were conducted by experienced biologists familiar with the resources that occur in the region. Some wildlife species may have been difficult to detect due to their elusive behavior, cryptic morphology, or limited distribution in the Study Area. Similarly, some plants flower for a limited period of time or do not flower during periods of low rainfall; therefore, it is possible that some species of rare plants were overlooked or undetectable during the initial surveys. For specific methodologies on biological surveys please refer to Appendices 4a and 4b.

Regional Setting

The project site is located in northern Los Angeles County, in the western portion of the Antelope Valley near the transition of the southern border of the Mojave Desert and the northeastern foothills of the Sierra Pelona Mountains. Though varied floristic influences exist in the Antelope Valley and surrounding foothills, this region has been subject to historic land uses such as farming, grazing, recreation, water diversion (i.e., the California Aqueduct), and infrastructure development (i.e., the construction of residential and commercial properties, military land uses including Edwards Air Force Base, Interstate 14, and Highway 138). Current land uses in the western Antelope Valley have expanded to include development of renewable energy projects, transmission and utility line corridors, residential housing developments, and off-highway vehicle (OHV) use.

Project Overview

The majority of the Study Area is located within the city of Lancaster approximately seven miles west of Highway 14 (CA-14), and three miles south of State Route (SR)-138. The SGF is approximately four miles east of the Antelope Valley Poppy Preserve. Portions of the potential gen-tie and communication line routes located immediately north of West Avenue J are outside City limits in unincorporated Los Angeles County. The Study Area is generally bounded to the north by West Avenue G, to the south by West Avenue J, to the east by 90th Street West, and to the west by 110th Street West. Desert plant communities in the vicinity of the Study Area have been subject to a variety of anthropogenic disturbances.

The project site occurs primarily in areas characterized as fallow agricultural land that is subject to unauthorized sheep grazing. Evidence of past diskimg was evident across most of the project site and several old raised agricultural water basins were observed. Dominant vegetation is comprised of fiddleneck and California poppy fields. These communities are also found along the gen-tie and communication routes. After the bloom these areas resemble non-native grasslands. Dominant species
observed in this community included California goldfields (*Lasthenia californica*), checker fiddleneck (*Amsinckia tessellate*), and California poppy (*Eschscholzia californica*). Exotic red stemmed filaree (*Erodium cicutarium*) and foxtail barley (*Hordeum murinum*), and natives such as popcorn flowers (*Plagiobothrys* sp.), goldfields (*Lasthenia californica*), and lupine (*Lupinus* spp.) were commonly observed. A small band of Cooper’s boxthorn scrub (*Lycium cooperi*) occurs in the northwest portion of the project site. Where this community occurs, wind-blown sand accumulation has resulted in the formation of sand hummocks up to ten feet tall.

The project site has been subject to extensive grazing activities and sheep (*Ovis aries*) carcasses were commonly encountered across the project site. In addition, various transmission lines and dirt access roads cross portions of the Study Area. The sandy and more dune-like areas in the western portion of the Study Area showed evidence of recent OHV use. Trash and scattered litter occur intermittently across the project site. A rubble pile, concrete foundations, and abandoned water monitoring wells were observed in the southeastern portion of the project site.

Several common wildlife species were observed on site including raven (*Corvus corax*), turkey vulture (*Cathartes aura*), Bell’s sparrow (*Artemisiospiza belli*), and western meadowlark (*Sturnella neglecta*). However the presence of sheep grazing and working dogs (*Canis familiaris*) associated with sheep grazing may limit use of the project site by some species of native wildlife.

**Project Setting**

The local setting for biological resources is organized by resource type in order to provide a complete description of what resources were identified or have the potential to occur.

**Vegetation Communities**

Vegetation in the Study Area consists primarily of common plant species and communities characteristic of the western Mojave Desert. Depending on the location, habitat conditions in the Study Area can be considered excellent to fair, with well-established monocultures of rubber rabbitbrush (*Ericameria nauseosa*) and fourwing saltbush (*Atriplex canescens*) scrub in several locations. The dominant non-native/invasive species observed in the Study Area included London rocket (*Sisymbrium irio*), Russian thistle (*Salsola tragus*), and hare barley (*Hordeum murinum*). Six vegetation communities were mapped within the Study Area. These communities were classified using names and descriptions in Sawyer et al. (2009) and are described further below. Many of these communities occur in a matrix of natural plant communities while others are sub-components of disturbed or developed areas. Some unvegetated areas with existing development or ruderal species are mapped as developed and do not match vegetation described in Sawyer et al. (2009) and are described further below. Many of these communities occur in a matrix of natural plant communities while others are sub-components of disturbed or developed areas. Some unvegetated areas with existing development or ruderal species are mapped as developed and do not match vegetation described in Sawyer et al. (2009). Table C.5-1 lists the vegetation and cover types identified within the Study Area. Figures C.5-2a and C.5-2b illustrate the vegetation and cover types that occur in the Study Area; vegetation and cover types are described further below. Refer to Appendix 4a for complete descriptions of the vegetation communities and land cover types presented below.
C. ENVIRONMENTAL SETTING, ANALYSIS, AND MITIGATION MEASURES

Table C.5-1. Summary of Vegetation and Cover Types in the Study Area, Solar Generating Facility, and the Gen-tie and Communication Line Options

<table>
<thead>
<tr>
<th>Vegetation Community</th>
<th>Total Acres</th>
<th>Study Area</th>
<th>SGF</th>
<th>Gen-Tie City Route</th>
<th>Gen-Tie Center Route</th>
<th>Gen-Tie Western Route</th>
<th>Gen-Tie Eastern Route</th>
<th>Gen-Tie Line Extension</th>
</tr>
</thead>
<tbody>
<tr>
<td>California poppy fields(^1)</td>
<td>Wildflower field</td>
<td>643.9</td>
<td>61.9</td>
<td>8.6</td>
<td>6.2</td>
<td>11.7</td>
<td>1.4</td>
<td>1.2</td>
</tr>
<tr>
<td>Cooper’s boxthorn scrub</td>
<td>Stabilized desert sand field</td>
<td>9.1</td>
<td>9.1</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Fiddleneck fields</td>
<td>Non-native grassland</td>
<td>1070.1</td>
<td>560.7</td>
<td>2.1</td>
<td>1.9</td>
<td>4.7</td>
<td>13.8</td>
<td>4.9</td>
</tr>
<tr>
<td>Fourwing saltbush scrub</td>
<td>Desert saltbush scrub</td>
<td>90.5</td>
<td>43.1</td>
<td>0.9</td>
<td>0.9</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Rubber rabbitbrush scrub</td>
<td>Rubber rabbitbrush scrub</td>
<td>86.2</td>
<td>45.8</td>
<td>--</td>
<td>0.02</td>
<td>1.2</td>
<td>0.8</td>
<td>--</td>
</tr>
<tr>
<td>Tamarisk thickets</td>
<td>Tamarisk scrub</td>
<td>13.5</td>
<td>0.9</td>
<td>6.5</td>
<td>6.5</td>
<td>--</td>
<td>4.6</td>
<td>--</td>
</tr>
<tr>
<td>Developed(^2)</td>
<td></td>
<td>432.3</td>
<td>4.9</td>
<td>9.6</td>
<td>9.1</td>
<td>31.4</td>
<td>28.0</td>
<td>--</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>2,345.6</strong></td>
<td><strong>726.4</strong></td>
<td><strong>27.7</strong></td>
<td><strong>24.6</strong></td>
<td><strong>49.0</strong></td>
<td><strong>48.6</strong></td>
<td><strong>6.1</strong></td>
</tr>
</tbody>
</table>

\(^1\) Communities in bold type are considered sensitive by the CDFW.

\(^2\) This land cover is not defined in Sawyer et al. (2009) and Holland (1986) but is included in this table for acreage calculation purposes.

Jurisdictional Waters/Wetlands

An assessment of jurisdictional wetlands, other “waters of the United States,” waters of the State, and riparian habitat was conducted in February 2015 (Appendix 4b). This assessment was conducted to determine the extent of resources under the jurisdiction of the US Army Corps of Engineers (USACE), the Lahontan Regional Water Quality Control Board (LRWQCB), and the CDFW that occur within the Study Area.

Wetlands are not present in the Study Area. No portion of the Study Area supports hydrophytic vegetation, shows evidence of wetland hydrology, or contains hydric soils. Areas not meeting the hydrophytic vegetation or hydric soils criteria for wetlands but with visible evidence of hydrology or a discernible ordinary high water mark (OHWM) were mapped but are not considered “waters of the United States.” The Study Area drains to the east and northeast into Rosamond Dry Lake and Roger’s Dry Lake, which are closed or internally drained basins that do not fall under federal jurisdiction. Although the on-site drainage features do not fall under the regulatory requirements of the Clean Water Act, the RWQCB may elect to take jurisdiction over state waters through the Porter Cologne Act. Using a combination of vegetation mapping, bed/bank delineation, and field observations approximately 15.64 acres of CDFW jurisdictional waters were identified within the Study Area (9.90 acres within potential impact areas).

Common Wildlife

The project site occurs primarily in areas characterized as fallow agricultural land that do not support the same complex associations of wildlife found in more intact desert plant communities. The habitat with the greatest intrinsic value to wildlife on the project site is four-wing saltbush scrub. This community provides shelter and a food source for birds, reptiles, and small mammals. Nonetheless, common and sensitive wildlife were detected at or near the Study Area. Attachment B of Appendix 4a provides a list of all wildlife detected in the study area. Special-status wildlife observed in the Study Area are discussed below.
Del Sur Solar Project

C. ENVIRONMENTAL SETTING, ANALYSIS, AND MITIGATION MEASURES

Figure C.5-2A
Vegetation Communities and Land Covers

Source: TerraServer Imagery, Feb. 2015
Figure C.5-2B
Vegetation Communities and Land Covers

Vegetation
- California poppy fields
- Cooper's boxthorn scrub
- Developed
- Fiddleneck fields
- Fourwing saltbrush scrub
- Rubber rabbitbrush scrub
- Tamarisk thickets

Source: TerraServer Imagery, Feb. 2015
Invertebrates

The Study Area provides a suite of microhabitat conditions suitable for a wide variety of terrestrial insects and other invertebrates. These conditions include thick plant debris, scattered rocks, and wooden debris from old structures. Like in all ecological systems, invertebrates play a crucial role in a number of biological processes. They serve as the primary or secondary food source for a variety of bird, reptile, and mammal predators; they provide important pollination vectors for numerous plant species; they act as efficient components in controlling pest populations; and, they support the naturally occurring maintenance of an area by consuming detritus and contributing to necessary soil nutrients. Insects detected during the surveys included painted ladies (*Veronica* sp.), darkling beetles (*Eleodes* sp.), pallid winged grasshopper (*Trimerotrops pallidipennis*), phaon cresentspot (*Phyciodes phaon*), and native harvester ants (*Pogonomyrmex californicus*).

Reptiles

The number and type of reptile species that may occur at a given site is related to a number of biotic and abiotic features. These include the diversity of plant communities, substrate, soil type, and presence of refugia such as rock piles, boulders, and native debris. Side-blotched lizard (*Uta stansburiana*) and desert night lizard (*Xantusia vigilis*) were observed in the Study Area.

Although not observed, several other common reptiles likely occur in the Study Area including desert horned lizard (*Phrynosoma platyrhinos calidiarum*), Mojave rattlesnake (*Crotalus scutulatus*), and western rattlesnake (*Crotalus oreganus*). Most reptile species, even if present in an area, are difficult to detect because they are cryptic and their life history characteristics (i.e., foraging and thermoregulatory behavior) limit their ability to be observed during most surveys. Further, many species are only active within relatively narrow thermal limits, avoiding both cold and hot conditions, and most take refuge in microhabitats that are not directly visible to the casual observer, such as rodent burrows, in crevices, under rocks and wooden debris, and in dense vegetation where they are protected from unsuitable environmental conditions and predators (USACE and CDFG 2010). In some cases they are only observed when flushed from their refugia.

Birds

Thirty-three species of common and sensitive birds were identified in the Study Area during surveys completed in February 2015. It is possible that many other birds use the project site either as wintering habitat, seasonal breeding, or as occasional migrants. Birds were identified by sight and sound and were observed across the Study Area. Some species detected included European starling (*Sturnus vulgaris*), Bell’s sparrow (*Artemisiospiza belli*), western meadowlark, and white-crowned sparrow (*Zonotrichia leucophrys*). Common ravens were frequently detected and were observed nesting in many of the steel monopole transmission line structures within the western half of the Study Area. Turkey vultures were routinely observed on the ground; this species was also observed in large kettles moving across the Study Area. Both common ravens and turkey vultures were observed foraging on sheep carcasses at various locations in the Study Area.

Several raptors including red-tailed hawk (*Buteo jamicensis*) and American kestrel (*Falco sparverius*) were observed either soaring overhead (red-tailed hawks) or foraging in the Study Area (American kestrel).
Although not detected during surveys, available online eBird data (Cornell 2015a) reports observations of western kingbird (*Tyrannus verticalis*), yellow-rumped warbler (*Setophaga coronata*), and house sparrow (*Passer domesticus*). The State endangered tricolored blackbird (*Aegeus tricolor*) and burrowing owl, a California Species of Special Concern are also known to occur in the region (ebird 2015). Special-status birds are discussed further below.

**Mammals**

The distribution of mammals in the Study Area is associated with the presence of such factors including topographical and structural components (i.e., rock piles, sand hummocks, and vegetation) that provide for cover and support prey base and the presence of suitable soils for fossorial mammals (i.e., burrowing animals).

Small mammals detected in the Study Area included desert cottontail (*Sylvilagus audubonii*) and California ground squirrel (*Spermophilus beecheyi*). Medium and large mammal sign (e.g., scat, tracks, burrows, etc.) of desert kit-fox, coyote (*Canis latrans*), and domestic cow (*Bos taurus*) were detected within the Study Area.

Although no bats were detected during the surveys, the Study Area provides limited roosting locations for bats. Multiple structures and stands of tamarisk trees may provide roosting habitat for a number of bat species within the Study Area. Additional roosting habitat is available in areas adjacent to the Study Area. Bat species known to occur in the Antelope Valley area include big brown bat (*Eptesicus fuscus*) and western red bat (*Lasiurus blossevillii*).

**Special-Status Plants**

Special-status plant species were not detected in the Study Area. Table C.5-2 lists special-status plants that may occur in or near the Study Area. Figures C.5-3a and C.5-3b illustrate the known locations of special-status plants occurring in or near the Study Area (CDFW 2015a). The record search and consultation with local experts identified a total of 21 special-status plant taxa that have been documented within the general region of the Study Area. Species accounts for special-status plant species with a moderate or high potential to occur in the Study Area are included in Appendix 4a. Each of these taxa was assessed for its potential to occur within the Study Area based on the following criteria:

- **Present:** Taxa were observed within the Study Area during recent botanical surveys or population has been acknowledged by CDFW, United States Fish and Wildlife Service (USFWS), or local experts.
- **High:** Both a documented recent record (within 10 years) exists of the taxa within the Study Area or immediate vicinity (approximately 5 miles) and the environmental conditions (including soil type) associated with taxa are present within the Study Area.
- **Moderate:** Both a documented recent record (within 10 years) exists of the taxa within the Study Area or the immediate vicinity (approximately 5 miles) and the environmental conditions associated with taxa presence are marginal and/or limited within the Study Area, or the Study Area is located within the known current distribution of the taxa and the environmental conditions (including soil type) associated with taxa presence occur within the Study Area.
- **Low:** A historical record (over 10 years) exists of the taxa within the Study Area or general vicinity (approximately 10 miles) and the environmental conditions (including soil type) associated with taxa presence are marginal and/or limited within the Study Area.
### Table C.5-2. Known and Potential Occurrence of Special-Status Plant Taxa within the Study Area

<table>
<thead>
<tr>
<th>Scientific Name</th>
<th>Common Name</th>
<th>Status</th>
<th>Habitat</th>
<th>Potential for Occurrence</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Federal or State Endangered or Threatened Species</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chorizanthe parryi var. fernandina</td>
<td>San Fernando Valley spineflower</td>
<td>CRPR 1B.1, FCT, SE</td>
<td>Sandy places, generally in coastal or desert shrublands; historically from San Fernando Valley, adjacent foothills, and coastal Orange County; now known only in east Ventura and west Los Angeles Counties; Elevation: 490-1,000 ft. May-June</td>
<td>Low: The project area is roughly 5 miles north of the nearest historic record and occurs outside of the historic range of the species. Marginally suitable habitat is present.</td>
</tr>
<tr>
<td>Navarretia fossalis</td>
<td>Spreading navarretia</td>
<td>CRPR 1B.1, FT</td>
<td>Shadscale scrub, freshwater wetlands, and in the riparian habitats; found in southwestern California from San Luis Obispo down through Baja California; Elevation: 100-4300 ft. April-June</td>
<td>Not Likely to occur. This species is dependent upon wetlands and riparian habitats, which are not found in the Study Area.</td>
</tr>
<tr>
<td><strong>CRPR Species</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Astragalus homii var. homii</td>
<td>Horn’s milk-vetch</td>
<td>CRPR 1B.1</td>
<td>Salty flats and lake shores; southern San Joaquin Valley, South Coast, Western transverse ranges, the western edge of the Mojave desert, and western California. Elevation: 200-1000 ft. May-September</td>
<td>Not Likely to occur. Suitable habitat for this species is not present and the Study Area is well above the elevation range for the species.</td>
</tr>
<tr>
<td>Astragalus preussii var. laxiflorus</td>
<td>Lancaster milk-vetch</td>
<td>CRPR 1B.1</td>
<td>Alkaline flats, southwestern Mojave Desert, western Sonoran Desert, southern Nevada, southwestern Utah, western Arizona. Elevation: below about 2300 ft. March-May</td>
<td>Not Likely to occur. Suitable habitat for this species is not present in the Study Area.</td>
</tr>
<tr>
<td>Boechera lincolnensis</td>
<td>Lincoln rockcress</td>
<td>CRPR 2B.3</td>
<td>Creosote bush scrub, shadscale scrub on rocky slopes in gravelly soil; White and Inyo Mountains, Desert Mountains, and into Utah. Elevation: 4500 -6500 ft. April-May</td>
<td>Not Likely to occur. Suitable habitat for this species is not present and the Study Area is well below the elevation range for the species.</td>
</tr>
<tr>
<td>California macrophylla</td>
<td>Round-leaved filaree</td>
<td>CRPR 1B.1</td>
<td>Valley grasslands, and foothill woodlands; coastal ranges, central valley, and south Sierra Nevada from Shasta County south to northern Mexico. Elevation: below about 3900 ft., March-July</td>
<td>Not Likely to occur. Clay soils for this species were not observed in the Study Area.</td>
</tr>
<tr>
<td>Calochortus clavatus var. gracilis</td>
<td>Slender mariposa lily</td>
<td>CRPR 1B.2</td>
<td>Shaded foothill canyons; western Transverse ranges. San Gabriel Mountains, Elevation: below about 3280 ft. May-June</td>
<td>Not Likely to occur. Suitable habitat for this species is not present in the Study Area.</td>
</tr>
<tr>
<td>Calochortus striatus</td>
<td>Alkali mariposa lily</td>
<td>CRPR 1B.2</td>
<td>Mesic alkaline soils, in floodplains and springs in chaparral, chenopod (atriplex) scrub, and Mojavean desert scrub. Elevation: 230-5,232 ft. April-June</td>
<td>Low: Although chenopod (atriplex) scrub is present in the Study Area, no suitable plays, alkali flats, or other mesic habitats are present.</td>
</tr>
<tr>
<td>Calystegia piersonii</td>
<td>Pierson’s morning-glory</td>
<td>CRPR 4.2</td>
<td>Shrublands and lower elevation forests; below about 5000 ft. elevation; northern San Gabriel Mts., Liebre Mts., and adjacent Mojave Desert. May-June</td>
<td>Low: Suitable habitat is not present in the Study Area and there are no known occurrences within the vicinity.</td>
</tr>
<tr>
<td>Canbya candida</td>
<td>Pygmy poppy</td>
<td>CRPR 4.2</td>
<td>Joshua tree woodland, Mojavean desert scrub, or pinyon and juniper woodland habitats with gravelly, granitic, or sandy soils. Elevation: 1,968-4,790 ft. March-June</td>
<td>Low: Suitable habitat is present within the Study Area, however Study Area occurs outside of the historic range of species.</td>
</tr>
<tr>
<td>Castilleja plagiota</td>
<td>Mojave indian paintbrush</td>
<td>CRPR 4.3</td>
<td>Great Basin scrub, Joshua tree woodland, lower montane coniferous forest, and pinyon and juniper woodland habitats. Elevation: 984-8,200 ft. April-June</td>
<td>Low: Marginally suitable habitat for this species is present in the Study Area.</td>
</tr>
<tr>
<td>Chorizanthe parryi var. parryi</td>
<td>Parry’s spineflower</td>
<td>CRPR 1B.1</td>
<td>Chaparral, coastal sage scrub; central and eastern South Coast, eastern Transverse Ranges, northwest edge Sonoran Desert. Elevation: 295-2600 ft. May-June</td>
<td>Not Likely to occur. Suitable habitat for this species is not present in the Study Area.</td>
</tr>
</tbody>
</table>
### Table C.5-2. Known and Potential Occurrence of Special-Status Plant Taxa within the Study Area

<table>
<thead>
<tr>
<th>Scientific Name</th>
<th>Common Name</th>
<th>Status</th>
<th>Habitat</th>
<th>Potential for Occurrence</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Chorizanthe spinosa</em></td>
<td>Mojave spineflower</td>
<td>CRPR 4.2</td>
<td>Typically on alkali soils in Chenopod scrub, Mojave desert scrub, Joshua tree woodland, and playas; Elevation: 0-4250 ft. March and July</td>
<td>Moderate: Suitable habitat is present in the Study Area; not observed during surveys. Closest known occurrence is more than 10 miles east of the Study Area.</td>
</tr>
<tr>
<td><em>Cryptantha clokeyi</em></td>
<td>Clokey’s cryptantha</td>
<td>CRPR 1B.2</td>
<td>Creosote bush scrub, rocky to gravelly slopes and ridge crests, desert woodland; northwest Mojave Desert, and northern Desert Mountains; Elevation: 2800-5400 ft. April-July</td>
<td>Low: Marginally suitable habitat is present; the Study Area is outside of the known geographic range for this species.</td>
</tr>
<tr>
<td><em>Eriastrum rosamondense</em></td>
<td>Rosamond eriastrum</td>
<td>CRPR 1B.1</td>
<td>Sandy soil in Chenopod scrub openings and vernal pool edges; Rosamond and Rogers Dry Lake Areas; Elevation: 2200-2400 ft. April-July</td>
<td>Low: Marginally suitable habitat is present; the Study Area occurs just west of the known geographic range for this species.</td>
</tr>
<tr>
<td><em>Gilia interior</em></td>
<td>Inland gilia</td>
<td>CRPR 4.3</td>
<td>Rocky substrates in cismontane woodland, Joshua tree woodland, and lower montane forest; Elevation: 230 - 5600 ft. March-May</td>
<td>Low: Suitable habitat for this species is not present in the Study Area.</td>
</tr>
<tr>
<td><em>Goodmania luteola</em></td>
<td>Golden goodmania</td>
<td>CRPR 4.3</td>
<td>Alkali or clay substrates in desert scrub, playas, meadows, and grasslands; Elevation: 65 - 7200 ft. April-August</td>
<td>Low: Suitable habitat is present in the study area; not observed during surveys. Closest known occurrence is more than 10 miles east of the Study Area.</td>
</tr>
<tr>
<td><em>Layia heterotricha</em></td>
<td>Pale-yellow layia</td>
<td>CRPR 1B.1</td>
<td>Clay or sandy soils in valley grassland, foothill woodland, pinyon-juniper woodland; Elevation: 557 to 5413 ft. March to June</td>
<td>Low: Marginally suitable habitat is present although the Study Area just outside of the species known geographic range.</td>
</tr>
<tr>
<td><em>Lepechinia rossii</em></td>
<td>Ross’ pitcher sage</td>
<td>CRPR 1B.2</td>
<td>Shrub; shrublands and woodlands; Ventura County and Los Angeles County; Elevation: 1000-3000 ft. May - September</td>
<td>Not Likely to occur: No suitable habitat present; Study Area well outside known geographic range.</td>
</tr>
<tr>
<td><em>Loeflingia squarrosa var. artemisiarum</em></td>
<td>Sagebrush loeflingia</td>
<td>CRPR 2.2</td>
<td>Sandy soils (dunes) in Great Basin scrub and Sonoran desert scrub. Elevation: 2,200-5,300 ft. April-May</td>
<td>Low: The species is known from very few locations to the east of the Study Area; marginally suitable habitat is present in the Study Area.</td>
</tr>
<tr>
<td><em>Opuntia basilaris var. brachyclada</em></td>
<td>Short-joint beavertail</td>
<td>CRPR 1B.2</td>
<td>Open chaparral, juniper woodland, or similar woodland communities. Elevation: 1,394-5,900 ft. April-June</td>
<td>Not Likely to occur: Suitable habitat for this species is not present in the Study Area.</td>
</tr>
</tbody>
</table>

FE - Federally listed Endangered  
FT - Federally listed Threatened  
FC (E/T) - Candidate for federal listing (Endangered or Threatened)  
SE - California-listed Endangered  
ST - California-listed Threatened  
SR - California-listed Rare  

CRPR 1B - Rare or endangered in California and elsewhere  
CRPR 2 - Rare or endangered in California, more common elsewhere  
CRPR 3 - More information needed (Review List)  
CRPR 4 - Limited Distribution (Watch List)  

- 0.1 = Seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat)  
- 0.2 = Fairly threatened in California (20-80% occurrences threatened)  
- 0.3 = Not very threatened in California (<20% of occurrences threatened or no current threats known)
CNDDB occurrences
- Plant
- Animal
- Terrestrial Community
- Aquatic Community
- Multiple Species
- Sensitive EO's

Study Area
10 Mile CNNDB Search Radius

Source: Bing Imagery, 2014

Figure C.5-3A
CNDDB within 10 miles of Project
Figure C.5-3B

CNDDB within 5 miles of Project

Source: Bing Imagery, 2014
Special-Status Wildlife

Based on surveys and habitat conditions, eight special status species were observed or assumed to be present within or immediately adjacent to the Study Area. Figures C.5-3a and C.5-3b illustrate the known locations of special-status wildlife occurring within or near the Study Area (CDFW 2015a). Thirty-three species of special-status wildlife have been documented within the general region of the Study Area. The potential for each of these species to occur in the Study Area was evaluated based on the habitats present on site.

Table C.5-3 summarizes the special-status wildlife taxa known to regionally occur and their potential for occurrence in the Study Area. Species accounts for sensitive species observed in the Study Area are described after Table C.5-3. Appendix 4a includes the species accounts for species with a low, moderate, or high potential to occur in the Study Area.

C.5.2 Regulatory Setting

Appendix 4a (Biological Resources Technical Report) includes a detailed description of the regulatory setting for the Study Area. This section summarizes key regulations or requirements that apply to the Study Area.

Federal Regulations

- **Federal Endangered Species Act.** Federal Endangered Species Act (ESA) provisions protect federally listed threatened and endangered species and their habitats from unlawful take and ensure that federal actions do not jeopardize the continued existence of a listed species or result in the destruction or adverse modification of designated critical habitat.


- **Bald and Golden Eagle Protection Act of 1940.** The Bald Eagle Protection Act of 1940 (16 USC 668, enacted by 54 Stat. 250) protects bald and golden eagles by prohibiting the taking, possession, and commerce of such birds and establishes civil penalties for violation of this Act.

State Regulations

- **California Environmental Quality Act.** The California Environmental Quality Act (CEQA) establishes State policy to prevent significant, avoidable damage to the environment by requiring changes in projects through the use of alternatives or mitigation measures.

- **California Endangered Species Act.** Provisions of California Endangered Species Act (CESA) protect State-listed Threatened and Endangered species. The CDFW regulates activities that may result in “take” of individuals (“take” means “hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill”).

- **Sections 3503 and 3503.5 of the Fish and Game Code.** These sections prohibit taking, possessing, or destroying any birds-of-prey, taking or possessing any migratory non-game bird as designated in the Migratory Bird Treaty Act, or taking, possessing, or needlessly destroying the nest or eggs of any raptors or non-game birds protected by the Migratory Bird Treaty Act, or the taking of any non-game bird pursuant to Fish and Game Code Section 3800.
### Table C.5-3. Known and Potential Occurrence of Special-Status Wildlife within the Study Area

<table>
<thead>
<tr>
<th>Taxa</th>
<th>Scientific Name</th>
<th>Common Name</th>
<th>Status</th>
<th>Habitat Type</th>
<th>Comments</th>
<th>Occurrence Potential</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>REPTILES</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anniella pulchra (legless lizard)</td>
<td>Anniella pulchra</td>
<td>Silvery (=California) legless lizard</td>
<td>CSSC</td>
<td>Sandy or loose loamy soils under sparse vegetation; soil moisture is essential; prefer soils with high moisture content.</td>
<td>Suitable habitat occurs within limited portions of the Study Area; historic occurrence approximately 3 miles to the east. Detected during project burrowing owl surveys.</td>
<td>Present</td>
</tr>
<tr>
<td>Charina trivirgata</td>
<td>Charina trivirgata</td>
<td>Rosy boa</td>
<td>SA</td>
<td>Fairly dense vegetation and rocky habitat within desert and chaparral from the coast to Mojave and Colorado deserts.</td>
<td>Suitable habitat occurs within limited portions of the Study Area; there are no recorded occurrences within 10 miles of the Study Area.</td>
<td>Low</td>
</tr>
<tr>
<td>Gopherus agassizii</td>
<td>Gopherus agassizii</td>
<td>Desert tortoise</td>
<td>FT, ST</td>
<td>Inhabits semi-arid grasslands, gravelly desert washes, canyon bottoms and rocky hillsides. Associated plant species includes creosote bush, Joshua tree, cheese bush, saltbush, grasses, and cacti.</td>
<td>Limited suitable habitat occurs within portions of the Study Area; there are no recorded occurrences of this species within 10 miles of the Study Area; however, the project site is located within the historic range of this species.</td>
<td>Low</td>
</tr>
<tr>
<td>Phrynosoma coronatum blainvillii</td>
<td>Phrynosoma coronatum blainvillii</td>
<td>Coast/San Diego horned lizard</td>
<td>CSSC</td>
<td>A variety of habitats, including coastal sage scrub, chaparral, oak woodland, riparian woodland, and coniferous forest. Friable, sandy soils in areas with an abundant prey base of native ants are key habitat components.</td>
<td>Limited suitable habitat occurs within portions of the Study Area; this species was recorded approximately 5 miles southwest of the Study Area in 2010.</td>
<td>Low</td>
</tr>
<tr>
<td><strong>BIRDS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agelaius tricolor (nesting colony)</td>
<td>Agelaius tricolor</td>
<td>Tricolored blackbird</td>
<td>CSSC, BCC</td>
<td>Highly colonial species; requires open water, protected nesting substrate, and foraging areas with insect prey within a few kilometers of colony.</td>
<td>Suitable habitat for this species does not occur in the Study Area; there is a historic record of this species approximately 10 miles to the northeast at Piute Marsh. Individuals have however been observed less than a mile away from the Study Area. This species may pass through or forage in the Study Area.</td>
<td>Moderate</td>
</tr>
<tr>
<td>Amophila ruficeps canescens</td>
<td>Amophila ruficeps canescens</td>
<td>Southern California rufous-crowned sparrow</td>
<td>WL</td>
<td>Resident in southern California coastal sage scrub and sparse mixed chaparral; frequents relatively steep, often rocky hillsides with grass and forb patches.</td>
<td>Limited suitable habitat for this species occurs in the Study Area; a historic record of this species occurs approximately 7.5 miles to the southeast of the Study Area.</td>
<td>Low</td>
</tr>
<tr>
<td>Aquila chrysaetos</td>
<td>Aquila chrysaetos</td>
<td>Golden eagle</td>
<td>CFP</td>
<td>Forages in open grasslands, desert scrub and agricultural fields, flies on ledges on cliff faces, rock outcrops and occasionally in large trees.</td>
<td>There are no known records within the Study Area; this species is known to forage over the grasslands of the Antelope Valley and has recently been observed less than 5 miles from the Study Area. Suitable nesting habitat does not occur within the Study Area, but suitable foraging habitat is present.</td>
<td>High (foraging)</td>
</tr>
<tr>
<td>Artemisiospiza bell belli</td>
<td>Artemisiospiza bell belli</td>
<td>Bell's sage sparrow</td>
<td>WL</td>
<td>Found in shrubby habitats including coastal sage scrub and chaparral (primarily chamise).</td>
<td>There are no known records for this species in the Study Area; limited suitable habitat is present within the Study Area. The CNDDB reports that this species was detected approximately 6 miles southeast of the Study Area in 2005.</td>
<td>Low</td>
</tr>
</tbody>
</table>
### Table C.5-3. Known and Potential Occurrence of Special-Status Wildlife within the Study Area

<table>
<thead>
<tr>
<th>Scientific Name</th>
<th>Common Name</th>
<th>Status</th>
<th>Habitat Type</th>
<th>Comments</th>
<th>Occurrence Potential</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asio flammeus (nesting)</td>
<td>Short-eared owl</td>
<td>CSSC</td>
<td>Usually occurs in open areas with few trees, such as grasslands, prairies, dunes, meadows, agricultural fields, emergent wetlands; requires dense vegetation for cover.</td>
<td>Suitable habitat is present within the Study Area; this species is known to occur in the region and has been observed on eBird within 5 miles of the Study Area.</td>
<td>Moderate</td>
</tr>
<tr>
<td>Asio otus</td>
<td>Long-eared owl</td>
<td>CSSC</td>
<td>Breeds in thickly vegetated desert washes and oases, montane coniferous forests and in riparian and pinyon-juniper woodlands. Requires adjacent open habitats for foraging.</td>
<td>Suitable habitat occurs within the Study Area; this species is known to occur in the region and has been documented by eBird within approximately 4 miles of the Study Area.</td>
<td>Moderate</td>
</tr>
<tr>
<td>Athene cunicularia (burrowing sites and some wintering sites)</td>
<td>Burrowing owl</td>
<td>BCC, CSSC</td>
<td>Open, dry perennial or annual grasslands, deserts, and scrublands characterized by low-growing vegetation; subterranean nester, dependent upon burrowing mammals, particularly California ground squirrels.</td>
<td>There is one known record for this species in the Study Area and several within the immediate vicinity of the Study Area. Suitable habitat is present throughout the Study Area. One active burrow was found along the gen-tie route during project surveys, and suitable burrows were found throughout the survey area.</td>
<td>Present</td>
</tr>
<tr>
<td>Buteo regalis</td>
<td>Ferruginous hawk</td>
<td>WL</td>
<td>Forages in grasslands and agricultural fields.</td>
<td>The CNDDB reports two records of this species within the Study Area (one as recent as 2011) and several more in the vicinity. This species is a known winter resident in the Antelope Valley. While no suitable nesting habitat occurs in the Study Area suitable foraging habitat is present within the Study Area.</td>
<td>High</td>
</tr>
<tr>
<td>Buteo swainsoni (nesting)</td>
<td>Swainson's hawk</td>
<td>ST, BCC</td>
<td>Breeds in stands with few trees in juniper-sage flats, riparian areas, and oak savannas.</td>
<td>This species was observed soaring over the project site in February 2015. Limited suitable nesting habitat is present within the Study Area; there are multiple recent observations of this species within a few miles of the Study Area including two known nest sites within 2 miles. This species was recently observed during the surveys in support of the nearby Springtime Solar Project (2013).</td>
<td>Present</td>
</tr>
<tr>
<td>Charadrius montanus</td>
<td>Mountain plover</td>
<td>FE, CSSC</td>
<td>Winters in short grasslands and agricultural fields. Breeds in short-grass prairies outside of California.</td>
<td>Suitable wintering habitat is present within the Study Area; there are known records for this species immediately adjacent to the Study Area as recent as 2010 and within a mile of the Study Area as recently as 2012.</td>
<td>High</td>
</tr>
<tr>
<td>Circus cyaneus (nesting)</td>
<td>Northern harrier</td>
<td>CSSC</td>
<td>Prefer open country, grasslands, steppes, wetlands, meadows, agriculture fields; roost and nest on ground in shrubbery vegetation often at edge of marshes.</td>
<td>Observed foraging within the Study Area in February 2015. The Study Area is located within the known geographic range for this species. This species was observed during the surveys for nearby Rodeo Solar Ranch (2011).</td>
<td>Present</td>
</tr>
<tr>
<td>Empidonax traillii extimus</td>
<td>Southwestern willow flycatcher</td>
<td>FE, SE</td>
<td>Breeds in dense riparian forests and shrublands, esp. in willows; scattered locations in Calif. and N Baja; near sea level to about 9000 ft. elevation; winters in Central America.</td>
<td>May fly over the project during seasonal migration, but there is no foraging or nesting habitat in or near the Study Area.</td>
<td>Low</td>
</tr>
</tbody>
</table>
# Table C.5-3. Known and Potential Occurrence of Special-Status Wildlife within the Study Area

<table>
<thead>
<tr>
<th>Taxa</th>
<th>Status</th>
<th>Habitat Type</th>
<th>Comments</th>
<th>Occurrence Potential</th>
</tr>
</thead>
<tbody>
<tr>
<td>Falco columbarius (non-breeding/ wintering)</td>
<td>Merlin</td>
<td>WL</td>
<td>Wide-variety of habitats including marshes, deserts, seacoasts, open woodlands, fields. This species is a winter resident that does not breed in California; the Study Area is located within the known geographic winter distribution for this species; suitable foraging habitat occurs throughout the Study Area. The CNDDB reports a record of this species approximately 6 miles east of the Study Area in 2010.</td>
<td>Moderate</td>
</tr>
<tr>
<td>Falco mexicanus (nesting)</td>
<td>Prairie falcon</td>
<td>BCC, WL</td>
<td>Rare in southern California; nests along cliff faces or rocky outcrops, forages over open spaces, agricultural fields. Observed foraging in the Study Area in February 2015. Suitable nesting habitat does not occur in the Study Area; suitable foraging habitat occurs throughout the Study Area.</td>
<td>Present</td>
</tr>
<tr>
<td>Gymnogyps californianus</td>
<td>California condor</td>
<td>FE, SE, CFP</td>
<td>Nests in coves, crevices, behind rock slabs, or on large ledges on high sandstone cliffs; requires vast expanses of open savannah, grasslands, and foothill chaparral with cliffs, large trees and snags for roosting and nesting. There are no known records for this species in the Study Area although they have been documented flying over the region; several observation records within a few miles of the Study Area have been reported within the last few years. Suitable nesting habitat is not present within the Study Area; the Study Area provides suitable foraging habitat.</td>
<td>Low</td>
</tr>
<tr>
<td>Haliaeetus leucocephalus (nesting)</td>
<td>Bald eagle</td>
<td>SE, CFP</td>
<td>Nests on large trees in the vicinity of large lakes, reservoirs and rivers. Wintering birds are most often found near large concentrations of waterfowl or fish. There are no known records for this species in the Study Area. This species however is known from Lake Elizabeth, approximately 4.5 miles to the southwest and may fly over the Study Area.</td>
<td>Low</td>
</tr>
<tr>
<td>Lanius ludovicianus (nesting)</td>
<td>Loggerhead shrike</td>
<td>BCC, CSSC</td>
<td>Broken woodland, savannah, pinyon-juniper woodland, Joshua tree woodland, riparian woodland, desert oases, scrub, and washes; prefers open country for hunting with perches for scanning and fairly dense shrubs and brush for nesting. Observed in the Study Area during surveys in February and April 2015 and was recorded during the surveys for the nearby High Desert (2010) and Plainview Solar (2011) Projects. Suitable foraging and breeding habitat occurs within the Study Area.</td>
<td>Present</td>
</tr>
<tr>
<td>Numenius americanus</td>
<td>Long-billed curlew</td>
<td>BCC, WL</td>
<td>Generally nest in short grasses including grass prairies or agricultural fields and move to denser grasslands after young have fledged. Winter at the coast and in Mexico. Observed in the Study Area during surveys in February 2015. Suitable foraging habitat occurs within the Study Area. Although this species prefers moist soils it may occur in drier habitats and forage on grasshoppers and beetles. The Study Area is outside the known breeding range of this species.</td>
<td>Present</td>
</tr>
<tr>
<td>Plegadis chihi</td>
<td>White-faced ibis</td>
<td>SA</td>
<td>Nests on the ground in marshes. Forages by probing wet soils for invertebrates. There are no known records for this species in the Study Area. This species is known to occur at lakes within the region. A historic record for this species occurs approximately 10 miles to the northeast at the Plute Ponds. This species may fly over the Study Area, but suitable nesting and foraging habitat is absent from the Study Area.</td>
<td>Low</td>
</tr>
<tr>
<td>Taxa</td>
<td>Scientific Name</td>
<td>Common Name</td>
<td>Status</td>
<td>Habitat Type</td>
</tr>
<tr>
<td>-------------------------------------------</td>
<td>--------------------------</td>
<td>----------------------</td>
<td>--------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>Spinus lawrencei</strong></td>
<td>Lawrence’s goldfinch</td>
<td></td>
<td>SA</td>
<td>Breeds in a variety of habitats throughout its range in southern California, including mixed conifer-oak forest, blue oak savannah, pinyon-juniper woodland, chaparral, riparian woodland, and desert oases.</td>
</tr>
<tr>
<td><strong>Toxostoma lecontei</strong></td>
<td>Le Conte’s thrasher</td>
<td></td>
<td>CSSC</td>
<td>Sparse desert scrub such as creosote bush, Joshua tree, and saltbush scrub; or sandy-soiled cholla-dominated vegetation. Nests in dense, spiny shrubs or densely branched cactus in desert wash habitat.</td>
</tr>
<tr>
<td><strong>Vireo bellii pusillus</strong></td>
<td>Least Bell’s vireo</td>
<td></td>
<td>FE, SE, BCC</td>
<td>Summer resident of southern California in low-riparian habitats in vicinity of water or dry river bottoms; found below 2000 feet; nests placed along margins of bushes or on twigs projecting into pathways, usually in willow, mesquite, and mulefat.</td>
</tr>
<tr>
<td><strong>Corynorhinus townsendii</strong></td>
<td>Townsend’s big-eared bat</td>
<td></td>
<td>CSSC</td>
<td>Coastal conifer and broadleaved forests, oak and conifer woodlands, and grasslands and deserts, and high-elevation forests and meadows. Primarily roosts in caves and abandoned mines, but may roost in buildings, bridges, rock crevices, and hollow trees in many habitat types.</td>
</tr>
<tr>
<td><strong>Lasiusus cinereus</strong></td>
<td>Hoary bat</td>
<td></td>
<td>SA</td>
<td>Prefers deciduous and coniferous woodlands; primarily roosts in tree foliage.</td>
</tr>
<tr>
<td><strong>Onychomys torridus</strong></td>
<td>Southern grasshopper mouse</td>
<td></td>
<td>SA</td>
<td>Occurs primarily in grassland and sparse coastal sage scrub habitats.</td>
</tr>
</tbody>
</table>
### Table C.5-3. Known and Potential Occurrence of Special-Status Wildlife within the Study Area

<table>
<thead>
<tr>
<th>Scientific Name</th>
<th>Common Name</th>
<th>Status</th>
<th>Habitat Type</th>
<th>Comments</th>
<th>Occurrence Potential</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Perognathus alticolus inexpectatus</em></td>
<td>Tehachapi pocket mouse</td>
<td>CSSC</td>
<td></td>
<td>Occurs in a diversity of habitats including, Joshua tree woodland, pinyon-juniper woodland, oak savanna, and native and non-native grasslands. Burrows in friable, sandy soil. There are no known recent records for this species in the Study Area; the Study Area is located within the historic geographic range for this species. Suitable habitat is present within the Study Area.</td>
<td>Low</td>
</tr>
<tr>
<td><em>Taxidea taxus</em></td>
<td>American badger</td>
<td>CSSC</td>
<td></td>
<td>Most abundant in drier open stages of most shrub, forest, and herbaceous habitats with friable soils; require sufficient food source, friable soils, and open, uncultivated ground; prey on burrowing rodents. There are no known records for this species in the Study Area; the Study Area is located within the known geographic distribution for this species. Suitable habitat occurs within portions of the Study Area. The CNDDB reports a historic record of this species approximately 5 miles east of the Study Area.</td>
<td>Moderate</td>
</tr>
<tr>
<td><em>Vulpes macrotis arsipus</em></td>
<td>Desert kit fox</td>
<td>PFBM</td>
<td></td>
<td>Inhabitats arid and semi-arid regions with desert scrub, chaparral, and/or grassland communities. Geographic range reported from southern California to western Colorado and Texas, and north into Oregon. Desert kit fox scat and footprints were observed at multiple locations in the Study Area; the Study Area is within the known range of this species.</td>
<td>Present</td>
</tr>
<tr>
<td><em>Xeropermophilus mohavensis</em></td>
<td>Mohave ground squirrel</td>
<td>ST</td>
<td></td>
<td>Occurs in the Mojave Desert in desert scrub and Joshua tree woodlands with winterfat (<em>Krascheninnikovia lanata</em>) and spiny hopsage (<em>Grayia spinosa</em>). There are no known records for this species in the Study Area; the preferred habitat of this species does not occur in the Study Area. The nearest reported occurrences by the CNDDB is more than 10 miles to the northeast, east, and southeast.</td>
<td>Not likely to occur</td>
</tr>
</tbody>
</table>

**Federal Rankings:**
- FE = Federally Endangered
- FT = Federally Threatened
- FC = Federal Candidates for Listing
- BCC = USFWS Bird of Conservation Concern

**State Rankings:**
- SE = State Endangered
- ST = State Threatened
- CFP = California Fully Protected
- CPF = California Protected Fur-bearer
- SA = CDFW Special Animal
- WL = CDFW Watch List
- CSSC = California Species of Special Concern
- PFBM = State Protected Furbearing Mammal
Del Sur Solar Project
C. ENVIRONMENTAL SETTING, ANALYSIS, AND MITIGATION MEASURES

- Porter-Cologne Water Quality Control Act. Regional Water Quality Control Boards (RWQCBs) regulate the “discharge of waste” to “waters of the State.” Isolated wetlands within California, which are no longer considered “waters of the United States” as defined by Section 404 of the Clean Water Act, are addressed under the Porter-Cologne Act.

- State-Regulated Habitats. Activities that result in the diversion or obstruction of the natural flow of a stream; or which substantially change its bed, channel, or bank, or which utilize any materials (including vegetation) from the streambed, may require that a project applicant enter into a Streambed Alteration Agreement with the CDFW.

- Native Plant Protection Act (Fish and Game Code 1900-1913). Provisions of this act prohibit the taking of listed plants from the wild and require notification of the CDFW at least 10 days in advance of any change in land use.

- California Desert Native Plants Act. This act prohibits the unlawful harvesting of plants native to the California deserts on public or private land within Imperial, Inyo, Kern, Los Angeles, Mono, Riverside, San Bernardino, and San Diego counties.

Local and Regional Regulations/Plans

- City of Lancaster General Plan. The City of Lancaster General Plan (City of Lancaster 2009) includes policies and specific measures to reduce adverse impacts on biological resources and protect sensitive species. The relevant policies included in the City of Lancaster General Plan are as follows:
  - Policy 3.4.1: Ensure the comprehensive management of programs for significant biological resources that remain within the Lancaster sphere of influence.
  - Policy 3.4.2: Preserve significant desert wash areas to protect sensitive species that utilize these habitat areas. (a. ....Areas of desert wash habitat considered to be highly important to special status species, or that is occupied by these species, shall be protected.)
  - Policy 3.4.3: Encourage the protection of open space lands in and around the Poppy Preserve, Ripley Woodland Preserve, and other sensitive areas to preserve habitat for sensitive mammals, reptiles, and birds, including raptors.
  - Policy 3.4.4: Ensure that development proposals, including City sponsored projects, are analyzed for short- and long-term impacts to biological resources and that appropriate mitigation measures are implemented.

- West Mojave Plan. The West Mojave Plan (WMP) is “a habitat conservation plan and federal land use plan amendment that presents a strategy to conserve and protect the desert tortoise, the Mohave ground squirrel and nearly 100 other plants and animals and natural communities and provides a streamlined program for complying with the requirements of the California and federal Endangered Species Acts” (BLM 2005). The habitat conservation plan has not been completed and would require greater specificity for local governments to obtain incidental take permits under the State and federal endangered species acts (BLM 2005). The WMP is currently only applicable on public lands managed by the BLM, and does not apply to projects within the City of Lancaster or on lands under Los Angeles County jurisdiction.

- Desert Renewable Energy Conservation Plan. The Desert Renewable Energy Conservation Plan (DRECP) covers approximately 22.5 million acres of both federal and non-federal California desert land in Imperial, Inyo, Kern, Los Angeles, Riverside, San Bernardino, and San Diego counties. The DRECP is still in development and has not been adopted by any participating agencies.

- Draft County of Los Angeles General Plan: Proposed Significant Ecological Areas (only applies to generic/communication line route in unincorporated Los Angeles County). A Significant Ecological Area (SEA) designation is given to land that contains irreplaceable biological resources. Individual SEAs
include undisturbed or lightly disturbed habitat supporting valuable and threatened species, linkages and corridors to promote species movement, and are sized to support sustainable populations of its component species (County of LA 2014). SEAs only apply to unincorporated lands in Los Angeles County. However, there are no SEAs within the project boundary of the gen-tie and communication line routes.

Other Applicable Program

- **California Native Plant Society (CNPS) Rare Plant Program.** The mission of the CNPS Rare Plant Program is to develop current, accurate information on the distribution, ecology, and conservation status of California’s rare and endangered plants, and to use this information to promote science-based plant conservation in California. The Program currently recognizes more than 1,600 plant taxa (species, subspecies, and varieties) as rare or endangered in California.

C.5.3 Environmental Impacts and Mitigation Measures

The following applicable significance criteria for biological resources were derived from Appendix G of the State CEQA Guidelines. Potential impacts of the proposed project would be considered significant and would require mitigation if the proposed project would:

- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by CDFW or USFWS.

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW or USFWS.

- Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.

- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.

- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinances.

Approach to Impact Assessment

Consistent with the requirements of CEQA, the significance of potential impacts is evaluated through the application of the criteria described above. The objective of the biological resources analysis is to identify potential adverse effects and significant impacts on biological resources. While avoidance is the preferred approach for the management of biological resources, it is not always possible to avoid impacts to biological resources. If impacts can be avoided through project design, establishment of exclusion zones, or other means, then specific mitigation measures may be unnecessary. However, appropriate mitigation measures to avoid or minimize impacts are identified including procedures if significant biological resources are discovered during construction or operation.

Construction of the proposed project includes the installation of solar modules and other electricity generation components as well as energy collection systems (below ground), access roads, inverters, transformers, and a switching station. The construction and operation of the proposed project could impact biological resources. The specific impacts depend on the species, their habitat, hydrology, and other resources present at the project site. The following discussion provides an overview of the direct,
indirect, construction, and operational impacts that are expected to occur with the development of the proposed project.

**Direct and Indirect Impacts**

The CEQA Guidelines define direct impacts as those impacts that result from the proposed project and occur at the same time and place. These include, but are not limited to, the removal of vegetation, disturbance to wildlife from construction activities, or the crushing of burrows. Indirect impacts may be caused by the proposed project, but can occur later in time or are farther removed in distance while still reasonably foreseeable and related to the proposed project. Indirect impacts can include the disruption of the native seed bank, the spread of invasive plant species, alterations in light regimes (i.e., shade from solar modules), or changes to soil or hydrology that adversely effects native species over time, and the disruption of prey base or increased predation through alterations of the physical landscape from proposed project features (i.e., fencing and solar modules) that provide perch sites or shelter for predators. Indirect impacts may also include increased traffic and human disturbance. General impacts to plants and wildlife are summarized in Table C.5-4.

<table>
<thead>
<tr>
<th>Table C.5-4. Example Construction and Operational Impacts to Plants and Wildlife</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Activity</strong></td>
</tr>
</tbody>
</table>
| Earth moving, grading, habitat/vegetation removal | - Direct mortality to plants and small or less mobile species  
- Crushing of burrows or fossorial animals, disruption of soil surfaces, compaction of soils, and displacement of native species  
- Reduced use of area as a foraging or movement corridor  
- Fugitive dust and habitat loss  
- Creation of barriers disrupting movement  
- Displacement of breeding birds and the abandonment of active nests (during breeding season)  
- Loss of eggs and nestlings including ground nesting birds  
- Loss of foraging habitat  
- Brush fires  
- Spread of exotic weeds |
| Noise and vibration                              | - Interference with breeding or foraging activities and movement patterns  
- Avoidance of areas during construction  
- Interference with hearing resulting in increased predation  
- Abandonment of burrows or habitat |
| Man-made sources of light                        | - Disturbance or mortality to species that prey on insects attracted to light sources  
- Collisions with vehicles at night |
| Temporary access roads                           | - Crushing of burrows, disruption of soil surfaces, compaction of soils, and displacement of native species  
- Establishment of ruts or depressions that can alter soil conditions and hydrology  
- Alteration of physical characteristics of soil underneath roads (placement of roads increases compaction up to 200 times relative to undisturbed sites)  
- Effect on animal behavior by altering home range use, affect movement patterns, reduce reproductive success, alter escape response, and increase physiological stress |
| Traffic                                         | - Accidental mortality of small diurnal animals from vehicle collision  
- Secondary vehicular mortality of opportunistic predators feeding on road kill |
| Waste                                           | - Ingestion of microtrash (i.e., broken glass, paper and plastic waste, and small pieces of metal) or ethylene glycol antifreeze (particularly California condors) |
| Solar Field                                     | - Collision with solar panels and other equipment  
- Electrocution  
- Disturbance from routine maintenance  
- Entrapment in hollow pipes |
Permanent and Temporary Impacts

Project impacts are generally considered permanent if they involve the conversion of land to a new use, such as with the construction of new roads or the foundations of solar modules. However, for the purposes of this analysis some permanent impacts include the area beneath and between the solar arrays. Even though vegetation would persist beneath and between the proposed solar arrays there remains a lack of information from the scientific community to conclude that altered physical and biological conditions beneath the solar modules would support the same plant and wildlife diversity as pre-project conditions. Where this standard is applied, specific language associated with each impact and a justification or rationale will be provided to support the conclusion.

Temporary impacts are usually considered to be those activities that are of short duration (i.e., six to 12 months) and that do not result in a permanent land use conversion. With the exception of the solar array footprint, temporary project impacts are those effects that include ground disturbance activities restricted solely to the construction phase, such as crushing or driving over vegetation, grading of temporary roads and clearing vegetation within staging areas. These effects would be considered temporary provided the areas are subject to restoration at the conclusion of construction. Noise, human disturbance, vehicle traffic, and construction activities are also considered temporary impacts.

Construction of the proposed project would occur for a period of at least one year. This is at the upper range of impact time based on the typical definition of temporary impacts as it relates to certain species of plants or wildlife. For example, construction activity that results in repeated disturbance to an area for a period of one year may result in permanent effects to plants or wildlife that are fragile, short lived, or have unique dispersal or nesting requirements.

Operational Impacts

Operational activities could cause both direct and indirect impacts to biological resources. Ongoing operations and maintenance would include routine inspection and maintenance, periodic module maintenance and emergency repairs, and routine inspection of project facilities. Operational activities would also include weed abatement and vegetation management activities including but not limited to mechanical removal or mowing, or managed livestock grazing. These activities would remain an ongoing source of disturbance for many plants and wildlife species that occur within the fenced facility perimeter and in adjacent habitat.

Environmental Impact Analysis

Impact BR-1: Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by CDFW or USFWS. (Class II – Less than Significant with Mitigation)

Construction. Construction of the proposed project would result in direct and indirect impacts to approximately 720.6 acres of native vegetation communities. These include permanent impacts to 61.9 acres of California poppy fields and 9.1 acres of boxthorn scrub (See Table C.5-5); both of these communities are considered sensitive by the CDFW. For the purposes of the EIR analysis, it is assumed that the entire SGF footprint along with related infrastructure will constitute a permanent impact because of the substantial ecological changes that are likely to occur as a result of shading, vegetation management, and other effects. Although some species would continue to use the solar arrays after construction, the characterization of the entire solar array footprint as the permanent impact area is related to the expected loss of functional value for plants and wildlife within the arrays. Plant habitat is characterized by numerous physical environmental factors such as availability of basic resources (light, soil moisture, and mineral nutrients); temperature and seasonality;
soil characteristics; and interactions with other plant species, as well as direct and indirect interactions with insects and vertebrate animals. The fenced areas of the project site would directly or indirectly affect each of these habitat characteristics through the placement of the solar arrays, which would introduce large areas of shade to an otherwise open plant community. The presence of solar arrays and other related facilities would likely change habitat suitability throughout the project site.

Solar arrays would act as new shade structures which may alter habitat conditions at the site. Sunlight is a fundamental component of plant habitat and is a limiting resource when its availability is restricted (Harpole et al. 2007). Some species tolerate heavy shade and are exclusively “understory” plants, found in shaded forest or shrubland sites. Barbour et al. (1987: pp. 343-350) describe the role of sunlight in plant metabolism. In California grasslands, the plant communities beneath the shade of native oak trees “show considerable differences” from those in open sun (Tyler et al. 2007).

Direct impacts to California poppy fields and Cooper’s boxthorn scrub would occur as a result of grading during construction activities. Indirect impacts could include alterations in existing light, topography, and hydrology regimes, sedimentation and erosion, soil compaction, the accumulation of fugitive dust, disruptions to native seed banks from ground disturbance, and the colonization of non-native, invasive plant species. These actions may result in reduced habitat quality for native plants. In addition, the removal of vegetation and the disruption of soil crusts create possibilities for erosion, dust, and weed invasion that can affect habitat in adjacent areas.

While it is expected that vegetation would persist beneath the solar arrays, the value of this remaining habitat would likely be compromised. Construction of the solar arrays would result in the alteration of light regimes that could alter soil moisture and temperature. In addition to shading, the accumulation of dew and moisture on the leading edge of the modules would contribute to an increase in the moisture levels of the soil below the arrays in some locations. These changes could favor the establishment of more weedy species. Shading and wind deflection caused by the solar array structures could also decrease soil temperature extremes and decrease evaporation from soil surfaces. This change from the normal arid environment does not favor the native arid-adapted species and could allow weedy ephemerals to colonize (Smith 1984).

However, two recently completed solar projects on the Carrizo Plain, in eastern San Luis Obispo County, have entered the operations and maintenance phase. On-going monitoring of these projects have identified the persistence of non-native grassland communities below the solar panel arrays despite the alterations to the hydric and solar regimes. Information is not currently available on the composition of the communities in comparison to pre-construction conditions.

The loss of sensitive vegetation communities displaces habitat occupied by sensitive species and reduces foraging habitat. Because of the functional role these plant communities play in the ecology of special-status species in the project area, their loss would be considered significant without mitigation. Mitigation for the loss of wildflower fields is consistent with the mitigation recommendations set forth in the City of Lancaster’s 2009 General Plan for impacts to sensitive communities. Mitigation Measures BR-1 through BR-4, would minimize impacts to sensitive natural communities. These measures include worker education describing sensitive biological resources that occur on site, implementation of Best

<table>
<thead>
<tr>
<th>Community Name</th>
<th>Permanent Impacts (approx. acres)</th>
</tr>
</thead>
<tbody>
<tr>
<td>California poppy fields¹</td>
<td>61.9</td>
</tr>
<tr>
<td>Cooper’s boxthorn scrub</td>
<td>9.1</td>
</tr>
<tr>
<td>Fiddleneck fields</td>
<td>560.7</td>
</tr>
<tr>
<td>Fourwing saltbush scrub</td>
<td>43.1</td>
</tr>
<tr>
<td>Rubber rabbitbrush scrub</td>
<td>45.8</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>720.6</strong></td>
</tr>
</tbody>
</table>

¹Communities in **bold** type are considered sensitive by the CDFW.

---

Draft EIR

C.5-24

June 2015
Management Practices (BMPs) to minimize and avoid impacts, compensation for permanent impacts to vegetation, and implementation of a Weed Control Plan. Implementation of these mitigation measures would reduce impacts to sensitive vegetation communities to less than significant (Class II).

Gen-tie and communication line construction would include standard trenching activities along a linear alignment. Depending on the chosen route these activities would temporarily impact up to 17.52 acres of native vegetation communities. This includes temporary impacts to 11.7 acres of California poppy fields, a sensitive vegetation community (See Table C.5-6). Impacts to native vegetation communities would be similar to those for the SGF except they would be temporary in nature. Implementation of Mitigation Measures BR-1 through BR-4 would reduce impacts to sensitive natural communities to less than significant.

**Operation.**

Operational impacts would occur during routine inspection and maintenance of proposed project facilities. These impacts would include, but are not limited to, trampling or crushing of native vegetation by vehicular or foot traffic, alterations in topography and hydrology, increased erosion and sedimentation, and the introduction of non-native and invasive plants due to increased human presence or grazing animals. In addition, human presence could alter fire regimes. To control the height of vegetation between the solar arrays, the applicant has proposed the use of either mechanical removal or livestock grazing within these areas. Although the use of livestock (i.e. sheep) to manage lands can be effective if managed properly, excess grazing has the potential to result in further degradation of plant communities. The operational impacts to sensitive communities are expected to be less than significant and additional mitigation is not recommended.

Impacts related to the underground gen-tie and communication lines would include, but are not limited to, trampling or crushing of native vegetation by vehicular or foot traffic, alterations in topography and hydrology, increased erosion and sedimentation, and the introduction of non-native and invasive plants due to increased human presence and vehicle traffic. These impacts would occur during routine inspection and maintenance of the underground lines. Implementation of Mitigation Measures BR-1 through BR-4 would reduce impacts to sensitive natural communities during operation to less than significant levels.

**Decommissioning.** Decommissioning of the proposed project would result in the same types of impacts as construction. However, the magnitude of the disturbance would be less as site grading, pile driving, and other major ground disturbing activities at the SGF (other than pile removal) would not be required. Implementation of Mitigation Measures BR-1 through BR-4 would reduce impacts to sensitive natural communities during decommissioning to less than significant (Class II).

### Table C.5-6. Native Vegetation Communities along the Gen-tie and Communication Line Options

<table>
<thead>
<tr>
<th>Vegetation Community</th>
<th>Gen-Tie City Route</th>
<th>Gen-Tie Center Route</th>
<th>Gen-Tie Western Route</th>
<th>Gen-Tie Eastern Route</th>
<th>Gen-Tie Line Extension</th>
</tr>
</thead>
<tbody>
<tr>
<td>California poppy fields</td>
<td>8.59</td>
<td>6.16</td>
<td>11.67</td>
<td>1.36</td>
<td>1.20</td>
</tr>
<tr>
<td>Fiddleneck fields</td>
<td>2.14</td>
<td>1.91</td>
<td>4.66</td>
<td>13.78</td>
<td>4.90</td>
</tr>
<tr>
<td>Fourwing saltbush scrub</td>
<td>0.89</td>
<td>0.90</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Rubber rabbitbrush scrub</td>
<td>--</td>
<td>0.02</td>
<td>1.19</td>
<td>0.81</td>
<td>--</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>11.62</strong></td>
<td><strong>8.99</strong></td>
<td><strong>17.52</strong></td>
<td><strong>15.95</strong></td>
<td><strong>6.10</strong></td>
</tr>
</tbody>
</table>

Communities in **bold** type are considered sensitive by the CDFW.
Mitigation Measures

**MM BR-1**  Prior to any project activities on site (i.e., surveying, mobilization, fencing, grading, or construction), a Worker Environmental Education Program (WEEP) shall be prepared and implemented by a qualified biologist. The WEEP shall be submitted to the City of Lancaster for review and approval prior to issuance of construction permits, and implemented throughout the duration of the construction activities.

**MM BR-2**  Best Management Practices (BMPs) shall be implemented as standard operating procedures during all ground disturbance and construction related activities to avoid or minimize project impacts on biological resources. These BMPs shall include requirements to clearly delineate work areas; maintain vehicle speeds of 15 miles per hour in the work area; restrict disturbance to approved work areas; require vehicle maintenance and fueling to take place at least 50 feet from State waters unless located in a bermed containment area; perform daily cleanup of trash and excess construction debris; cap all pipes greater than 4-inches in diameter; report and remove any dead or injured wildlife; restrict work to daylight hours unless approved by the City; monitor construction activities; and prevent wildlife entrapment by covering excavations or constructing escape ramps in trenches.

**MM BR-3**  To compensate for permanent impacts to California Poppy Fields and Cooper’s boxthorn scrub, habitat that contains the same quality of sensitive vegetation communities impacted by the proposed project and that is not already public land shall be preserved and managed in perpetuity at 1:1 mitigation ratio. This equates to a total of 71 acres. Prior to the disturbance of vegetation, the applicant shall obtain City of Lancaster approval of preserved and/or mitigation lands as well as documentation of a recorded conservation easement.

**MM BR-4**  Prior to the issuance of any construction-related permits, the applicant shall retain a qualified biologist to prepare a comprehensive adaptive Weed Control Plan (WCP) to be administered during the construction and operation of the proposed project for the purpose of invasive weed abatement. The WCP shall be submitted to the City of Lancaster for review and approval.

**Impact BR-2:** Have a substantial adverse effect, either directly or through habitat modifications on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by CDFW or USFWS. (Class II – Less than Significant with Mitigation)

**Special Status Plant Species**

**Construction.** Construction and operation of the proposed project is not expected to result in direct or indirect impacts to listed or other special-status plants. State or federally listed plants, candidate, sensitive, or special-status plants were not detected in the Study Area. The Study Area does not support suitable habitat for listed plants and most of the Study Area is comprised of historic agricultural lands subject to extensive sheep grazing. However, some non-listed sensitive plant species may not have been identifiable or may have failed to germinate at the time of the surveys. If any listed or other special-status plants are encountered during pre-construction surveys they would be marked and avoided to the maximum extent possible. However, it is possible that some non-listed, special-status plants would be subject to project disturbance should they occur in disturbance areas.
If present, direct impacts to special-status plants include trampling or crushing from heavy equipment, vehicles, or foot traffic, alterations to the native seed bank due to soil compaction, and modifications to existing hydrological conditions. Indirect impacts could include the disruption of native seed banks through soil alterations, the accumulation of fugitive dust, increased erosion and sediment transport, and the colonization of non-native, invasive plant species. Excessive dust can decrease or limit plant survivorship by decreasing photosynthetic output, reducing transpiration, and adversely affecting reproductive success. Ground-disturbing activities that would occur during the project can result in the proliferation and spread of non-native invasive plants to new areas. Because noxious weeds can permanently degrade rare plant and animal habitats, their proliferation could adversely affect sensitive plant species if they are present.

Typically, impacts to a small number of non-State- or federally-listed special-status plants (i.e., impacts to a few individuals) or impacts to a population where loss of a few occurrences would not adversely affect the range of the special-status plant species are not typically considered significant under CEQA. However, if proposed project activities result in the loss of more than 10 percent of the known individuals within the occurrence, and/or the special-status plant species has a Rare Plant Rank (RPR) of List 1.B or list 2, these impacts would be considered significant and warrant mitigation.

Implementation of Mitigation Measures BR-1 through BR-4, and BR-9 would reduce impacts to sensitive plants to less than significant. These measures would require worker training, pre-construction surveys and avoidance of rare plants where possible, prevent or reduce the potential spread of noxious weeds, and control existing weed populations. The acquisition of lands to offset loss of native wildflower fields and Swainson’s hawk foraging habitat would further reduce impacts to sensitive plants, should they occur, by preserving natural lands in the region.

Construction of the underground gen-tie lines would result in the same type of impacts to sensitive plants as the SGF. Implementation of Mitigation Measures BR-1 through BR-4, and BR-9 would reduce impacts to sensitive plants to less than significant (Class II).

**Operation.** Operational impacts to sensitive plants would be the same for native vegetation communities and occur during routine inspection and maintenance of project facilities. Implementation of Mitigation Measures BR-1 through BR-4, and BR-9 would reduce impacts to sensitive plants during operation of the facility to less than significant (Class II).

** Decommissioning.** Decommissioning of the SGF and the gen-tie and communication lines would result in the same types of impacts as construction. However, the magnitude of the disturbance would be less as site grading, pile driving, and other major ground disturbing activities at the SGF (other than pile removal) would not be required. Implementation of Mitigation Measures BR-1 through BR-4, and BR-9 would reduce impacts to sensitive plants during decommissioning to less than significant (Class II).

**Special Status Wildlife**

There are no known threatened or endangered invertebrates, reptiles, amphibians, or mammals in the Study Area. There are several non-listed, special-status invertebrates, reptiles, mammals, and birds that have the potential to occur in the Study Area. These include coast horned lizard (*Phrynosoma coronatum blainvillii*) and silvery legless lizard (*Anniella pulchra pulchra*) (See Table C.5-3). Special-status birds are the most likely species to be adversely affected by the proposed project. Several State and/or federally threatened or endangered birds have been observed or have the potential to occur in the Study Area, including Swainson’s hawk and California condor. In addition, the Antelope Valley is located in the Pacific flyway which supports several hundred species of seasonal migrants. Some of these, including least Bell’s
vireo, willow flycatchers (including the federally listed southwestern willow flycatcher subspecies), and many other birds which are State and/or federally listed are known to fly over the area during seasonal migrations (See Table C.5-3). Golden eagle, a California fully protected species, is known from the Antelope Valley and may be a periodic visitor to the Study Area. Northern harrier and loggerhead shrike were detected at the Study Area. Mountain plover, a CDFW species of special concern and federal candidate for listing, has been documented adjacent to the Study Area and suitable wintering habitat is present. Lawrence’s goldfinch, a CDFW special animal has been documented just outside the northwest corner of the Study Area. Burrowing owl, a State species of special concern and a federal bird of conservation concern, was observed along the gen-tie and communication line route during project surveys.

Special Status Invertebrates and Reptiles

Construction. Construction activities associated with the proposed project could result in the direct loss of sensitive invertebrates and reptiles. Given the ecology of these species and cryptic nature, it is likely that some or all of the species may occur in or near the Study Area. Direct impacts could include mechanical crushing during construction, fugitive dust, and general disturbance due to increased human activity. Project implementation may also result in permanent loss of habitat from the removal of debris piles or trampling of soft friable soils required for burrowing. Indirect impacts could include compaction of soils and the introduction of exotic plant species. These impacts would be considered significant and warrant mitigation.

Implementation of Mitigation Measures BR-1 through BR-8 would avoid or reduce direct and indirect impacts to these species. These measures require worker education describing the sensitive biological resources that occur on site, implementation of BMPs to minimize and avoid impacts to sensitive wildlife, provide compensation for permanent impacts to foraging habitat, and implementation of a Weed Control Plan. Implementation of Mitigation Measures BR-1 through BR-8 would reduce impacts to sensitive invertebrates and reptiles to less than significant levels (Class II).

Construction of the underground gen-tie and communication lines would result in many of the same impacts discussed above for the SGF. Implementation of Mitigation Measures BR-1 through BR-8 would reduce impacts to sensitive invertebrates and reptiles to less than significant levels (Class II).

Operation. Operational impacts include increased human presence, the spread of noxious weeds due to the use of new or improved access roads, and increased perch sites for avian predators. Project inspection and maintenance of the underground gen-tie lines could result in trampling or crushing of small invertebrates and reptiles by vehicular or foot traffic, alterations in topography and hydrology, increased erosion and sedimentation, and the introduction of non-native, invasive plants due to increased human presence. Implementation of Mitigation Measures BR-1 through BR-8 would reduce some of the impacts to small reptiles through the acquisition and protection of foraging habitat. Impacts would be less than significant with implementation of mitigation (Class II).

Decommissioning. Decommissioning of the gen-tie and communication lines would result in similar impacts as construction. Implementation of the same Mitigation Measures required during construction would reduce impacts to sensitive invertebrates and reptiles during decommissioning to less than significant (Class II).

Special Status Birds

Construction. Construction activities associated with the proposed project could result in direct and indirect impacts to a variety of sensitive resident and migratory birds. Direct impacts to most listed species
are not anticipated because nesting habitat for most listed birds is not present on site. Swainson’s hawk is known to nest approximately two miles from the proposed project and has been observed soaring over the Study Area. This species likely forages in the Study Area although limited nesting habitat is present in the few trees located on the project site. California condor and golden eagle are known from the region and could forage on sheep carrion found scattered across the Study Area. Nesting birds are expected to occur in the Study Area and some may nest in the debris piles, wildflower fields, and scrub communities located across the SGF. Burrowing owls, a CDFW Species of Special Concern, are known from the Antelope Valley and suitable habitat occurs throughout the Study Area. Protocol surveys for burrowing owls detected this species along the gen-tie and communication line alignment.

Direct impacts to special-status birds include ground-disturbing activities associated with construction, increased noise levels from heavy equipment, increased human presence, and exposure to fugitive dust. Construction during the breeding season could result in the displacement of breeding birds and the abandonment of active nests. Indirect impacts include human disturbance, the spread of noxious weeds, and disruption of breeding or foraging activity. Weed management could also affect nesting.

Mitigation for the loss of foraging habitat for Swainson’s hawks, which are known to nest approximately two miles from the SGF, has been included. Special-status birds could also be exposed to ethylene glycol (in vehicle antifreeze), construction disturbance, or the ingestion of microtrash (small bits of debris such as bolts, plastic ties, etc.) should the birds attempt to land or forage over the project site during construction.

If burrowing owls are present, construction of the SGF could destroy occupied burrows or cause the owls to abandon burrows. Construction during the breeding season could result in the incidental loss of fertile eggs or nestlings or otherwise lead to nest abandonment. The loss of occupied burrowing owl habitat (habitat known to have been occupied by owls during the nesting season within the past 3 years) or reductions in the number of this species, directly or indirectly through nest abandonment or reproductive suppression, would constitute a significant impact. Furthermore, raptors, including owls and their nests, are protected under both federal and State laws and regulations, including the MBTA and California Fish and Game Code Section 3503.5. With the exception of a few non-native birds such as European starling, the loss of active bird nests or young is regulated by the MBTA and Fish and Game Code Section 3503 and would be considered a significant impact.

Implementation of Mitigation Measures BR-1 through BR-8 and BR-10 would avoid or reduce direct and indirect impacts to listed and other special-status birds and nesting birds protected by the MBTA and California Fish and Game Code. These measures require worker education describing the sensitive biological resources that occur on site, implementation of BMPs to minimize and avoid impacts to sensitive wildlife and nesting birds, pre-construction surveys for nesting birds, avoidance of active nest sites, compensation for permanent impacts to Swainson’s hawk foraging habitat, and implementation of a Weed Control Plan. In addition, the applicant would be required to monitor construction, clean the site of trash, debris and other microtrash, and remove dead animals from the project site. If burrowing owls are displaced, the acquisition and preservation of mitigation lands would also be required. Implementation of Mitigation Measures BR-1 through BR-8, and BR-10 would reduce impacts to special-status birds to less than significant levels (Class II).

Construction of the underground gen-tie and communication lines would result in many of the same impacts as construction of the SGF. However, the loss of foraging habitat and disturbance to nesting birds would be temporary and the habitat restored at the completion of construction. Implementation of Mitigation Measures BR-1 through BR-8, and BR-10 would reduce impacts to less than significant levels (Class II).
Operation. Operational impacts include increased human presence and the spread of noxious weeds due to use of new or improved access roads. Lighting from operation is expected to be minimal, but may be required for emergency repairs or maintenance. Night lighting may affect essential behavioral activities, physiology, population ecology, competition, and predation of both diurnal and nocturnal wildlife (Longcore and Rich 2004). Lighting may also increase the risk of predation of both nocturnal and diurnal species because they may be more detectable to nocturnal predators (USACE and CDFG 2010). Many insects are drawn to lights, and species that prey on insects, such as bats, may be attracted to lighted construction areas, which would increase the potential for disturbance and mortality. However, studies have indicated that many small species, such as rodents, rabbits, snakes, and bats, actually forage less at high illumination levels (Longcore and Rich 2004). Overall, lighting would likely favor light-tolerant species over those that are dark-adapted (Longcore and Rich 2004).

Electrical distribution facilities would be undergrounded and would not result in increased risk to birds from collision or electrocution. However, birds flying over the SGF could be at risk of collision with the solar panels. It is possible the solar panels may reflect the sky creating a water-like mirage effect. Birds may be attracted to the project site by this effect and collide with solar panels. Light reflecting off the solar panels could cause an increase in Polarized Light Pollution (PLP), also known as “lake effect”, which occurs from light reflecting off of dark-colored manmade structures. According to Horvath et al. (2009), PLP caused by manmade structures can alter the ability of wildlife (e.g. insects, etc.) to seek out suitable habitat and elude or detect the presence of predators. It has also been documented that for a variety of birds and other species PLP can affect their ability to detect natural polarized light patterns in the sky, which can lead to the effect on their navigation ability and ultimately to effects on dispersal and reproduction (Horvath et al., 2009). Horvath et al (2009) determined that minimization of polarizing effects was possible by adding white grids onto solar panels, or otherwise minimizing the solar active area. However, many solar PV systems currently include a white grid like pattern on each panel.

Anecdotal reports of collisions are becoming more common as large-scale PV facilities are developed in the desert. At both the Desert Sunlight Solar Farm project site and the Genesis Solar Electric Project located in Riverside County, birds and bats have been found injured or dead on the site. Of these, the majority consisted of waterbirds, species that would be expected as migrants not typically found foraging in desert habitat, and whose presence would not have been expected to occur at the project site (CEC 2013). A federally endangered species the Yuma clapper rail was among the recorded mortalities.

To date little is known regarding the long-term risk to birds from collision with PV solar panels. The PV panels have been designed for minimal light reflection because reflected light equates to a loss of solar energy. The proposed solar panels for this project would contain an anti-glare coating, which helps absorb light and minimizes the reflection of light. This reduces the potential for lake effect to occur.

Implementation of Mitigation Measures BR-1 through BR-8 which includes a bird and bat monitoring and avoidance plan would reduce impacts to birds from collision through the acquisition and protection of foraging habitat and the implementation of a Bird and Bat Monitoring and Avoidance Plan. These measures would reduce impacts to less than significant levels (Class II).

During the operation phase of the project, inspection and maintenance of the underground gen-tie and communication lines could result in trampling or crushing of native vegetation by vehicular or foot traffic, alterations in topography and hydrology, increased erosion and sedimentation, and the introduction of non-native, invasive plants due to increased human presence. This could result in disturbance to nesting birds. Because the electrical distribution facilities would be undergrounded they would not result in increased risk to birds from collision or electrocution. Implementation of Mitigation Measures BR-1 through BR-8 would reduce impacts to listed birds to less than significant levels (Class II).
Decommissioning. Decommissioning of the gen-tie and communication lines would result in similar impacts as construction. Removal of the SGF field would be expected to eliminate potential collision risks to birds. Implementation of the same Mitigation Measures required during construction (BR-1 through BR-8, and BR-10) would reduce impacts to birds during decommissioning to less than significant levels (Class II).

Special Status Mammals

Desert kit fox (State protected furbearing mammal) was detected within the boundaries of the project site and is known to occur in adjacent habitat. Other sensitive mammal species (all State species of special concern) including the Tehachapi pocket mouse and American badger may also occur. Bats including Townsend’s big eared bat may forage or roost near the project site. Bat life histories vary widely. Some species hibernate during winter, or migrate to warmer areas. During the breeding season, bats generally roost during the day, either alone or in communal roost sites, depending on species. Some species feed mainly over open water where insect production is especially high, but others forage over open shrublands. The decline of bat populations is often due to roost site disturbance, loss of foraging habitat, and loss of roost sites. Activities that have been documented to impact bats include livestock grazing, vegetation treatments, and water reclamation that could lead to loss of a water source or riparian habitat. Due to their sensitivity to human disturbance, roost protection is important for bats. Roost protection measures may include seasonal use restrictions or physical closures as necessary.

Construction. Direct impacts to small mammals such as pocket mice and moderate sized species such as American badger and desert kit fox could include mechanical crushing by vehicles and construction equipment, trampling, exposure to dust, and loss of habitat. Construction disturbance can also result in the flushing of small animals from refugia, which increases the predation risk for small rodents. Indirect impacts include alteration of soils, such as compaction that could preclude burrowing and the spread of exotic weeds.

Direct impacts to bats include mortality or displacement of bats during ground-disturbing activities associated with construction activities, increased noise levels from heavy equipment, human presence, and exposure to fugitive dust. Noise, vibration, and human activity could disrupt maternity roosts during the breeding season if present. Indirect effects could include increased traffic, dust, and human presence in the project area that could result in bats abandoning their roosts or maternal colonies. For example, Townsend’s big-eared bat is known to abandon young when disturbed. Bats that forage near the ground, such as the pallid bat, would also be subject to crushing or disturbance by vehicles driving at dusk, dawn, or during the night. The use of access roads during dusk and dawn could also disturb bats or result in vehicle strikes.

If these species are present during construction, impacts would be considered significant and warrant mitigation. Implementation of Mitigation Measures BR-1 through BR-12 would avoid or reduce direct and indirect impacts to these species. These measures require worker education describing the sensitive biological resources that occur on site, implementation of BMPs to minimize and avoid impacts to sensitive wildlife, provide compensation for permanent impacts to foraging habitat, and implementation of a Weed Control Plan. Mitigation Measures BR-11 and BR-12 provide specific avoidance measures for small mammals and bats including pre-construction surveys and avoidance of maternity dens. Implementation of these measures would reduce impacts to sensitive mammals to less than significant levels (Class II).

Construction of the underground gen-tie and communication lines would result in many of the same impacts discussed above for the SGF. However these impacts would be temporary and habitat would be
restored at the conclusion of trenching. Implementation of Mitigation Measures BR-1 through BR-12 would reduce impacts to sensitive mammals to less than significant levels (Class II).

**Operation.** Operational impacts include increased human presence, the spread of noxious weeds due to the use of new or improved access roads, and increased perch sites for avian predators. Operation of the SGF would increase the risk to bats from collision. Bats are known to collide with stationary objects, such as windows and television towers; and of these collisions, many involved illuminated objects that should have been detected by vision, if not certainly by echolocation (Orbach and Fenton 2010). Bats do not maneuver solely using echolocation. In fact, some bats have very good eyesight, such as California macrotus (*Macrotus californicus*), a species that feeds by gleaning insects, and therefore would need to clearly see them against foliage in order to eat them. There are several species of bats likely foraging at the project site that also feed by gleaning, such as the pallid bat. While bat vision is adapted for long-distance use, and even exceeds echolocation ranges (Suthers 1970), the short-range visual capability of bats is poorly understood (Orbach and Fenton 2010). The magnitude of impacts to bats from collision with the SGF is unknown but expected to occur to some degree. Because many bat populations are declining, impacts to bats from collision would be considered significant. Implementation of Mitigation Measures BR-1 through BR-12 include monitoring and the implementation of adaptive management, which would reduce impacts to sensitive mammals to less than significant levels (Class II).

During the operation of the project, inspection and maintenance of the underground gen-tie and communication lines could result in trampling or crushing of small mammals by vehicular or foot traffic, collisions with project vehicles, and the introduction of non-native, invasive plants due to increased human presence. Implementation of Mitigation Measures BR-1 through BR-12 would reduce these impacts to less than significant levels (Class II).

**Decommissioning.** Decommissioning of the gen-tie and communication lines would result in similar impacts as construction. However, the intensity and duration of impacts would be less. The removal of the SGF may also reduce collision risks to bats. Implementation of Mitigation Measures BR-1 through BR-12 would reduce impacts to sensitive mammals to less than significant levels (Class II).

**Mitigation Measures**

BR-1 through BR-4 apply in addition to the measures noted below.

**MM BR-5**
Prior to the commencement of ground disturbance or site mobilization activities, the applicant shall retain a qualified biologist to monitor project construction. Monitoring shall occur during initial ground disturbance for each phase of construction. Once initial ground disturbance is complete, monitoring shall occur periodically during all construction activities. The qualified biologist shall be present at all times during ground-disturbing activities immediately adjacent to, or within, habitat that supports populations of listed or special-status species. Any special-status plants shall be flagged for avoidance. Any special-status terrestrial species found within a project impact area shall be relocated by the authorized biologist to suitable habitat outside the impact area.

**MM BR-6**
Prior to the issuance of a construction permit, the applicant shall retain a qualified biologist to prepare a Bird and Bat Monitoring and Avoidance Plan. This plan shall follow the Avian Protection Plan guidelines outlined by USFWS. The Bird Monitoring Study shall consider prior studies by McCrary et al. (1986) or other applicable literature.

The plan will require monitoring the death and injury of birds and bats from collisions with facility features (i.e., solar modules). The study design shall be approved by the City
of Lancaster. The Bird Monitoring Study shall include, at a minimum, detailed specifications on data, a carcass collection protocol and a rationale justifying the proposed schedule of carcass searches.

During construction and for three years following the beginning of the solar farm operation, the biologist shall submit quarterly reports to the City of Lancaster describing the dates, durations, and results of monitoring and data collection. The quarterly reports shall provide a detailed description of any project-related bird or wildlife deaths or injuries detected during the monitoring study or at any other time. Following the completion of the fourth quarter of monitoring, the biologist shall prepare an annual report that summarizes the year’s data, analyzes any project-related bird fatalities or injuries detected, and provides recommendations (in consultation with the City of Lancaster) for future monitoring and any adaptive management actions needed.

If any listed or fully protected species is found dead or injured, the applicant will notify the City of Lancaster, CDFW, and/or USFWS within 72 hours. The applicant, in coordination with the agencies, will evaluate whether additional adaptive management measures can be deployed in an attempt to reduce further collisions. These measures could include, but are not limited to, installing bird/bat flight diverters, altering project components that have been identified as key mortality features, or implementing other appropriate actions approved by the City of Lancaster and regulatory agencies based on the findings of the Bird Monitoring and Avoidance Plan.

Prior to the issuance of any construction permits, the applicant shall retain a qualified biologist approved by the City of Lancaster to conduct pre-construction surveys for nesting birds within 500 feet (0.5 miles for Swainson’s hawk) of all project components. Surveys for raptors shall be conducted for all areas from January 1 to August 15. The required survey dates may be modified based on local conditions, as determined by the qualified biologist, with the approval of the City of Lancaster. Measures intended to exclude nesting birds shall not be implemented without prior approval by the City of Lancaster.

If breeding birds with active nests are found prior to or during construction, a biological monitor shall establish a 300-foot buffer around the nest and no activities shall be allowed within the buffer(s) until the young have fledged from the nest or the nest fails.

If nesting Swainson’s hawks are identified nesting within the project areas or within 0.5 miles of the construction areas, a 0.5-mile no activity buffer shall be implemented; no construction activity shall occur within a 0.5 mile buffer until the young have fledged.

The prescribed buffers may be adjusted by the qualified avian biologist based on existing conditions around the nest, planned construction activities, tolerance of the species, and other pertinent factors. The qualified avian biologist shall conduct regular monitoring of the nest to determine success/failure and to ensure that project activities are not conducted within the buffer(s) until the nesting cycle is complete or the nest fails. The avian biologist shall be responsible for documenting the results of the surveys, nest buffers implemented, and the results of ongoing monitoring and shall provide a copy of the monitoring reports for impact areas to the City.

If trees or existing structures with nests are to be removed as part of project-related construction activities, they shall be done so outside of the nesting season to avoid additional impacts to nesting raptors. If removal during the nesting season cannot be
avoided all trees and structures shall be inspected for active nests by the biologist. If nests are found within these structures and contain eggs or young, no activities within a 300 foot buffer for nesting birds and/or a 500 foot buffer for raptors shall occur until the young have fledged the nest.

**MM BR-8**

To compensate for the permanent loss of Swainson’s hawk foraging habitat, private lands shall be preserved and managed in perpetuity at a 0.25:1 mitigation ratio. A total of 181.2 acres of compensatory mitigation is required.

Compensation lands shall be located within the Antelope Valley. An open space easement shall be recorded on all property associated with the compensation lands to protect the existing plant and wildlife resources in perpetuity. The open space easement shall be held by an approved conservation entity and shall be recorded immediately upon the dedication or acquisition of the land.

**MM BR-9**

Prior to initial ground disturbance for any areas not disturbed prior to Spring 2018 and for undisturbed areas in subsequent construction years, the applicant shall conduct pre-construction surveys for special-status plant species in all areas subject to ground-disturbing activity, including, but not limited to, solar module footing preparation and construction areas, assembly yards, and areas subject to grading for new access roads. The surveys shall be conducted during the appropriate blooming period(s) by a qualified plant ecologist/biologist (approved by the City of Lancaster) according to protocols established by the USFWS, CDFW, and CNPS. All listed plant species found shall be marked and avoided. Any populations of special-status plants found during surveys will be fully described, mapped, and a CNPS Field Survey Form or written equivalent shall be prepared.

Any populations of special-status plant species identified in the disturbance areas shall be protected by a buffer zone. The buffer zone shall be established around these areas and shall be of sufficient size to eliminate potential disturbance to the plants from human activity and any other potential sources of disturbance including human trampling, erosion, and dust. The size of the buffer depends upon the proposed use of the immediately adjacent lands, and includes consideration of the plant’s ecological requirements (e.g., sunlight, moisture, shade tolerance, physical and chemical characteristics of soils) that are identified by the qualified plant ecologist or botanist. The buffer for herbaceous and shrub species shall be, at minimum, 50 feet from the perimeter of the population or the individual. A smaller buffer may be established, provided there are adequate measures in place to avoid the take of the species, with the approval of the City of Lancaster. Highly visible flagging shall be placed along the buffer area and remain in good working order during the duration of any construction activities in the area.

Where impacts to listed plants cannot be avoided, the USFWS and/or CDFW shall be consulted for authorization, as appropriate. Additional mitigation measures to protect or restore listed plant species or their habitat, including but not limited to a salvage plan including seed collection and replanting, may be required by the USFWS or CDFW before impacts are authorized.

If non-listed CRPR 1, 2, 3, or 4 plants cannot be avoided, and project-related impacts result in the loss of 10 percent or more of the local population (i.e., occurrences within ¼ mile of the project impact location), compensatory mitigation shall be required.
To compensate for permanent impacts to special-status plants (including areas located beneath the arrays), habitat (which may include preservation of areas within the undisturbed areas of the project footprint, mitigation lands outside of the main project site, or a combination of both) that is not already public land shall be preserved and managed in perpetuity at a 1:1 mitigation ratio (one acre preserved for each acre impacted). Compensation for temporary impacts shall include land acquisition and/or preservation at a 0.5:1 ratio. The preserved habitat for a significantly impacted plant species shall be of equal or greater habitat quality to the impacted areas in terms of soil features, extent of disturbance, and vegetation structure, and will contain verified extant populations, of the same size or greater, of the special-status plants that are impacted.

Mitigation land and easement requirements will follow those identified in MM BR-3, and compensation lands acquired for special-status plants may be “nested” within other compensatory mitigation lands acquired for the project provided that habitat values and acreages are met for all resources being compensated, and the mitigation lands support the special-status plants impacted at the project site.

**MM BR-10**

No more than 14 days prior to the commencement of initial ground disturbing activities for each phase of the proposed project, the applicant shall implement focused pre-construction surveys for burrowing owls. Surveys shall be conducted prior to the initiation of ground disturbance and be conducted by a qualified biologist(s), approved by the City of Lancaster. Surveys for burrowing owls shall be conducted in conformance with the 2012 CDFW Staff Report on Burrowing Owl Mitigation. Surveys shall be completed within all areas proposed for ground disturbance. The following avoidance measures shall be implemented for all burrows identified during surveys:

a. Occupied burrows shall not be disturbed during the nesting season (1 February through 31 August) unless a qualified biologist verifies through non-invasive methods that either the birds have not begun egg-laying and incubation or that juveniles from the occupied burrows are foraging independently and are capable of independent survival. Burrowing owls present on site after 1 February shall be assumed to be nesting unless evidence indicates otherwise. This protected buffer area will remain in effect until 31 August, or based upon monitoring evidence, until the young owls are foraging independently or the nest is no longer active.

b. Unless otherwise authorized by CDFW and the City, a 250-foot buffer, within which no activity will be permissible, shall be maintained between project activities and nesting burrowing owls. This protected area will remain in effect until 31 August or until the young owls are foraging independently. For burrowing owls present during the non-breeding season (generally 1 September to 31 January), a 150-ft buffer zone shall be maintained around the occupied burrow(s).

c. If there is any danger that owls will be injured or killed as a result of construction activity, the birds may be passively relocated but only during the non-breeding season; relocation shall require consultation and approval from the CDFW prior to relocation activities. Relocation of owls during the non-breeding season will be performed by a qualified biologist in coordination with CDFW.

d. Any damaged or collapsed active burrowing owl burrows will be replaced with artificial burrows in adjacent habitat at a 2:1 ratio.
C. ENVIRONMENTAL SETTING, ANALYSIS, AND MITIGATION MEASURES

MM BR-11  No more than 15 days prior to grading near or the removal of trees or structures the applicant shall retain a qualified biologist to conduct pre-construction surveys for sensitive bats. Surveys shall also be conducted during the maternity season (1 March to 31 July) within 300 feet of project activities.

If active maternity roosts or hibernacula are found, the structure or tree occupied by the roost shall be avoided (i.e., not removed). If avoidance of the maternity roost is not feasible, the biologist shall survey for nearby alternative maternity colony sites. If the biologist determines in consultation with the City of Lancaster that there are alternative roost sites used by the maternity colony and young are not present, then no further action is required, and it will not be necessary to provide alternate roosting habitat.

MM BR-12  No more than 30 days prior to initiation of construction activities (i.e., mobilization, staging, grading, or construction), the applicant shall retain a qualified biologist to conduct pre-construction surveys for American badger and desert kit fox. Surveys shall be conducted in areas that contain habitat for these species and shall include all disturbance areas and access roads plus a 300-foot buffer surrounding these areas. The applicant shall submit documentation providing pre-construction survey results to the City. If dens are detected, each den shall be classified as inactive, potentially active, active non-natal, or active natal. Active dens shall be flagged and project activities within 200 feet (non-natal dens) or 500 feet (natal dens) shall be avoided. Buffers may be modified by the qualified biologist, in coordination with CDFW and with notification to the City. Active natal dens (any den with cubs or pups) shall not be excavated or passively relocated. The cub or pup-rearing season is generally from January 15 through mid-September.

If canine distemper is reported in desert kit fox on the site or surrounding areas, the applicant shall coordinate with the City and CDFW to identify appropriate actions prior to continuing implementation of this mitigation measure in respect to desert kit fox. Any observations of a kit fox that appears sick or any kit fox mortality shall be reported to the City and CDFW within one work day.

Impact BR-3: Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means. (Class II – Less than Significant with Mitigation)

Construction. Construction of the proposed project would not result in direct or indirect impacts to federally protected wetlands or jurisdictional waters. No portion of the project site was found to support hydrophytic vegetation, show evidence of wetland hydrology, or contain hydric soils. The project site drains to the east and northeast into internally drained basins of Rosamond Dry Lake and Roger’s Dry Lake, which are not considered “waters of the US” by the USACE. Construction of the proposed project would result in impacts to approximately 9.90 acres of CDFW jurisdictional waters (see Appendix 4b).

Direct impacts to jurisdictional habitats could include the removal of native vegetation, the discharge of fill, degradation of water quality, and increased erosion and sediment transport. Because the area is generally dry for most of the year potential water quality impacts would be attenuated. Most of these impacts would occur during the use of access roads by heavy equipment and vehicle passage where jurisdictional waters (i.e., shallow, grass-dominated ephemeral drainages) traverse access roads. Indirect impacts could include alterations to the existing topographical and hydrological conditions and the introduction of non-native, invasive plant species. In arid regions ephemeral wash habitats provide micro habitats for a variety of species and play an important role in conveying surface flows during storm events. Although this landform is relatively common in the Antelope Valley, much of this habitat has been lost.
over the last several decades due to development and historic agricultural practices. Although no federal
jurisdictional waters are present, permanent impacts to State waters would be considered significant
without mitigation. Compliance with existing regulations, including acquiring a Streambed Alteration
Agreement and implementation of a Stormwater Pollution Prevention Plan (SWPPP), would minimize
potential water quality impacts, including from erosion and sedimentation. Conditions in the Streambed
Alteration Agreement would minimize or avoid impacts to jurisdictional areas. Mitigation Measures BR-1
and BR-2 require worker education and BMPs including avoidance of refueling near jurisdictional waters.
Mitigation Measure BR-4 requires implementation of a Weed Control Plan. Implementation of these
mitigation measures would reduce impacts to less than significant levels (Class II).

Construction of the gen-tie and communication line would not result in direct or indirect impacts to
federally protected wetlands or jurisdictional waters. No portions of the gen-tie and communication line
routes were found to support hydrophytic vegetation, show evidence of wetland hydrology, or contain
hydric soils. Construction of the gen-tie and communication lines would result in temporary disturbance
to up to 6.9 acres of CDFW jurisdictional waters. Impacts to these jurisdictional features would be similar
to those described above for the SGF. Although no federal jurisdictional waters are present, permanent
impacts to State waters would be considered significant without mitigation. Implementation of Mitigation
Measures BR-1 through BR-4 would reduce impacts to less than significant (Class II).

Operation. During the operation of the proposed project inspection and maintenance would be limited
to increased erosion and sediment transport related to use and maintenance of access roads. The
impermeable nature of the solar modules may also result in erosional features within portions of the solar
arrays. However, these effects would be minor. Compliance with existing regulations, including
implementation of a SWPPP, would minimize this potential impact. This impact would be less than
significant (Class III).

Decommissioning. Decommissioning of the SGF and the gen-tie and communication lines would result in
similar impacts to those for construction; however, the intensity would be less as site grading and
preparation, pile driving, and other major ground disturbing activities would not be required.
Implementation of Mitigation Measures BR-1 through BR-4 would reduce impacts to less than significant.

Mitigation Measures

Measures BR-1 through BR-4 apply to this impact.

Impact BR-4: Interfere substantially with the movement of any native resident or migratory fish or wildlife
species or with established native resident or migratory wildlife corridors, or impede the use of native
wildlife nursery sites. (Class II – Less than Significant with Mitigation)

Construction. Construction of the proposed project is not expected to result in substantial adverse
impacts to wildlife movement in the region. On a local scale, the SGF may displace some species or restrict
movement for species with low dispersal abilities. Direct impacts of the proposed project include the
placement of physical structures such as the solar arrays, fencing, or other facilities that block or impede
movement. Ground-disturbing activity, including solar array installation and construction, grading of new
access roads, and use or improvement of existing access roads would also be expected to interfere with
terrestrial wildlife movement during construction. Construction could also affect wildlife in adjacent
habitats by interfering with movement patterns or causing animals to temporarily avoid areas adjacent to
the construction zone. More mobile species such as birds and larger mammals would likely disperse into
adjacent habitat areas during the land clearing and grading phases associated with solar array installation.
Because construction would last for approximately one year, it is likely that wildlife use of the area would be temporarily and adversely affected.

Indirect impacts include human disturbance, shade, altered vertical structure (i.e., solar arrays) that reduce the sites openness (a key element associated with use of an area by desert kit fox) colonization or expansion of invasive weeds, and potential for increased predation risk from the addition of perch sites and reduced visibility for desert kit fox. The placement of these structures would provide perch sites for large urban tolerant aerial predators such as owls, hawks, and falcons.

Studies suggest that habitat fragmentation and isolation of natural areas ultimately results in the loss of native species within those communities (Soulé et al. 1988). The ability for wildlife to move freely among populations is important to long-term genetic variation and demography. Fragmentation and isolation of natural habitat may cause loss of native species diversity in fragmented habitats. In the short term, wildlife movement may also be important to an animal’s ability to occupy home ranges, if a species range extends across a potential movement barrier. These considerations are especially important for rare, threatened, or endangered species, and wide-ranging species such as large mammals, which exist in low population densities.

The Study Area supports migratory bird and bat species, which move through the area seasonally. The presence of solar modules and other facility structures may result in impacts to migrating bird and bat species as a result of fatal collisions with the solar arrays (see PLP or “lake effect” discussion above). In California, land bird migrants concentrate along the Pacific coast, large rivers, and desert oases. Water birds concentrate along the Pacific coast and in coastal estuaries and freshwater and saline wetlands. Diurnal raptors such as hawks concentrate along the Pacific coast and coastal and interior mountain ranges. Although large numbers of migrating raptors occur in the Antelope Valley, these raptors primarily follow ridgelines oriented northwest/southeast. There are few such areas on the project site and none with a bottleneck that results in large concentrations of migrants.

The draft DRECP and the Draft County of Los Angeles General Plan have considered wildlife movement in the general region of the Study Area, although there are no known studies or widespread analyses that have been conducted. Migratory birds may utilize the Study Area for breeding, nesting, wintering, and foraging, and would be expected to use the areas as transient rest sites during migration flights. Desert kit fox and coyotes likely use the Study Area and surrounding lands in search of prey opportunities and denning. This region of the Antelope Valley has been highly fragmented by manmade barriers, including fenced solar facilities, private property, residential housing, and agricultural lands. These barriers inhibit the movement of some species that have limited home ranges or low dispersal ability from moving through the Study Area and may reduce the movement and mobility of some wide-ranging species such as American badgers and desert kit fox. Therefore, impacts to wildlife movement would be considered less than significant (Class III). Nonetheless the implementation of Mitigation Measures BR-1 through BR-6 and BR-12 would reduce effects of the proposed project on the movement of any native wildlife species or interference with established migratory wildlife corridors.

Construction of the underground gen-tie and communication lines would result in the same types of impacts discussed above for the SGF. However, these impacts would be temporary in nature and the areas impacted by trenching activities would be restored at the conclusion of construction. In addition, the gen-tie and communication lines would not result in permanent barriers to wildlife. Implementation of Mitigation Measures BR-1 through BR-6 and BR-12 would reduce effects on the movement of any native wildlife species during construction of the gen-tie and communication line to less than significant (Class III).
**Operation.** Operational impacts include night time lighting that increases predation risk and risk of collisions with vehicles. However, these effects are not considered to be significant based on the limited human presence at the SGF site (Class III). Nonetheless the implementation of Mitigation Measures BR-1 through BR-6 and BR-12 would reduce effects on the movement of any native wildlife species in the SGF.

Maintenance of the underground gen-tie and communication lines could result in increased noise from vehicular or foot traffic, equipment and the introduction of non-native, invasive plants due to increased human presence. However, construction of the line would not result in permanent barriers to wildlife. Implementation of Mitigation Measures BR-1 through BR-6 and BR-12 would reduce effects on the movement of any native wildlife species to less than significant (Class III).

**Decommissioning.** Decommissioning of the SGF and the gen-tie and communication lines would result in similar impacts as construction. However, the intensity would be less as site grading and preparation, pile driving, and other major ground disturbing activities would not be required. Implementation of Mitigation Measures BR-1 through BR-6 and BR-12 would reduce effects on the movement of any native wildlife species during decommissioning to less than significant (Class II).

**Mitigation Measures**

Measures BR-1 through BR-6 and BR-12 apply to this impact.

**Impact BR-5:** Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinances. (Class II – Less than Significant with Mitigation)

The City of Lancaster General Plan was reviewed for consistency with the proposed project. The General Plan outlines mitigation measures for impacts to sensitive communities, Swainson’s hawk foraging habitat, and burrowing owls. With implementation of Mitigation Measures BR-1 through BR-12 the proposed project would be consistent with local policies and ordinances protecting biological resources.

**Mitigation Measures**

Measures BR-1 through BR-12 apply to this impact.

**C.5.4 Cumulative Impact Analysis**

**Geographic Extent**

The geographic extent for the analysis of cumulative impacts related to biological resources includes the Antelope Valley and surrounding areas in the City of Lancaster and Los Angeles County. These areas all contain remaining habitat for the special-status species that could be impacted by the proposed project.

**Cumulative Effects of the Proposed Project**

The Study Area supports wildflower and grassland habitats that once occurred throughout the Antelope Valley. This habitat provides foraging grounds, dispersal areas, and refugia to a variety of endangered, threatened, rare, and other special-status species. The loss of natural communities within the Antelope Valley has been exacerbated through ongoing infrastructure development, urbanization, and the spread of exotic plant species. Solar development currently represents a significant potential source of habitat loss for many common and special-status species. In addition to the proposed project, there are approximately 15 solar projects within two miles, several of which are already operational. In addition to the direct habitat loss, the installation of facility fencing excludes some wildlife from available forage areas...
and acts as a barrier to movement. Construction of the proposed project and those reasonably foreseeable projects (see Section C.1.3) would result in further loss to natural lands and other habitat that supports special-status species and could contribute to the fragmentation of habitat by altering linkages and movement corridors.

**Special Status Species.** The proposed project and the other solar projects described above would result in the loss or modification of thousands of acres of vegetation known to support special-status plants and wildlife including Swainson’s hawk, American badger, burrowing owl, and desert kit fox. Development of these projects would limit the use of the land for foraging, breeding, or wintering for many species of resident and migratory birds.

Many species of wildlife, including various mammals and foraging raptors, require broad expanses of open land for foraging. Development and intensive agricultural practices continue to restrict access to foraging areas for these species. For example, Pagel et al. (2010) estimate that the number of golden eagles in the western United States has declined by 70 percent since the 1970s as a result habitat fragmentation and reduced availability of prey.

Because so much of the remaining habitat for the special-status species in the proposed project area has been lost or degraded already, relatively minor changes within remaining habitat, particularly when considered cumulatively, would have significant impacts. The City has a program in place to offset the cumulative loss of habitat from development; this program requires the payment of biological impact fees that the City uses to acquire conservation lands. The proposed project and all other developments in the City that would impact undeveloped land are subject to the fee. In addition, the proposed project is smaller than many of the other solar projects in the cumulative scenario. Nonetheless, because of the large scale of the potential cumulative loss of habitat in the region, the proposed project’s incremental contribution to habitat loss and resulting effects to special-status species would be cumulatively considerable (Class I).

**Wildlife Connectivity or Corridors.** The proposed project and the other solar projects described above would result in thousands of acres of impermeable habitat. Desert kit fox and coyotes are known to use the lands surrounding the proposed project in search of prey opportunities, water resources, and cover when moving across the Valley floor; the placement of fenced solar facilities on the Valley floor would likely impede movement for these animals and limit their movement in the region. Cumulative impacts have the potential to substantially reduce the size of movement corridors and alter the movement patterns.

Large areas of foraging habitat remain in the Antelope Valley and wintering birds would likely disperse to those areas both during construction and post development of solar projects in the region. While the project itself only represents a small portion of the available habitat in the region, the impacts of the project and surrounding development would be cumulatively substantial. Implementation of Mitigation Measures BR-1 through BR-7, and B-9 through B-12 would reduce the proposed project’s incremental contribution to cumulative impacts to wildlife movement to less than cumulatively considerable (Class II).

### C.5.5 Level of Significance After Mitigation

With the implementation of Mitigation Measures BR-1 through BR-12, impacts from construction of the SFG and gen-tie and communication lines on biological resources would be reduced to the extent possible and comply with all local policies; effects of construction would therefore be less than significant with the implementation of the proposed measures (Class II). Operational impacts of the SGF and the underground gen-tie and communication lines, with the implementation of mitigation measures, would also be less than significant (Class II).
C.6  Cultural and Paleontological Resources

C.6.1  Environmental Setting

The project site is located in the Antelope Valley subsection of the western Mojave Desert, which is a broad, flat valley with an average elevation of 2,953 feet above sea level. This region is characterized by dry weather with the mean annual precipitation between six and eight inches, mainly in the form of rain during the winter and summer months. The mean annual temperature is between 60 and 66 degrees Fahrenheit (Miles and Goudey 1997). Native vegetation within the project area is dominated by low, widely spaced shrubs and is dominated by creosote bush scrub with white bursage.

Geologic Setting

The project site lies within the Mojave Desert Geomorphic Province, which consists of fault bounded isolated mountain ranges and large expanses of desert. It also lies north of the San Andreas Fault Zone and east of the Garlock Fault Zone, both of which impact the alignment of the nearby mountain ranges (Wagner 2002). The project site is mapped entirely as Holocene to Pleistocene alluvium, dunes, and alluvial fan deposits (Figure C.6.1).

- **Holocene Alluvium.** Holocene (<11,000 years old) alluvial deposits (Qa) primarily consist of yellowish grey to brown, unconsolidated, moderately sorted, medium to coarse grained sand. Clasts range from silts to cobbles depending on how close the deposit is to the uplands.

- **Holocene Dunes.** Holocene eolian deposits (Qe) consist of very fine to medium grained sand with some silt. These windblown dune deposits are up to 2 meters thick and may appear light grey to dark yellowish brown.

- **Holocene Alluvial Fan.** Weakly consolidated to unconsolidated, cobbles to silts, form as active alluvial fans (Qf) adjacent to canyons exiting the highlands.

- **Younger Alluvium.** Holocene to late Pleistocene (~5,000 to 120,000 years old) alluvial deposits (Qya) primarily consist of dark yellowish brown, unconsolidated, sands and gravels.

- **Younger Alluvial Fan.** Both clay-rich (Qyfc) and silt-rich (Qyfs) Holocene to late Pleistocene alluvial fans occur within the project site.

- **Clay-Rich Younger Alluvial Fan.** Dark yellowish-brown, consolidated, silty to fine sands with clay and calcium carbonate occur at the margins of the former Lake Thompson.

- **Silt-Rich Younger Alluvial Fan.** Brown to dark yellowish-brown, consolidated, silty to fine sands occur as distal alluvial fan deposits.

Prehistoric Setting

This section describes the cultural resources that occur in the Study Area. The following setting information is derived largely from Appendix 5 of this EIR (Cultural and Paleontological Resources Technical Report; portions of this report are confidential and are not included in the appendix) and summarizes the prehistoric, ethnohistoric, and historical setting for the project site.

The Mojave Desert is characterized by broad swaths of relatively unproductive habitat punctuated by resource patches of uncertain value unlike the rest of the Great Basin, which shows strong vertical zoning in plant communities, more regular water sources and greater uniformity in spatial and temporal distribution of subsistence resources. As such, particular sub-regions can vary significantly across not only seasons but between years and longer intervals. Modern climatic data suggest that period of reduced rainfall in one sector of the desert may have been balanced by enhanced conditions in another area.
Figure C.6-1
Geologic Map
During the Late Pleistocene [about 18,000 to 8,000 before Christ (B.C.)] conditions in the Mojave Desert were generally cool and wet. During the Early Holocene (about 8,000 to 6,000 years B.C.), conditions were somewhat cooler and moister than today. The Middle Holocene (about 6,000 to 3,000 years B.C.) witnessed a much warmer and drier climate than modern times. The climate became moderately cooler and wetter again during the Late Holocene (about 3,000 years B.C. to present), punctuated with periods of drought.

Short- and long-term trends in environmental productivity must have had strong influences on the mode and tempo of occupation strategies affecting local and regional land use patterns. To the extent that prehistoric populations could monitor the location and magnitude of storm tracks or precipitation levels, they must have been able to predict which habitats and resources would produce the highest net foraging returns. It is possible that large tracts of the desert were effectively abandoned or rarely visited during particular periods of time. In some cases, these climatic changes are thought to have been coincident with major technological or subsistence adjustments.

Mojave Desert Cultural Systems by Time Period

The Pleistocene (10,000 to 8,000 years B.C.)

The only cultural complex dating to the Pleistocene that has been confidently identified in the Mojave Desert is Clovis (ca. 10,000 to 8000 years B.C.). It is marked by characteristic fluted projectile points of the same name. Fluted points appear more often in the north and west than in other sectors of the Mojave with concentrations in the drainage basins of Pleistocene China Lake and Thompson Lake. These are areas of substantial external stream runoff that would have been well watered into the Early Holocene. The nature of Paleo-Indian cultural systems remains poorly defined but they were probably a highly mobile people, living in small, temporary camps near then permanent water sources.

The Early Holocene (8,000 - 6,000 B.C.)

The only coherent pattern during this time is the Lake Mojave complex dating between 8,000 and 6,000 years B.C. This complex is characterized by projectile points of the Great Basin Stemmed series (e.g., Lake Mojave and Silverlake) and abundant bifaces, as well as steep-edged unifaces, crescents, occasional cobble-core tools and ground stone implements. Flaked stone artifacts in the Lake Mojave assemblages include tools that are consistent with long-term use and transport. Extra local materials are common and suggest extensive annual foraging ranges; marine shell beads likewise imply wide spheres of interaction. Small numbers of ground stone implements occur regularly within these components, although wear on these tools is often light and suggests there was little reliance on vegetal resources.

Extensive residential accumulations are known in addition to workshops and small camps. The large sites appear to be functionally the same as smaller ones and represent locations of recurrent use rather than different settlement types. Thus, the Lake Mojave pattern appears to reflect a forager-like strategy organized around relatively small social units. Available settlement data indicate it was not extensive lakeside marshes that attracted human occupation, but rich resource patches in a host of environmental situations. Faunal remains from archaeological sites dating to this period reflect reliance on smaller taxa such as jackrabbits, rabbits, rodents and some reptiles. However, this focus on smaller taxa seems inconsistent with the abundance of heavy projectile points, bifaces and formalized scrapers that appear geared toward large game.
The Middle Holocene (6,000 - 2,000 B.C.)

This time period is more complex than previously envisioned with multiple culturally and technologically distinct populations inhabiting and exploiting the Mojave Desert. The primary cultural complex heretofore associated with the Middle Holocene is called Pinto. Data from a number of sites in the central and northern Mojave Desert indicate a temporal overlap between Lake Mojave and Pinto complexes with Pinto slightly later in time. Nevertheless, the two complexes appear to be distinct, with statistically different obsidian hydration ranges and consistently different site distributions.

The Pinto complex has the most widespread expression of any of the early cultural complexes. There appears to be a broad continuity in the flaked stone technologies of the Lake Mojave and Pinto complexes, both of which are characterized by extensive use of toolstones other than obsidian and cryptocrystalline silica, and by the regular use of bifacial and unifacial core/tool forms. The signature stemmed, indented-base Pinto series projectile points show high levels of blade reworking and appear to have used the tips for thrusting spears rather than as darts. Reduced toolstone diversity implies a reduction in foraging range although the continuing presence of marine shell indicates regular interaction with coastal groups.

The most important distinction between the Lake Mojave and Pinto assemblages relates to the prevalence of ground stone implements. Milling tools are moderately abundant in nearly all known Pinto deposits and sometimes occur in high frequency. Revised dating indicates intensive levels of plant processing began by ca. 7,000 years B.C. This coincides with emergence of similar economies along the coast.

Sites of the Pinto complex occur in a diverse range of topographic and environmental zones. Larger sites, which appear to correlate with well-watered locations, contain substantial middens and a breadth of cultural debris not present at smaller sites. These data are consistent with residential bases that were occupied for prolonged periods by moderate to large numbers of people. Such groups probably consisted of multiple families, inferring a collector-like settlement strategy with centralized site complexes in favorable locations to stage logistical forays into surrounding resource patches. Judging by high frequencies of milling tools at many of these bases, access to plant resources must have been a key determinant for site placement. Patterns of animal exploitation remain similar to those of the Lake Mojave complex, although deer frequencies drop and reliance on small fauna increases slightly.

The Deadman Lake complex appears to have been a separate cultural complex within the Middle Holocene. In contrast to the Pinto Complex which was widespread, the Deadman Lake complex has thus far been recognized only at Twentynine Palms in the southeastern Mojave Desert. It may represent close cultural connections to the Southwest Archaic that become increasingly weak to the north and west. Deadman Lake assemblages are characterized by small to medium sized contracting-stemmed or lozenge-shaped points, extensive concentrations of battered cobbles and core tools, abundant bifaces, simple flake tools, and milling implements. Toolstones used demonstrate considerable quantities of nonsilicate materials including igneous rock and obsidian. Simple shell beads present take origin from both the Pacific coast and the Sea of Cortez. Processing of plant foods appears to have involved extensive crushing or pulping activities. Animal exploitation is dominated by small animals like those of Pinto complex sites.

The Late Holocene (2,000 B.C. – 1,796 A.D.)

The earliest Late Holocene complex is called Gypsum and is defined by the presence of a range of corner-notched (Elko), concave base (Humboldt) and well-shouldered contracting-stemmed (Gypsum) point forms. It dates roughly between 2,000 years, B.C. and anno Domini (A.D.) 200. The most confounding aspect of the Gypsum complex is its evident scarcity in the southern and eastern reaches of the desert.
The Gypsum complex emerged during a time when conditions were somewhat wetter and cooler than during the Middle Holocene. During the early part of this complex, it is thought that settlement and subsistence were centered near streams. At the same time, it appears that there were increases in trade and social complexity. Gypsum sites are more numerous than those of preceding occupations and are found over a more diverse array of locations. Artifact assemblages include evidence of ritual activities including quartz crystals, paint and rock art, as well as numerous bifaces. Exploitation of deer, jackrabbits, cottontails, and rodents is also evident.

The Rose Springs complex is marked by regional appearance of the bow and arrow beginning about A.D. 200. Common artifacts include Eastgate and Rose Springs series projectile points, stone knives, drills, pipes, bone awls, various milling implements, marine shell ornaments, and large quantities of obsidian. Rose Springs sites are commonly found near springs, along washes, and sometimes along lakeshores. Evidence of architecture includes wickiups, pit houses, and other types of structures suggesting intensive occupations. Populations in the desert appear to have reached their peak during this time. Most of the obsidian has been sourced to the Coso Volcanic Field demonstrating either travel to the southern Owens Valley or trade with peoples living in that vicinity. Animal exploitation was dominated by use of jackrabbits, rabbits and rodents. As lakes began to desiccate, settlement patterns seem to have shifted from association with permanent water sources to more ephemeral ones.

After about A.D. 1100, environmental conditions continued to deteriorate, populations appear to have declined, new technologies were introduced, and a number of separate cultural complexes emerged that are believed to represent the prehistoric aspects of known ethnographic groups. Late Prehistoric occupation sites represent a variety of types including a few major villages with associated cemeteries, special purpose sites, and seasonal sites. Artifact assemblages consist of Desert series projectile points, buffware and brownware ceramics, shell and steatite beads, slate pendants, incised stones and a variety of milling tools. Obsidian use dropped off, while use of cryptocrystalline silica increased.

**Ethnographic Setting**

The project site lies in the southwestern edge of the Antelope Valley, which lies within the Tataviam tribal territory, near the confluence of the Tataviam and Kitanemuk tribal boundaries. The Tataviam territory extended as far north as to include the southwestern fringes of the Antelope Valley, however the majority of the Antelope Valley was probably held by Kitanemuk and Vanyume speakers (King and Blackburn 1978: 535). The Tataviam will be the primary focus of this section as the Kitanemuk territory is slightly north of the project area.

The Kawaiisu to the north called the Kitanemuk and the Tataviam pitadi or “southerners”, however, by historic times the Tataviam language had become so distinct that a Kitanemuk informant expressed that the language was as foreign to him as English. Although the Tataviam and Kitanemuk lived within close proximity of one another, it appears that these two groups had less in common with each other than they did with other neighboring groups. The Tataviam are described as resembling their Takic neighbors in the types of artifacts used in social interactions as well as the internal organization of cemeteries and villages. However, archaeological data suggests that the Tataviam started to differentiate from the other southern California Takic speakers around 1000 B.C. (King and Blackburn 1978: 535).

The subsistence activities of the Tataviam were generally similar to neighboring groups and they primarily exploited the *Yucca whipplei* (baked in earthen ovens) in addition to acorns, sage, juniper berries, islay (*Prunus illicifolia*), small mammals, deer, and possibly antelope (King and Blackburn 1978: 536). The exploitation of the *Yucca whipplei* as the primary food source is likely due to the degree of slope-exposure (degree of exposure to sunlight present on a slope) within the Tataviam region, which was
conducive to an abundance of yucca being more available within this area than it was in neighboring
groups (King and Blackburn 1978: 535).

Tataviam villages varied in size from large centers with up to 200 people to medium settlements of 20-60
people and small settlements of 10 to 15 people dispersed around the large habitation centers. As with
many other California tribes, the Tataviam came into direct contact with Europeans through the Spanish
mission system, which slowly led to the decline of traditional subsistence and settlement patterns. By
1810 nearly all of the Tataviam had been baptized at the San Fernando Mission and by 1834 the
descendants of the missionized Tataviam had married into other groups within the mission or in the Tejon
region (King and Blackburn 1978: 536). Interestingly, during the post-mission period the Tataviam
intermarried with the Kitanemuk, despite having been described as “foreign” to each other at the time of
European contact (King and Blackburn 1978: 535-536).

Historic Setting

The written account of the land known as California came from Juan Cabrillo, the first European to sail
along the coast in 1542. Cabrillo was followed in 1602-1603 by Sebastian Vizcaino exploring islands and
inlets up and down the coast (Bean and Rawls 1993). Spanish exploration inland began with Portolá-
Crespi in 1769 and colonization by Spain began in earnest with the establishment of missions.

Spanish Period (1796-1821)

The San Fernando Mission was the seventeenth mission founded in California in September of 1797 in
present-day Mission Hills, Los Angeles County, California by Father Fermín Lasuén. The mission’s influence
extended into the traditional home of the Tataviam people, which greatly affected their traditional way
of life. As mentioned above, by 1810, nearly all of the Tataviam had been baptized by the San Fernando
mission, which demonstrates that the San Fernando Mission had a drastic impact on the people living in
the surrounding area in a short period of time.

Mexican Period (1821-1848)

In 1821 Mexico won its independence from Spain and worked to lessen the wealth and power held by the
missions. The Secularization Act was passed in 1833, giving the vast mission lands to the Mexican governor
and downgrading the missions’ status to that of parish churches. The governor then redistributed the
former mission lands, in the form of grants, to private owners (Bean and Rawls 1993; Robinson 1948).

American Period (After 1848)

The American Period is characterized by an increase in population of Americans and Europeans. In 1848
gold was discovered at Sutter’s Mill near Coloma on the south fork of the American River. By 1849 the
rush to California’s gold had begun. The southern route to reach California came by way of Santa Fe or
Salt Lake City, and essentially followed the Old Spanish Trail to cross the Mojave Desert and enter the
southern California valleys through Cajon Pass. This trail had previously been used to trade goods from
Santa Fe and Mexican horses and mules from Los Angeles (Latta 1932). In the 1850s and 1860s, the Eastern
and Western Mojave Desert was home to ranchers raising beef and sheep; gold, silver, lead, and borax
miners; and small settlements of homesteaders and merchants.

Project Area History

Not long after California joined the Union in 1850, the U.S. Congress directed the United States Army to
send teams of skilled land surveyors to investigate potential railroad routes not only to connect the east
to the west, but other routes as well. For two years, from 1853 to 1854, Lieutenant Robert Stockton Williamson of the United States Army Corps of Topographical Engineers and his team surveyed all the potential wagon road and railroad routes on the Pacific Coast between the Columbia River and San Diego (United States War Department).

After the Central Pacific Railroad and Union Pacific Railroad collaborated to construct a transcontinental line to connect the east to the west in 1869, the newly formed Southern Pacific Railroad ran a line from its terminal in Lathrop (south of Sacramento), through the Tehachapi Mountains east to Barstow, and then south through the Cajon Pass to their switching station in Colton, San Bernardino County. The Southern Pacific Railroad connected northern and southern California in 1876.

Following the completion of the Southern Pacific Railroad, a water stop was established in Lancaster and soon after the Western Hotel, then known as the Gilwyn, was built (City of Lancaster 2014). By 1890 Lancaster was quite prosperous, which only increased in 1898 when gold was discovered in the hills north of Lancaster and borax was found in the mountains surrounding the Antelope Valley. The discovery of gold attracted prospectors and the discovery of borax led to the creation of the world’s largest open-pit borax mine (City of Lancaster 2014). Following the gold rush and borax discoveries, the city of Lancaster has grown steadily since the 1930’s due to the presence of the Air Force at Edwards Air Force Base (previously known as Muroc Air Force Base).

C.6.2 Regulatory Setting

This section contains a discussion of the applicable requirements that govern cultural and paleontological resources and must be adhered to both prior to and during project implementation. The technical report (see Appendix 5) and this assessment satisfy the requirements of the California Environmental Quality Act (CEQA) regulations (California Code of Regulations [CCR], Title 14, Section 15064.5; California Public Resources Code [PRC] Section 21083.2). There are no federal cultural resources and paleontology policies applicable to this project. The City of Lancaster General Plan policies are addressed in Section 10 (Land Use, Population, and Recreation) of this EIR. Therefore, only State requirements are noted below.

Cultural Resources

California Environmental Quality Act of 1970. The California Environmental Quality Act of 1970 (CEQA) declares that it is state policy to "take all action necessary to provide the people of this state with...historic environmental qualities." It further states that public or private projects financed or approved by the state are subject to environmental review by the state. All such projects, unless entitled to an exemption, may proceed only after this requirement has been satisfied. CEQA requires detailed studies that analyze the environmental effects of a proposed project. In the event that a project is determined to have a potential significant environmental effect, the act requires that alternative plans and mitigation measures be considered. CEQA includes historic and archaeological resources as integral features of the environment.

California Register of Historical Resources and Significance Criteria. CEQA requires a lead agency to determine whether a project would have a significant effect on one or more historical resources. According to Section 15064.5(a) of the CEQA Guidelines, a "historical resource" is defined as a resource listed in or determined to be eligible for listing in the California Register of Historical Resources (CRHR) (PRC Section 21084.1); a resource included in a local register of historical resources (14 CCR 15064.5(a)(2)); or any object, building, structure, site, area, place, record, or manuscript that a lead agency determines to be historically significant (14 CCR 15064.5(a)(3)).
Section 5024.1 of the PRC; Section 15064.5 of the State CEQA Guidelines (14 CCR); and Sections 21083.2 and 21084.1 of the CEQA Statutes were used as the basic guidelines for the cultural resources study. PRC 5024.1 requires evaluation of historical resources to determine their eligibility for listing on the CRHR. The purposes of the CRHR are to maintain listings of the State’s historical resources and to indicate which properties are to be protected from substantial adverse change. The criteria for listing resources in the CRHR, which were expressly developed to be in accordance with previously established criteria developed for listing in the National Register of Historic Places (NRHP), per the criteria listed at 36 CFR 60.4, are stated below. The quality of significance in American history, architecture, archaeology, engineering and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling and association and that:

- Are associated with events that have made a significant contribution to the broad patterns of our history; or
- Are associated with the lives of persons significant in our past; or
- Embody the distinctive characteristics of a type, period, or method of installation, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
- Have yielded, or may be likely to yield, information important in prehistory or history.

According to Section 15064.5(a)(3)(A-D) of the State CEQA Guidelines (14 CCR), a resource is considered historically significant if it meets the criteria for listing in the NRHP (per the criteria listed at 36 CFR 60.4 as stated above). Impacts that affect those characteristics of the resource that qualify it for the NRHP or that would adversely alter the significance of a resource listed in or eligible for listing in the CRHR are considered to have a significant effect on the environment.

Impacts to cultural resources from the proposed project are thus considered significant if the project: (1) physically destroys or damages all or part of a resource; (2) changes the character of the use of the resource or physical feature within the setting of the resource that contributes to its significance; or (3) introduces visual, atmospheric, or audible elements that diminish the integrity of significant features of the resource.

**Senate Bill 18.** Senate Bill (SB) 18 (California Government Code, Section 65352.3) incorporates the protection of California traditional tribal cultural places into land use planning for cities, counties, and agencies by establishing responsibilities for local governments to contact, refer plans to, and consult with California Native American tribes as part of the adoption or amendment of any general or specific plan proposed on or after March 1, 2005. Formal consultation under SB 18 was required for this project since an amendment to the General Plan is required. The City of Lancaster sent consultation letters to local tribes in compliance with this requirement.

**Human Remains.** Section 7050.5 of the California Health and Safety Code provides for the disposition of accidentally discovered human remains. Section 7050.5 states that if human remains are found, no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains shall occur until the County Coroner has determined the appropriate treatment and disposition of the human remains.

Section 5097.98 of the PRC states that, if remains are determined by the Coroner to be of Native American origin, the Coroner must notify the Native American heritage Commission within 24 hours which, in turn, must identify the person or persons it believes to be the most likely descended from the deceased Native American. The descendants shall complete their inspection within 48 hours of being granted access to the
site. The designated Native American representative would then determine, in consultation with the
property owner, the disposition of the human remains.

**Paleontological Resources**

Paleontological resources are also afforded protection by CEQA. Appendix G (Part V) of the CEQA
Guidelines provides guidance relative to significant impacts on paleontological resources, stating that a
project will normally result in a significant impact on the environment if it will “…disrupt or adversely
affect a paleontologic resource or site or unique geologic feature, except as part of a scientific study.”

**Public Resources Code Section 5097.5.** California’s PRC Section 5097.5 states that: “No person shall
knowingly and willfully excavate upon, or remove, destroy, injure, or deface, any historic or prehistoric
ruins, burial grounds, archaeological, or vertebrate paleontological site, including fossilized footprints,
inscriptions made by human agency, rock art, or any other archaeological, paleontological, or historical
feature, situated on [lands owned by, or under the jurisdiction of, the state, or any city, county, district,
authority, or public corporation, or any agency thereof], except with the express permission of the public
agency having the jurisdiction over the lands. Violation of this section is a misdemeanor.”

**Paleontology Significance Criteria.** Only qualified, trained paleontologists with specific expertise in the
type of fossils being evaluated can determine the scientific significance of paleontological resources.
Fossils are considered to be significant if one or more of the following criteria apply:

- The fossils provide information on the evolutionary relationships and developmental trends among
  organisms, living or extinct.
- The fossils provide data useful in determining the age(s) of the rock unit or sedimentary stratum,
  including data important in determining the depositional history of the region and the timing of geologic
  events therein.
- The fossils provide data regarding the development of biological communities or interaction between
  paleobotanical and paleozoological biotas.
- The fossils demonstrate unusual or spectacular circumstances in the history of life.
- The fossils are in short supply and/or in danger of being depleted or destroyed by the elements,
  vandalism, or commercial exploitation, and are not found in other geographic locations.

As so defined, significant paleontological resources are determined to be fossils or assemblages of fossils
that are unique, unusual, rare, uncommon, or diagnostically important. Significant fossils can include
remains of large to very small aquatic and terrestrial vertebrates or remains of plants and animals
previously not represented in certain portions of the stratigraphy. Assemblages of fossils that might aid
stratigraphic correlation, particularly those offering data for the interpretation of tectonic events,
geomorphologic evolution, and paleoclimatology are also critically important. Paleontological remains are
recognized as nonrenewable resources significant to the history of life.

**C.6.3 Environmental Impacts and Mitigation Measures**

**Methodology**

To evaluate the project’s potential effects on paleontological and cultural resources, a paleontological
literature study and a Phase I cultural resources assessment that included a records search, Native
American consultation, and field survey of portions of the project site was completed (see Appendix 5).
The CRHR criteria were used.
The analysis and discussion of potential impacts to cultural resources were made pursuant to CEQA Guidelines, Section 15126.2, which states that “direct and indirect significant effects of the project on the environment shall be clearly identified and described, giving due consideration to both the short-term and long-term effects.”

**Results and Evaluation of Known Paleontological Resources**

A paleontological records search for the project site was requested from the Natural History Museum of Los Angeles County Department of Vertebrate Paleontology (see Appendix 5). Record searches of available online databases and published materials were conducted.

No paleontological localities are recorded within the project site nor within a one-mile radius (Natural History Museum of Los Angeles County Department of Invertebrate Paleontology 2015; Paleobiology DataBase 2015; University of California Museum of Paleontology 2015; Jefferson 1991a, b). McLeod (2015) reports that two vertebrate localities were recovered from sediments east of the project site near Lancaster. An extinct camel (*Camelops hesternus*) was recovered at 4 feet below current ground surface on the north side of Lancaster. Additionally, small animals including reptiles, mammals, and fish were recovered at three feet below current ground surface.

Fossil localities are known regionally from Pleistocene (2.59 million - 11,700 years ago) deposits similar to those that underlie the project site. These Pleistocene sediments have produced extinct taxa including large mammals such as mammoth, ancient camel, and western horse, as well as a large array of small extant vertebrates including rodents, reptiles, fish, and birds (Jefferson 1991a, b; Scott and Gust 2010, 2014).

Paleontological resources are considered to be significant if they provide new data on fossil animals, distribution, evolution or other scientifically important information. Best current professional practice to characterize paleontological sensitivity utilizes the federal Potential Fossil Yield Classification system (Bureau of Land Management, 2007), which has a multi-level scale based on demonstrated yield of fossils. Knowledge of the geological formations gleaned from geological maps and records of previous fossils recovered from the area were the basis for determining the paleontological sensitivity of the sediments found within the project site.

The Holocene deposits of the project site are assigned a low potential (2) as they are too young to contain fossils. However they do cover Pleistocene sediments that may contain fossils. The fine-grained nature of the Holocene to late Pleistocene alluvial fan deposits near Lake Thompson increases the potential for fossil preservation. As such these sediments are assigned a moderate and patchy potential (3a) based on the sediments and fossils known from the area.

**Results and Evaluation of Known Archaeological Resources**

The records search indicates six prior studies included a portion of the area of potential impact (API), while an additional 70 cultural resources investigations have been completed previously within a one-mile radius of the API. Of these, 15 were completed within a 0.25-mile radius of the API, 23 investigations were completed within a 0.5-mile radius of the API, and 32 studies were undertaken between a 0.5-mile and 1-mile radius of the API.

The results of these studies indicate that there are twelve sites located within or adjacent to the project area: the Antelope-Vincent No.1 220kV transmission line, the Saugus-Del Sur 66 kV Transmission line, a section of a three-wire domestic voltage Edison power line, three historic farms/ranches, two remnants of historic buildings, two historic dirt roads, one historic two-track road, and one prehistoric isolate.
The API is located on privately owned land and consists of the footprint of the proposed project and the potential gen-tie and communication routes, including a 1,000 foot buffer around the expanded gen-tie area. Since much of the project area has been previously surveyed by other projects in the area, an intensive cultural resources pedestrian survey was conducted only on the areas that have not been previously surveyed.

The cultural resources survey was conducted on March 21, 2015. Transects were spaced 15 meters apart on a north to south axis. Overview digital photographs were taken of the project area with an Apple iPad and Global Positioning System (GPS) points were taken with a Trimble® GeoXH 2008-3000 using the North American Datum (NAD) 1983. Newly identified cultural resources were documented using the Department of Parks and Recreation (DPR) 523 Series forms and the Instructions for Recording Historical Resources (Office of Historic Preservation 1995). Previously recorded and substantially changed cultural resources within the survey area were also re-documented using DPR forms.

Four new isolates were identified and recorded. 2015CMB3021.4 is a brown chert flake with retouching. 2015HAD0321.1 is a chalcedony core, 2015HAD0321.02 is a piece of reddish brown chert shatter and 2015HAD0321.03 is a cone-top beverage can. Of the twelve previously recorded cultural resources, two resources, P-19-100919, a crushed steel sanitary can and P-19-100632, an isolated edge modified chert scraper were not re-located. Eight historic-era cultural resources were re-located during the survey and were found to be in the same condition as when they were last recorded. P-19-189928 consists of a portion of the electrical system related to the pre-World War II Del Sur Substation (P-19-190693) and associated distribution lines, operated by Southern California Edison. The resource was found to extend westward to 110th Street West following results of the survey and the site record was updated accordingly.

CA-LAN-4245H was originally recorded as two parallel graded-earth driveways. As a result of the cultural resources survey, the site boundaries were extended to include the 1930’s-era farmhouse and associated outbuildings. Many of the buildings are in extreme deterioration, with a few that have completely collapsed.

**Native American Consultation**

A Sacred Lands File search was requested from the Native American Heritage Commission (NAHC) on February 20, 2015. The NAHC responded on March 6, 2015 that a search of the Sacred Lands File failed to indicate the presence of Native American cultural resources within the immediate project area. The NAHC did recommend contacting three Native American individuals and/or tribes indigenous to the surrounding area. Letters were mailed to each contact on March 6, 2015 requesting any information on cultural resources in the area. Follow-up phone calls and/or emails were made or sent on March 16, 2015. No responses have been received as of the date of this report.

<table>
<thead>
<tr>
<th>Site Number</th>
<th>Site Description</th>
<th>Proposed Project Activity</th>
<th>Site Type</th>
<th>CRHR Eligibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015CMB3021.04</td>
<td>Brown chert flake with retouching. Communications line</td>
<td>Isolate; Prehistoric</td>
<td>Not Eligible</td>
<td></td>
</tr>
<tr>
<td>2015HAD0321.02</td>
<td>Piece of reddish brown chert shatter Gen-tie line</td>
<td>Isolate; Prehistoric</td>
<td>Not Eligible</td>
<td></td>
</tr>
<tr>
<td>2015HAD0321.03</td>
<td>Cone-top beverage can Gen-tie line</td>
<td>Isolate; Historic</td>
<td>Not Eligible</td>
<td></td>
</tr>
</tbody>
</table>
Table C.6-1 New and Previously Identified Cultural Resources Within the Project Area

<table>
<thead>
<tr>
<th>Site Number</th>
<th>Site Description</th>
<th>Proposed Project Activity</th>
<th>Site Type</th>
<th>CRHR Eligibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015HAD0321.01</td>
<td>Chalcedony core</td>
<td>Communications line</td>
<td>Isolate; Prehistoric</td>
<td>Not Eligible</td>
</tr>
<tr>
<td>P-19-001612 (CA-LAN-1612)</td>
<td>Historic ranch with an early adobe.</td>
<td>Communication lines</td>
<td>Site; Historic</td>
<td>Undetermined</td>
</tr>
<tr>
<td>P-19-002541 (CA-LAN-2541H)</td>
<td>Historic, asphalt-paved road</td>
<td>Communication lines</td>
<td>Site; Historic</td>
<td>Undetermined</td>
</tr>
<tr>
<td>P-19-003657 (CA-LAN-3657H)</td>
<td>Remnants of a water control system</td>
<td>Gen-tie line</td>
<td>Site; Historic</td>
<td>Undetermined</td>
</tr>
<tr>
<td>P-19-004245 (CA-LAN-4245H)</td>
<td>Historic road and farmstead</td>
<td>Gen-tie line</td>
<td>Site; Historic</td>
<td>Undetermined</td>
</tr>
<tr>
<td>P-19-004250 (CA-LAN-4250H)</td>
<td>Historic two-track road</td>
<td>Communications line</td>
<td>Site; Historic</td>
<td>Undetermined</td>
</tr>
<tr>
<td>P-19-004463 (CA-LAN-4463H)</td>
<td>Small portion of a concrete/cobble building footing accompanied by a historic period refuse scatter</td>
<td>Communication lines</td>
<td>Site; Historic</td>
<td>Undetermined</td>
</tr>
<tr>
<td>P-19-100632</td>
<td>Edge modified chert scraper</td>
<td>Solar field</td>
<td>Isolate; Prehistoric</td>
<td>Not Eligible</td>
</tr>
<tr>
<td>P-19-100919</td>
<td>Crushed steel sanitary can with rotary opening marks</td>
<td>Gen-tie line</td>
<td>Isolate; Historic</td>
<td>Not Eligible</td>
</tr>
<tr>
<td>P-19-100920</td>
<td>Historic, crushed, church-key-opened beverage can</td>
<td>Communications line</td>
<td>Isolate; Historic</td>
<td>Not Eligible</td>
</tr>
<tr>
<td>P-19-186876</td>
<td>The Eagle Rock-Pardee 230kV Transmission Line (remnant of that third Big Creek Transmission Line)</td>
<td>Communication lines, Gen-tie line</td>
<td>Site; Historic</td>
<td>Undetermined</td>
</tr>
<tr>
<td>P-19-189425</td>
<td>Saugus-Del Sur 66kV Transmission Line</td>
<td>Communication lines</td>
<td>Site; Historic</td>
<td>Undetermined</td>
</tr>
<tr>
<td>P-19-189437</td>
<td>Historic, one story, single family house (1929)</td>
<td>Communication lines</td>
<td>Site; Historic</td>
<td>Undetermined</td>
</tr>
<tr>
<td>P-19-189928</td>
<td>Saugus-Del Sur 66kV Transmission line</td>
<td>Communication lines</td>
<td>Site; Historic</td>
<td>Undetermined</td>
</tr>
<tr>
<td>P-19-190693</td>
<td>Pre-WWII Del Sur Substation and associated distribution lines operated by Southern California Edison. Includes wood H frames</td>
<td>Communication line</td>
<td>Site; Historic</td>
<td>Undetermined</td>
</tr>
</tbody>
</table>

Cultural Resources Thresholds of Significance

The potential for the proposed project to result in impacts to cultural resources is based on the CEQA significance thresholds. These significance thresholds are based in part on Appendix G of the CEQA Guidelines and are as follows:

- Would the project cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines Section 15064.5?
- Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5?
- Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature, or contain rock formations indicating potential paleontological resources?
- Would the project disturb any human remains, including those interred outside of formal cemeteries?
Environmental Impact Analysis

Impact CR-1: The proposed project would cause a substantial adverse change in the significance of an historical resource as defined in Section 15064.5. (Class II – Less than Significant with Mitigation)

As shown in Table C.6.1, there are 18 cultural resources within the project area. Seven are isolates and eleven are historic sites/transmission lines. Isolates are not considered historical resources thus need no further consideration. The eleven other historic era sites have not been formally evaluated for CRHR eligibility.

All of the historic sites/transmission lines are located within the proposed gen-tie and communication route corridors. Since the proposed gen-tie and communication lines would be underground, and ten of the resources are standing structures or currently being used, they would not be impacted by the proposed project. CA-LAN-4245 is located within the proposed gen-tie and communication routes. However, since it consists of standing structures that are currently occupied, it could be avoided during any construction activities associated with the proposed project. Mitigation Measure CR-1 provides more detail on how resources would be avoided and would ensure that impacts are reduced to less than significant.

Mitigation Measure

MM CR-1 All impacts to sites identified in the cultural resources survey shall be avoided and protected to the extent feasible. Wherever equipment must be placed or accessed within 50 feet of a recorded, reported, or known archaeological site eligible or potentially eligible for the CRHR, the site will be flagged on the ground as an Environmentally Sensitive Area (ESA) (without disclosure of the exact nature of the environmental sensitivity [i.e., the ESA is not identified as an archaeological site]). Construction equipment shall then be directed away from the ESA, and construction personnel shall be directed not to enter the ESA.

Impact CR-2: The proposed project would cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5. (Class II – Less than Significant with Mitigation)

There are no known significant archaeological resources within the project area. However, unknown and potentially significant buried resources could be inadvertently unearthed during ground-disturbing activities associated with construction of the proposed project. Although the potential for buried resources is considered to be low, destruction of potentially significant cultural resources without mitigation would be a significant impact. Implementation of Mitigation Measure CR-2 and CR-3 would reduce this impact to less than significant. These measures would assist workers in recognizing possible buried cultural resources and any previously unrecorded or unknown archaeological resource discovered during the course of construction to subsequently avoid or provide proper treatment.

Mitigation Measures

MM CR-2 If previously unidentified cultural resources are unearthed during construction of the proposed project, construction work in the immediate area of the find shall be halted and directed away from the discovery until a qualified professional archaeologist assesses the significance of the resource. The qualified archaeologist shall make the necessary plans for evaluation of the CRHR-eligibility of find and for the assessment and mitigation of impacts if the finds are found to be historically significant according to CEQA (CEQA Guidelines Section 15064.5 (a)). The applicant shall develop a Cultural Resources
Treatment Plan (CRTP) for all known and newly discovered cultural resources within the project API. Implementation of the CRTP shall ensure that known and recorded cultural resources will be avoided during construction. Specific protective measures shall be defined in the CRTP to reduce the potential adverse impacts on any presently undetected cultural resources to less than significant levels.

**MM CR-3**

Prior to the initiation of construction or ground-disturbing activities, all construction personnel shall be trained, by a qualified archaeologist, regarding the recognition of possible buried cultural resources (i.e., prehistoric and/or historical artifacts, objects, or features) and paleontological resources, and protection of all archaeological and paleontological resources during construction. Training shall inform all construction personnel of the procedures to be followed upon the discovery of cultural or paleontological materials. All personnel shall be instructed that unauthorized removal or collection of artifacts is a violation of State law and unauthorized collection or disturbance of fossils is prohibited. Any excavation contract (or contracts for other activities that may have subsurface soil impacts) shall include clauses that require construction personnel to attend training so they are aware of the potential for inadvertently exposing buried archaeological deposits or fossils. A record of all trained personnel shall be kept on file by the applicant and provided to the City upon request.

**Impact CR-3:** The proposed project would directly or indirectly destroy a unique paleontological resource or site or unique geologic feature. (Class II – Less than Significant with Mitigation)

No fossils are known within the project site or within a one-mile radius of the project site. The Holocene deposits are assigned a low potential as they are too young to contain fossils. However they do cover Pleistocene sediments that may contain fossils. The fine-grained nature of the Holocene to late Pleistocene alluvial fan deposits near Lake Thompson increases the potential for fossil preservation. As such these sediments are assigned a moderate and patchy potential (3a) based on the sediments and fossils known from the area. Implementation of Mitigation Measure CR-4 would reduce this impact to less than significant.

**Mitigation Measures**

**MM CR-4**

All project-related ground disturbances that could potentially affect Pleistocene deposits at depths of greater than 5 feet shall be spot-checked by a qualified paleontologist to ensure that underlying sensitive sediments are not being impacted. Should fossils be encountered, field data forms shall be used to record pertinent geologic data, stratigraphic sections shall be measured, and appropriate sediment samples will be collected and submitted for analysis from each locality.Recovered fossils shall be prepared to the point of curation, identified by qualified experts, listed in a database to facilitate analysis, and deposited in a designated paleontological curation facility.

**Impact CR-4:** The proposed project would disturb any human remains, including those interred outside of formal cemeteries. (Class II – Less than Significant with Mitigation)

No human remains are known to be located within the project area. However, there is always the possibility that unmarked burials may be unearthed during construction. In the unlikely event of an accidental discovery of any human remains, Mitigation Measure CR-5 would be implemented. Health and Safety Code Section 7050.5, CEQA Section 15064.5(e), and PRC Section 5097.98 mandate the process to
be followed in the unlikely event of an accidental discovery of any human remains in a location other than a dedicated cemetery.

**Mitigation Measure**

**MM CR-5** If human remains are unearthed during construction activities, construction work within 100 feet of the discovery shall be halted and directed away from the discovery until the county coroner can determine whether the remains are those of a Native American. If they are those of a Native American, the following shall apply: The coroner shall contact the Native American Heritage Commission. If discovered human remains are determined to be Native American remains, and are released by the coroner, these remains shall be left in situ and covered by fabric or other temporary barriers. The human remains shall be protected until the applicant and the Native American Heritage Commission come to a decision on the final disposition of the remains. According to the California Health and Safety Code, six or more human burials at one location constitute a cemetery (Section 8100), and willful disturbance of human remains is a felony (Section 7052).

**C.6.4 Cumulative Impact Analysis**

There are multiple other solar projects within 5 miles of the proposed project. With implementation of the proposed mitigation measures presented for paleontological and cultural resources, the proposed project would not have significant project-specific impacts to paleontological or cultural resources. The proposed project impacts would not contribute to or cause significant cumulative impacts because the project site is not known to be part of a historical district and, because sites are avoided, the proposed project would not contribute to impacting eligible sites. Therefore, cumulative impacts to cultural and paleontological resources would be less than significant with mitigation (Class II).

**C.6.5 Level of Significance After Mitigation**

Implementation of the mitigation measures would reduce potential impacts to cultural and paleontological resources (associated with construction, operation, maintenance, and decommissioning of the proposed project) to less than significant (Class II).
C.7 Geology and Soils

This section describes effects on geology and soils that would be caused by implementation of the proposed project. The following discussion addresses existing environmental conditions in the affected area, identifies and analyzes environmental impacts, and recommends measures to reduce or avoid adverse impacts anticipated from project construction and operation. In addition, existing laws and regulations relevant to geology and soils are described. In some cases, compliance with these existing laws and regulations would serve to reduce or avoid certain impacts that might otherwise occur with the implementation of the proposed project.

Baseline geologic, seismic, and soils information were collected from published and unpublished literature, GIS data, and online sources for the proposed project and the surrounding area. Data sources included the following: reports and documents available from the City of Lancaster and the applicant, geologic literature from the U.S. Geological Survey (USGS) and California Geological Survey (CGS), soils data from the U.S. Department of Agriculture (USDA), geologic and soils GIS data, available geotechnical reports for the area, and online reference materials. All the sources used for the purposes of characterizing baseline conditions and conducting the analysis for the proposed project are referenced as appropriate. The literature and data review was supplemented by field reconnaissance. The literature review focused on the identification of specific geologic and seismic hazards with the project site.

The study area was defined as the project site and the area immediately adjacent to the proposed project with the following exception: the study area related to seismically induced ground shaking issues includes significant regional active and potentially active faults within 50 miles of the proposed project. The current condition and quality of these geology and soils resources was used as the baseline against which to compare potential impacts of the proposed project.

C.7.1 Environmental Setting

Regional Geology and Physiography

The proposed project is located in the Antelope Valley which is in the northwestern corner of the Mojave Desert geomorphic province. The Mojave Desert geomorphic province, commonly referred to as the Mojave block, is a region of isolated mountain ranges separated by expanses of desert plains. The Mojave Desert province is wedge shaped, bounded on the north by the Garlock fault and its extension to the east, the San Andreas fault and the Transverse Ranges on the west, the Colorado River and California-Nevada border on the east, and the San Gabriel Mountains, San Bernardino Mountains, and the San Andreas fault on the south. It has an interior enclosed drainage and many playas.

The Antelope Valley is primarily an alluviated desert plain containing bedrock hills and low mountains. The western Antelope Valley is characterized by relatively flat-lying topography and deep valley fill deposits. In the project area and vicinity, the western Antelope Valley is covered primarily by alluvial deposits of Quaternary age: Holocene Alluvium and Pleistocene Older Alluvium. The Holocene alluvial deposits consist of slightly dissected alluvial fan deposits of gravel, sand and clay. In the project area the Older Alluvium is located primarily along the margins of the Antelope Valley near the flanks of Portal Ridge and Antelope Buttes and consists of weakly consolidated, uplifted and moderately to severely dissected alluvial fan and terrace deposits composed primarily of sand and gravel (Dibblee 1967). The alluvial deposits are locally blanketed by low dunes/eolian deposits. The ridges are comprised of crystalline rocks of igneous and metamorphic composition.
The project site is located on the relatively flat to gently sloping alluvial plain of the Antelope Valley. The project site slopes gently to the east with elevations ranging from 2,480 feet on the west side of the project site to just over 2,440 feet on the eastern side of the site. There is a small ridge representing a stabilized dune crossing the northwest corner of the project site. The drainage course from Willow Springs Canyon to the west runs in a northeast-southwest direction across the project site.

**Local Geology**

The project site for the proposed solar generating facility and the routes of the proposed gen-tie and communication lines are mapped as being underlain by several Holocene to late Pleistocene sedimentary deposits: eolian deposits, modern alluvium, younger alluvium, and clay rich younger alluvial fan deposits (CGS 2010). The units relative to proposed project components are presented on Figure C.7-1 – Local Geologic Map. A brief summary of the geologic units, mapped as underlying proposed project components, is presented below.

**Eolian deposits (Qe).** Holocene eolian deposits occur in the northwestern corner of the project site as a gently sloping stabilized sand dune. The eolian/dune deposits consist of loose, unconsolidated very fine to medium grained sand with some silt. The unit is generally gray where primarily sand and yellowish-brown where silty (CGS 2010). This unit is estimated to be at least 10 feet in thickness at the project site (Zeiser 1988).

**Modern alluvium (Qa).** Holocene modern alluvium underlies a large portion of the project site and a small section of the Western Route of the gen-tie/communication lines along the drainage course that was an ephemeral creek which drained Willow Springs Canyon. The modern alluvium sediment is predominantly unconsolidated to weakly consolidated, medium to very coarse grained fluvial sand with pebble-cobble gravel and silt. It is generally yellow-gray to brown.

**Younger alluvium (Qya).** Younger alluvium is located under most of the gen-tie/communication alignment options and underlying the northwestern and southeastern corners of the project site. Younger alluvium consists of Holocene to late Pleistocene slightly dissected alluvial fans and associated washes. The unit is primarily unconsolidated yellowish-brown sand and gravel.

**Younger alluvial fan deposits, clay rich (Qyfc).** Clay rich younger alluvial fan deposits underlie the northeastern portion of the project site and a portion of the Eastern Route of the gen-tie and communication lines. The clay rich alluvial fan deposits generally consist of dark yellowish brown consolidated silt to the edges of former lake shorelines.

A geotechnical investigation was prepared for the proposed project, “Preliminary Geotechnical Investigation Report for Del Sur Ranch Solar Facility, Proposed Del Sur Ranch Solar, West Avenue G & 95th Street West, Lancaster, Los Angeles County, California” by Bruin Geotechnical Services, Inc. in February 2015 (see Appendix 6). The preliminary geotechnical investigation of the project site was conducted by Bruin to evaluate the subsurface conditions of the project site and to provide foundation, earthwork, grading, and driven pile recommendations. The investigation included drilling and sampling of 35 borings to a maximum depth of 15 feet. Soil samples were obtained from the borings for the following analyses: field and laboratory soil corrosion testing; laboratory soil testing to determine engineering properties; and thermal resistivity testing. The borings conducted at the project site indicated that the subsurface soil material is relatively uniform, consisting primarily of medium dense silty sand, poorly-graded sand, and minor sandy silt to the full depth explored of 15 feet below ground surface (bgs) (Bruin 2015).
C. ENVIRONMENTAL SETTING, ANALYSIS, AND MITIGATION MEASURES

Figure C.7-1
Local Geologic Map

Legend

- Solar Facility Site
- Generation-Tie and Communication Line Routes

Geologic Units

- Qa - Modern alluvium (Holocene)
- Qe - Eolian deposits (Holocene)
- Qf - Modern Alluvial Fan deposits (Holocene)
- Qya - Younger alluvium (Holocene to late Pleistocene)
- Qyf - Younger alluvial fan deposits (Holocene to late Pleistocene)
- Qyfc - Younger alluvial fan deposits, clay rich (Holocene to late Pleistocene)
- Qyfs - Younger alluvial fan deposits, silt rich (Holocene to late Pleistocene)
- Qof - Older alluvial fan deposits (late Pleistocene)

Occasional cemented layers were encountered in the subsurface. Laboratory testing of the soils indicated that they are non-expansive, have a moderate tendency to hydroconsolidate, and are mildly to moderately corrosive to buried metal and have negligible corrosivity to concrete. The report includes recommendations for earthwork and grading, foundation and pile design, and corrosion control.

**Slope Stability**

Important factors that affect the slope stability of an area include the steepness of the slope, the relative strength of the underlying rock material, and the thickness and cohesion of the overlying colluvium. The steeper the slope and/or the less strong the rock, the more likely the area is susceptible to landslides. The steeper the slope and the thicker the colluvium, the more likely the area is susceptible to debris flows. Another indication of unstable slopes is the presence of old or recent landslides or debris flows.

The project site and the gen-tie/communication lines routes are located on a flat to gently sloping alluvial fan and would not be subject to landslides or other slope stability issues.

**Soils**

The soils underlying the project site reflect the underlying rock type, the extent of weathering of the rock, the degree of slope, and the degree of human modification. Potential hazards/impacts from soils include erosion, shrink-swell (expansive soils), and corrosion.

Potential soil erosion hazards vary depending on the use, conditions, and textures of the soils. The properties of soil which influence erosion by rainfall and runoff affect the infiltration capacity of a soil, as well as the resistance of a soil to detachment and being carried away by falling or flowing water. Soils on steeper slopes would be more susceptible to erosion due to the effects of increased surface flow (runoff) on slopes where there is little time for water to infiltrate before runoff occurs. Soils containing high percentages of fine sands and silt and that are low in density, are generally the most erodible. As the clay and organic matter content of soils increases, the potential for erosion decreases. Clays act as a binder to soil particles, thus reducing the potential for erosion.

Expansive soils are characterized by their ability to undergo significant volume change (shrink and swell) due to variation in soil moisture content. Changes in soil moisture could result from a number of factors, including rainfall, landscape irrigation, utility leakage, and/or perched groundwater. Expansive soils are typically very fine grained with a high to very high percentage of clay. Soils with moderate to high shrink-swell potential would be classified as expansive soils.

Corrosivity of soils is generally related to the following key parameters: soil resistivity; presence of chlorides and sulfates; oxygen content; and pH. Typically, the most corrosive soils are those with the lowest pH and highest concentration of chlorides and sulfates. High sulfate soils are corrosive to concrete and may prevent complete curing reducing its strength considerably. Low pH and/or low resistivity soils could corrode buried or partially buried metal structures.

Review of soil mapping by the USDA National Resource Conservation Service (NRCS) U.S. Department of Agriculture, Soil Conservation Service for the Antelope Valley Area – CA675 (3/2004) and review of soil data accessed through the NRCS Web Soil Survey website (NRCS 2015) have provided information for surface and near-surface subsurface soil materials. Summaries of the significant characteristics of the major soil associations underlying proposed project components are listed below (NRCS 2015).

- **Cajon (CaA).** Cajon soils are located in most of the northern half of the project site and along portions of the Eastern Route for the gen-tie and communication lines. The Cajon soils are found on alluvial fans
with slopes of 0 to 2 percent and are formed in sandy alluvium derived from granitic rocks. It is comprised of excessively drained loamy sand with low shrink-swell potential. Corrosion potential of these soils are reported as moderate for uncoated steel and low for concrete, and erosion potential of the soils is low to moderate for wind erosion and moderate for sheet and rill erosion by water.

**Greenfield.** The Greenfield association is mapped in most of the southern half of the project site and underlying large portions of all of the gen-tie and communication alignments. Greenfield soils are found on terraces and alluvial fans with slopes of 0 to 9 percent and are formed in moderately coarse alluvium derived from granitic rocks. It is comprised of well drained sandy loam with low shrink-swell potential. Corrosion potential of these soils are reported as high for uncoated steel and low for concrete, and erosion potential of the soils is low to moderate for wind erosion and moderate for sheet and rill erosion by water.

**Hanford.** The Hanford association is located within the western portion of the project site and along the northern end of the gen-tie/communication lines Western Route option. Hanford soils consist of sandy loam and coarse sandy loam on alluvial fans with slopes of 0 to 2 percent gradient. Hanford soils are derived from granitic alluvium, are well drained, and have low shrink-swell potential. Corrosion potential of these soils is reported as moderate for uncoated steel and low for concrete, and erosion potential of the soils is low to moderate for wind erosion and moderate for sheet and rill erosion by water.

**Hesperia.** Hesperia soils are located in the northeastern most corner of the project site and in several locations along the gen-tie and communication lines Eastern Route alignment. Hesperia soils consist of fine sandy loam on alluvial fans with gradients of 0 to 2 percent. The soils are formed in alluvium derived from granitic sources, are well drained, and have low shrink-swell potential. Corrosion potential of the Hesperia soils in the project area is reported as moderate for uncoated steel and moderate for concrete, and erosion potential of the soils is low to moderate for wind erosion and moderate for sheet and rill erosion by water.

**Ramona.** Ramona association soils are mapped in small amounts in the western portion of the project site and along the gen-tie and communication lines Western, City, and Center Routes. The Ramona association soils consist of coarse sandy loam and loam formed in alluvium derived from granitic sources. The soils are typically formed on terraces with 0 to 5 percent slopes. Ramona soils are well drained with low shrink-swell potential. Corrosion potential of the Hesperia soils in the project area is reported as low to moderate for uncoated steel and low for concrete, and erosion potential of the soils is low to moderate for wind erosion and moderate for sheet and rill erosion by water.

**Faults and Seismicity**

The seismicity of southern California is dominated by the intersection of the north-northwest trending San Andreas Fault system and the east-west trending Transverse Ranges fault system. Both systems are responding to strain produced by the relative motions of the Pacific and North American Tectonic Plates. This strain is relieved by right-lateral strike-slip faulting on the San Andreas and related faults, left-lateral strike slip on the Garlock fault, and by vertical, reverse-slip or left-lateral strike-slip displacement on faults in the Transverse Ranges. The effects of this deformation include mountain building, basin development, deformation of Quaternary marine terraces, widespread regional uplift, and generation of earthquakes. Both the Transverse Ranges and northern Los Angeles County area are characterized by numerous geologically young faults. These faults can be classified as historically active, active, potentially active, or inactive, based on the following criteria (CGS 1999):
Faults that have generated earthquakes accompanied by surface rupture during historic time (approximately the last 200 years) and faults that exhibit aseismic fault creep are defined as Historically Active.

Faults that show geologic evidence of movement within Holocene time (approximately the last 11,000 years) are defined as Active.

Faults that show geologic evidence of movement during the Quaternary time (approximately the last 1.6 million years) are defined as Potentially Active.

Faults that show direct geologic evidence of inactivity during all of Quaternary time or longer are classified as Inactive.

Although it is difficult to quantify the probability that an earthquake will occur on a specific fault, this classification is based on the assumption that if a fault has moved during the Holocene epoch, it is likely to produce earthquakes in the future. Blind thrust faults do not intersect the ground surface, and thus they are not classified as active or potentially active in the same manner as faults that are present at the earth’s surface. Blind thrust faults are seismogenic structures with no surface expression and thus the activity classification of these faults is predominantly based on geologic data from deep oil wells, geophysical profiles, historic earthquakes, and microseismic activity along the fault.

The project site is subject to ground shaking associated with earthquakes on faults of the San Andreas, Garlock, and Transverse Ranges fault systems. Active faults of the San Andreas system are predominantly strike-slip faults accommodating translational movement. Active reverse or thrust faults in the Transverse Ranges include the blind thrust faults responsible for the 1987 Whittier Narrows Earthquake and 1994 Northridge Earthquake, and the range-front faults responsible for uplift of the Santa Susana and San Gabriel Mountains. The Transverse Ranges fault system consists primarily of blind, reverse, and thrust faults accommodating tectonic compressional stresses in the region. Blind faults have no surface expression and have been located using subsurface geologic and geophysical methods. This combination of translational and compressional stresses gives rise to diffuse seismicity across the region.

Figure C.7-2 shows locations of active and potentially active faults (representing possible seismic sources) and earthquakes in the region surrounding the project site. Active and potentially active faults within 50 miles of the project that are significant potential seismic sources are presented in Table C.7-1.

Fault Rupture

Fault rupture is the surface displacement that occurs when movement on a fault deep within the earth breaks through to the surface. Fault rupture and displacement almost always follows preexisting faults, which are zones of weakness, however not all earthquakes result in surface rupture (i.e., earthquakes that occur on blind thrusts do not result in surface fault rupture). Rupture may occur suddenly during an earthquake or slowly in the form of fault creep. In addition to damage caused by ground shaking from an earthquake, fault rupture is damaging to buildings and other structures due to the differential displacement and deformation of the ground surface that occurs from the fault offset leading to damage or collapse of structures across this zone. However, no known active or potentially active faults cross the project site or the gen-tie and communication alignments.

Ground Shaking

An earthquake is classified by the amount of energy released, which traditionally has been quantified using the Richter scale. Recently, seismologists have begun using a Moment Magnitude (M) scale because it provides a more accurate measurement of the size of major and great earthquakes. For earthquakes of less
than M 7.0, the Moment and Richter Magnitude scales are nearly identical. For earthquake magnitudes greater than M 7.0, readings on the Moment Magnitude scale are slightly greater than a corresponding Richter Magnitude. Review of earthquake data for the project area indicates that approximately 25 earthquakes of greater than or equal to magnitude 5.5 have occurred within 50 miles of the proposed project, including the M 7.5 Kern County Earthquake on the White Wolf fault and the M 7.5 Wrightwood Earthquake on the San Andreas Fault (SCEDC 2015). These earthquakes are shown on Figure C.7-2.

The intensity of the seismic shaking, or strong ground motion, during an earthquake is dependent on the distance between the project site and the epicenter of the earthquake, the magnitude of the earthquake, and the geologic conditions underlying and surrounding the project site. Earthquakes occurring on faults closest to the project site would most likely generate the largest ground motion. The intensity of earthquake induced ground motions can be described using peak site accelerations, represented as a fraction of the acceleration of gravity (g). The CGS Ground Motion Interpolator (2008) website was used to estimate approximate peak ground accelerations (PGAs) in the project area (CGS 2015). The CGS Ground Motion Interpolator maps depict peak ground accelerations with a 2 percent probability of exceedance in 50 years which corresponds to a return interval of 2,475 years and a 10 percent probability of exceedance in 50 years which corresponds to a return interval of 475 for a maximum considered earthquake. The estimated approximate peak ground accelerations from large earthquakes for the project area are approximately 0.49 g and 0.83 g, respectively, which correspond to strong ground shaking.

**Liquefaction**

Liquefaction is the phenomenon in which saturated granular sediments temporarily lose their shear strength during periods of earthquake-induced strong groundshaking. The susceptibility of a site to liquefaction is a function of the depth, density, and water content of the granular sediments and the magnitude and frequency of earthquakes in the surrounding region. Saturated, unconsolidated silts, sands, and silty sands within 50 feet of the ground surface are most susceptible to liquefaction. Liquefaction-related phenomena include lateral spreading, ground oscillation, flow failures, loss of bearing strength, subsidence, and buoyancy effects (Youd and Perkins 1978). In addition, densification of the soil resulting in vertical settlement of the ground can also occur.

In order to determine liquefaction susceptibility of a region, three major factors must be analyzed. These include: (a) the density and textural characteristics of the alluvial sediments; (b) the intensity and duration of groundshaking; and (c) the depth to groundwater. Although potentially liquefiable granular sediments of medium density are located on the project site, groundwater is greater than 100 feet bgs in the project area (Bruin 2015) and therefore the sediments underlying the project components would not be subject to liquefaction related phenomena.

**Seismic Slope Instability**

Other forms of seismically-induced ground failures which may affect the project site include ground cracking, shattered ridgetops, and seismically-induced landslides. Landslides triggered by earthquakes have been a considerable cause of earthquake damage; in southern California large earthquakes such as the 1971 San Fernando and 1994 Northridge earthquakes triggered landslides that were responsible for destroying or damaging numerous structures, blocking major transportation corridors, and damaging life-line infrastructure. Areas that are most susceptible to earthquake-induced landslides are steep slopes in poorly cemented or highly fractured rocks, areas underlain by loose, weak soils, and areas on or adjacent to existing landslide deposits. Areas that are underlain by landslide prone units with moderate to steep slopes, and previously existing landslides, both mapped and unmapped, are particularly susceptible to this...
Del Sur Solar Project

C. ENVIRONMENTAL SETTING, ANALYSIS, AND MITIGATION MEASURES

Regional Active Faults and Historic Earthquakes

Figure C.7-2
Regional Active Faults and Historic Earthquakes

Legend
- Regional Active and Potentially Active Faults
  - Active Faults
  - Potentially Active Faults
- Blind Thrust Faults (faults do not intersect the surface; mapped trace represents projection of upper edge of the fault to surface; rectangle represents projection of the fault plane to the ground surface)
- Regional Historic Earthquakes
  >M4.5 between 1769 and 2014

- Magnitude
  - 4.50 - 4.99
  - 5.00 - 5.99
  - 6.00 - 6.99
  - 7.00 - 7.99

## Table C.7-1. Significant Regional Active and Potentially Active Faults

<table>
<thead>
<tr>
<th>Name</th>
<th>Closest Distance to Project (miles)¹</th>
<th>Estimated Maximum Earthquake Magnitude²</th>
<th>Fault Type and Dip Direction³</th>
<th>Slip Rate (mm/yr)³,5</th>
</tr>
</thead>
<tbody>
<tr>
<td>San Andreas – Mojave south</td>
<td>5.9</td>
<td>7.3-8.0⁴</td>
<td>Right Lateral Strike Slip, 90°</td>
<td>29.0</td>
</tr>
<tr>
<td>San Andreas – Mojave north</td>
<td>11.6</td>
<td>6.9-8.0⁴</td>
<td>Right Lateral Strike Slip, 90°</td>
<td>27.0</td>
</tr>
<tr>
<td>Garlock</td>
<td>21.4</td>
<td>7.3-7.7⁴</td>
<td>Left Lateral Strike Slip, 90°</td>
<td>6.0</td>
</tr>
<tr>
<td>San Gabriel</td>
<td>23.7</td>
<td>7.3</td>
<td>Right Lateral Strike Slip, 90°</td>
<td>1.0</td>
</tr>
<tr>
<td>Northridge</td>
<td>27.7</td>
<td>6.9</td>
<td>Blind Thrust, 42° S</td>
<td>1.5</td>
</tr>
<tr>
<td>Santa Susana</td>
<td>29.2</td>
<td>6.9</td>
<td>Reverse, 55° N</td>
<td>5.0</td>
</tr>
<tr>
<td>San Fernando</td>
<td>29.3</td>
<td>6.7</td>
<td>Reverse, 45° N</td>
<td>2.0</td>
</tr>
<tr>
<td>Sierra Madre</td>
<td>30.6</td>
<td>7.2</td>
<td>Reverse, 45° N</td>
<td>2.0</td>
</tr>
<tr>
<td>Verdugo</td>
<td>32.2</td>
<td>6.9</td>
<td>Reverse, 45° NE</td>
<td>0.5</td>
</tr>
<tr>
<td>Oak Ridge</td>
<td>32.4</td>
<td>7.2</td>
<td>Reverse, 65° S</td>
<td>4.0</td>
</tr>
<tr>
<td>San Cayetano</td>
<td>32.5</td>
<td>7.2</td>
<td>Reverse, 60° N</td>
<td>6.0</td>
</tr>
<tr>
<td>San Andreas – Big Bend</td>
<td>33.8</td>
<td>7.1-8.0⁴</td>
<td>Right Lateral Strike Slip, 90°</td>
<td>34.0</td>
</tr>
<tr>
<td>Santa Ynez</td>
<td>35.3</td>
<td>7.1³</td>
<td>Left Lateral Strike Slip, 90°</td>
<td>2.0</td>
</tr>
<tr>
<td>Plieto Thrust</td>
<td>35.8</td>
<td>7.1</td>
<td>Reverse, 45° S</td>
<td>2.0</td>
</tr>
<tr>
<td>Simi-Santa Rosa</td>
<td>36.2</td>
<td>6.9</td>
<td>Left Lateral Reverse Oblique, 60° N</td>
<td>1.0</td>
</tr>
<tr>
<td>Clamshell-Sawpit</td>
<td>40.7</td>
<td>6.7</td>
<td>Reverse, 45° NW</td>
<td>0.5</td>
</tr>
<tr>
<td>White Wolf</td>
<td>41.1</td>
<td>7.2</td>
<td>Reverse Left Lateral Oblique, 60° S</td>
<td>2.0</td>
</tr>
<tr>
<td>Raymond</td>
<td>41.4</td>
<td>6.8</td>
<td>Left Lateral Reverse Oblique, 75° N</td>
<td>1.5</td>
</tr>
<tr>
<td>Hollywood</td>
<td>41.5</td>
<td>6.7</td>
<td>Left Lateral Reverse Oblique, 70° N</td>
<td>1.0</td>
</tr>
<tr>
<td>Upper Elysian Park Thrust</td>
<td>41.8</td>
<td>6.7</td>
<td>Blind Thrust, 50° NE</td>
<td>1.3</td>
</tr>
<tr>
<td>Santa Monica</td>
<td>45.2</td>
<td>6.6</td>
<td>Left Lateral Reverse Oblique, 75° N</td>
<td>1.0</td>
</tr>
<tr>
<td>Lenwood-Lockhart-Old Woman Springs</td>
<td>45.6</td>
<td>7.5</td>
<td>Right Lateral Strike Slip, 90°</td>
<td>0.9</td>
</tr>
<tr>
<td>Newport-Inglewood</td>
<td>46.8</td>
<td>7.2</td>
<td>Right Lateral Strike Slip, 90°</td>
<td>1.0</td>
</tr>
<tr>
<td>Puente Hills Blind Thrust</td>
<td>47.3</td>
<td>7.1</td>
<td>Blind Thrust, 25° N</td>
<td>0.7</td>
</tr>
<tr>
<td>Helendale-So. Lockhart</td>
<td>48.4</td>
<td>7.4</td>
<td>Right Lateral Strike Slip, 90°</td>
<td>0.6</td>
</tr>
<tr>
<td>Malibu Coast</td>
<td>49.2</td>
<td>6.7</td>
<td>Left Lateral Reverse Oblique, 75° N</td>
<td>0.3</td>
</tr>
</tbody>
</table>

**Notes:**
2. Maximum Earthquake Magnitude – the maximum earthquake that appears capable of occurring under the presently known tectonic framework, magnitude listed is “Ellsworth-B” magnitude from USGS OF08-1128 (Documentation for the 2008 Update of the United States National Seismic Hazard Maps) unless otherwise noted.
4. Range of magnitudes represents varying rupture scenarios of one or more segments along a fault.
5. References to fault slip rates are traditionally presented in millimeters per year.
Shattered ridgetop features consist of fractures, fissures, and minor slumps that are concentrated on narrow ridgelines. Studies suggest that amplification of ground motion at ridge tops is frequency dependent, potentially leading to differential motion at the top of the ridge, which produces cracks and fissures at the crest. The project site is on a gently sloping alluvial fan and would not be subject to seismically induced slope failures or instability.

C.7.2 Regulatory Setting

Federal Regulations

Clean Water Act. The Clean Water Act establishes the basic structure for regulating discharges of pollutants into the Waters of the United States. The Act authorized the Public Health Service to prepare comprehensive programs for eliminating or reducing the pollution of interstate waters and tributaries and improving the sanitary condition of surface and underground waters with the goal of improvements to and conservation of waters for public water supplies, propagation of fish and aquatic life, recreational purposes, and agricultural and industrial uses. The project construction would disturb a surface area greater than one acre; therefore, the applicant would be required to obtain under Clean Water Act regulations a National Pollution Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction Activity. Compliance with the NPDES would require that the applicant submit a Storm Water Pollution Prevention Plan (SWPPP).

International Building Code. The International Building Code (IBC) is published by the International Code Council (ICC). The scope of this code covers major aspects of construction and design of structures and buildings, except for three-story one- and two-family dwellings and town homes. The IBC has replaced the Uniform Building Code (UBC) as the basis for the California Building Code (CBC) and contains provisions for structural engineering design. The 2015 IBC addresses the design and installation of structures and building systems through requirements that emphasize performance. The IBC includes codes governing structural as well as fire- and life-safety provisions covering seismic, wind, accessibility, egress, occupancy, and roofs.

State Regulations

California Building Code. The CBC, Title 24, Part 2 provides building codes and standards for design and construction of structures in California. The 2013 CBC is based on the 2012 International Building Code with the addition of more extensive structural seismic provisions. Chapter 16 of the CBC contains definitions of seismic sources and the procedure used to calculate seismic forces on structures.

CPUC General Order 128. California Public Utilities General Order 128 (GO 128) contains the State of California rules formulated to provide uniform requirements for underground electrical supply and communication systems to insure adequate service and secure safety to persons engaged in the construction, maintenance, operation or use of underground electrical supply and communication systems and to the public. GO 128 is not intended as complete construction specifications, but to embody requirements which are most important from the standpoint of safety and service. Construction shall be according to accepted good practice for the given local conditions in all particulars not specified in the rules.

GO 128 applies to (a) all underground electrical supply systems used in connection with public utility service; when located in buildings, the vaults, conduit, pull boxes or other enclosures for such systems shall also meet the requirements of any statutes, regulations or local ordinances applicable to such enclosures in buildings; and (b) all underground communication systems used in connection with public utility service located outside of buildings. GO 128 applies to the following activities related to
underground electrical supply and communication systems: Construction and Reconstruction of Lines, Maintenance, Systems Constructed Prior to These Rules, Reconstruction or Alteration, and Third Party Nonconformance.

**Alquist-Priolo.** The Alquist-Priolo Earthquake Fault Zoning Act of 1972, Public Resources Code (PRC) Sections 2621–2630 (formerly the Special Studies Zoning Act) regulates development and construction of buildings intended for human occupancy to avoid the hazard of surface fault rupture. While this Act does not specifically regulate transmission and telecommunication lines; it does help define areas where fault rupture is most likely to occur. This Act groups faults into categories of active, potentially active, and inactive. Historic and Holocene age faults are considered active, Late Quaternary and Quaternary age faults are considered potentially active, and pre-Quaternary age faults are considered inactive. These classifications are qualified by the conditions that a fault must be shown to be “sufficiently active” and “well defined” by detailed site-specific geologic explorations in order to determine whether building setbacks should be established.

**Seismic Hazard Mapping Act.** The Seismic Hazards Mapping Act (the Act) of 1990 (PRC, Chapter 7.8, Division 2, Sections 2690–2699.) directs the California Department of Conservation, Division of Mines and Geology [now called California Geological Survey (CGS)] to delineate Seismic Hazard Zones. The purpose of the Act is to reduce the threat to public health and safety and to minimize the loss of life and property by identifying and mitigating seismic hazards. Cities, counties, and State agencies are directed to use seismic hazard zone maps developed by CGS in their land-use planning and permitting processes. The Act requires that site-specific geotechnical investigations be performed prior to permitting most urban development projects within seismic hazard zones.

**Local Regulations and Plans**

**Los Angeles County General Plan (only applies to gen-tie/communication line route in unincorporated Los Angeles County).** The Safety Element of the Los Angeles County General Plan (1990) provides goals and policies to reduce impacts from seismic and geologic hazards and provide a safer environment. The two main policies relevant to the project are: minimize injury and loss of life, damage, and social, cultural, and economic impacts caused by earthquake hazards; and protect public safety and minimize the social and economic impacts from geologic hazards. Proper design of the project facilities, including mitigation measures outlined in this document, would meet these goals and would be consistent with the Safety Element.

**Antelope Valley Area Plan (only applies to gen-tie/communication line route in unincorporated Los Angeles County).** The Antelope Valley Area Plan (2014) is a component of the Los Angeles County General Plan and provides policies related to public planning in the Antelope Valley area, including policies related to seismic and geologic hazards. These policies generally include enforcing standards and criteria to reduce impacts from seismic and geologic hazards, advocating detailed site evaluations and improved seismic design and construction standards for critical linear system facilities, and programs and practices for dealing with erosion, settlement, and other soil-related hazards. The project would be consistent with these policies through implementation of the mitigation measures outlined in this document.

**Los Angeles County Code (only applies to gen-tie/communication line route in unincorporated Los Angeles County).** The Los Angeles County (County) Building Code contains rules and regulations that govern activities that could result in soil erosion or slope instability. These rules and regulations within the County Grading Code Ordinance and Regulations, where provisions for excavation, grading, and earthwork construction have been established, permitting procedures are set forth, and plan approval
and grading inspection protocols and procedures have been identified. The appendix also contains provisions for construction-related erosion control, including the preparation of cut-and-fill slopes and the implementation of erosion control measures such as check dams, cribbing, riprap, or other devices or methods. The ordinances also include seismic safety requirements for certain building types, such as older concrete tilt-up buildings and unreinforced masonry buildings. The stated goal of these ordinances is to promote public safety and welfare by reducing the risk of death or injury that could result from earthquake damage to certain types of older buildings during moderate or strong earthquakes. Based on the findings of required structural analyses, deficient buildings may need to be strengthened or demolished.

**Lancaster General Plan.** Two sections of the City of Lancaster General Plan 2030 (2009) provide goals and policies related to geology and soils, the Plan for the Natural Environment and the Plan for Public Health and Safety. The Plan for the Natural Environment evaluates the natural and human-induced environments within the Lancaster General Plan study area and provides a management program for natural resources consistent with community values and aimed at balancing demands for new urban and rural development with the protection of natural resources and retention of the open character of the General Plan study area. The Plan for Public Health and Safety contains an evaluation of natural and manmade conditions which may pose health and safety hazards to life and property within Lancaster and a comprehensive program to mitigate those hazards to acceptable levels. The Plan for Public Health and Safety identifies constraints to urban and rural development which must be considered as part of overall and site-specific development strategies. Geologic and seismic hazards are included in the hazards discussed in this document and goals, objectives, and policies are included to mitigate these hazards.

### C.7.3 Environmental Impacts and Mitigation Measures

This section describes effects on and from geologic and soils resources and conditions that would be caused by the implementation of the proposed project. Geologic, soil, and seismic conditions were evaluated with respect to adverse effects implementation of the proposed project may have on local geology and soils, as well as the impact that specific geologic hazards may have upon components of the SGF and the general and communication lines. A wide range of potential impacts, including unsuitable soils, slope instability, and seismic hazards of surface fault rupture, strong ground shaking, liquefaction, and seismically induced landslides, were considered in this analysis. Geologic formations, slope conditions, and soil types have been characterized by their potential to contribute to hazardous conditions. Areas prone to risk for potential adverse impacts due to existing geologic, topographic, or soils conditions were identified and their relationship to proposed project components analyzed. Where existing conditions suggest a potential risk or impact, mitigation measures were identified to reduce the risk or impact.

The following significance criteria for geology and soils have been identified based on the CEQA Appendix G Environmental Checklist and adjusted for relevance to this analysis based on local conditions and the project description. For purposes of the CEQA analysis for the proposed project, an impact would be considered significant and require mitigation if construction or maintenance of project facilities would result in any of the following criteria being met.

- Expose people or structures to potential risk of loss, injury, or death where there is high potential for seismically induced ground shaking.
- Results in triggering or acceleration of geologic processes, such as landslides, substantial soil erosion, or loss of topsoil.
- Expose people or structures to potential risk of loss or injury where expansive soils or other unsuitable soils are present.
The following CEQA criteria have no impact on or from the proposed project and are not discussed further beyond the summaries below:

- Expose people or structures to potential risk of loss or injury where there is high potential for earthquake-related ground rupture in the vicinity of major fault crossings. No known faults cross or are in immediate vicinity of the proposed project, thus there is no potential for surface fault rupture at or across the project site or alignments. There would be no impact related to this criteria.

- Expose people or structures to potential risk of loss, injury, or death from seismically induced ground failure, including landslides, and liquefaction, settlement, lateral spreading, and/or surface cracking. The project site is located on a flat to gently sloping alluvial fan and would not be subject to seismically induced landslides or surface failures. Due to the very deep groundwater in the project area, greater than 100 feet, the area would not be susceptible to liquefaction related phenomena, including lateral spreading. There would be no impact from this criteria.

- Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water. As the proposed project would not include the construction of any restroom facilities or other components requiring wastewater disposal, there would be no impact related to this criteria.

Environmental Impact Analysis

**Impact GEO-1:** Expose people or structures to potential risk of loss, injury, or death where there is high potential for seismically induced ground shaking. (Class III – Less than Significant)

Strong groundshaking should be expected in the event of an earthquake on the faults near the proposed project, with estimated PGAs of 0.49 g for a 2 percent probability of exceedance in 50 years and of 0.83 g for a 10 percent probability of exceedance in 50 years. The proposed project would be subject to groundshaking from a large earthquake on any of the major faults in the region. While the shaking would be less severe from an earthquake that originates farther from the project site, the effects from nearby or regional earthquakes could be damaging to project structures. It is likely that project components would be subjected to at least one moderate or larger earthquake occurring close enough to produce groundshaking at the project site.

Seismically induced ground shaking would not be affected by nor would it affect construction of the proposed project or the generation-tie and communication lines. Also, seismically induced ground shaking would not affect the removal of project components from the project site or affect the removal of buried lines from the public right-of-way (ROW) during decommissioning.

While the potential for seismically induced ground shaking in the project area during project operation is unavoidable, the proposed project would not include any habitable structures that would expose people to significant hazards due to seismic shaking. While project components such as the solar panels could be damaged by strong seismic ground shaking, potential damage to the components from seismic events could easily be repaired and would not pose a significant hazard of loss, injury, or death. While it is unlikely that the underground lines would be damaged by seismic ground shaking, any resultant damage to these lines from seismic events could easily be repaired and would not pose a significant hazard of loss, injury, or death.

**Impact GEO-2:** Results in triggering or acceleration of geologic processes, such as landslides, substantial soil erosion, or loss of topsoil. (Class III – Less than Significant)

Excavation and grading for the solar arrays, equipment pads and foundations, underground conduits and vaults, and work areas could loosen soil and accelerate erosion. The soils in the project area generally contain
high percentages of sand and may be susceptible to wind and water erosion. Soils containing high percentages of fine sands and silt and that are low in density, are generally the most erodible. As the clay and organic matter content of soils increases, the potential for erosion decreases. Clays act as a binder to soil particles, thus reducing the potential for erosion. Erosion potential of the soils throughout the project area due to wind ranges from low to moderate and erosion potential from water (sheet and rill erosion) is moderate.

All the project components would be constructed in an area of flat to gently sloping topography and therefore none of the project components would be subject to landslides or other slope stability issues.

Removal of vegetation and excavation and grading during construction of the proposed project could loosen soils and trigger or accelerate erosion. Although the generation-tie routes are primarily located within existing streets and dirt roads, excavation during construction of the underground gen-tie and communication lines could also potentially loosen soils and trigger or accelerate erosion. All the soils underlying the project site have low to moderate potential for wind erosion and erosion by wind could occur in areas where the soil is loosened by construction activities. Erosion potential of soils by water throughout the project site is moderate and erosion by water would most likely occur in areas where construction activities have loosened the soil.

Current regulations would require that the proposed project obtain under the Clean Water Act regulations a NPDES General Permit for Storm Water Discharges Associated with Construction Activity as construction would disturb a surface area greater than one acre. Additionally, compliance with the NPDES would require that the applicant submit a SWPPP. The SWPPP would require development and implementation of best management practices (BMPs) to identify and control erosion, which would reduce the potential for construction triggered erosion. No additional mitigation is necessary.

Operation of the proposed project would not require any significant ground disturbance other than what may be required for repairs. Therefore, significant soil erosion would not be triggered or accelerated due to project operation.

Decommissioning of the solar facility would include removal of all project components at the project site, which would require ground disturbance to remove the components such as equipment pads/foundations, solar array supports, and buried electrical cables. Decommissioning of the gen-tie and communication lines would include removal of all project components within the streets and roads which would require ground disturbance to remove these underground components. It is likely that similar NPDES regulations would still be in place at this time requiring a SWPPP and BMPs to limit the potential for erosion. No mitigation is necessary.

**Impact GEO-3: Expose people or structures to potential risk of loss or injury where expansive soils or other unsuitable soils are present. (Class II – Less than Significant with Mitigation)**

All the soils mapped on the project site have low shrink-swell potential and the soil testing conducted by Bruin (Bruin 2015) verifies that the soils at the solar facility are non-expansive. Therefore, there would be no potential for damage to project components from expansive soils.

The geotechnical investigation for the proposed project (Bruin 2015) included field and laboratory soil corrosion testing that indicated negligible potential for corrosion of concrete and mildly to moderately corrosive to buried metal. The corrosion report included in the geotechnical investigation report includes corrosion control recommendations. In areas where corrosive subsurface soils underlie the project site, the corrosive soils could have a detrimental effect on concrete and metals. Depending on the degree of corrosivity of subsurface soils, concrete and reinforcing steel in concrete structures and bare-metal structures exposed to these soils could deteriorate, eventually leading to structural failures.
Corrosion potential of soils underling the project site would not be affected by nor would it affect construction activities of the proposed solar facility components and the generation-tie and communication lines. This would also apply to decommissioning of the facility.

Soils within the project site have mild to moderate corrosion potential for buried metal. Metal project components such as the screws/piles for the module racking system that will come in direct contact with the corrosive soils could be damaged, potentially causing collapse of portions of the solar array. The geotechnical investigation report for the proposed site recommends corrosion control measures (Bruin 2015). Compliance with Mitigation Measure GEO-1 would reduce this impact to less than significant.

The gen-tie and communication line routes would not have the same result. Operation of the gen-tie and communication lines would not be affected by corrosive soils as the lines would be placed underground and in a conduit that would not be affected by corrosion.

**Mitigation Measure**

**MM GEO-1** Design and construction of all metal components in the proposed project that will come in contact with corrosive soils shall include corrosion protection measures identified in the geotechnical report. The specific design measures to be utilized shall be provided to the City for review prior to project construction.

**C.7.4 Cumulative Impact Analysis**

Geologic and soils impacts are typically site-specific. The impacts of each past, present, and reasonably foreseeable projects would be specific to the respective site and its users and would not be in common with or contribute to (or shared with, in an additive sense) the impacts on other sites. In addition, development of each site would be subject to site development and construction guidelines and standards (local, state, and federal) that are designed to protect public safety. In order to be cumulatively considerable, adverse geologic conditions would have to occur at the same time and in the same location as the same or similar conditions of the proposed project. Seismic impacts (groundshaking, earthquake-induced ground failure, and fault rupture) from the numerous local and regional faults comprise an impact of the geologic environment on individual projects and would not introduce cumulatively considerable impacts. Impacts from unsuitable soils (expansive or corrosive soils) would also represent an impact of the environment on individual projects and would not be cumulatively considerable. Therefore adverse impacts from the proposed project would not be cumulatively considerable.

**C.7.5 Level of Significance After Mitigation**

Geology and soils impacts GEO-1 and GEO-2 are less than significant and no mitigation measures are required. Impact GEO-3 is less than significant with implementation of Mitigation Measure GEO-1.
C.8 Hazards and Hazardous Materials

This section describes effects related to hazards and hazardous materials, including environmental contamination and hazards, and the possible use of photovoltaic modules containing heavy metals (cadmium telluride) caused by implementation of the proposed project. The following discussion addresses existing environmental conditions in the affected area, identifies and analyzes environmental impacts of the project, and recommends measures to reduce or avoid significant impacts anticipated from project construction and operation. In addition, existing laws and regulations relevant to public health and safety are described. In some cases, compliance with these existing laws and regulations would serve to reduce or avoid certain impacts that might otherwise occur with the implementation of the proposed project.

Environmental contamination at the project site and along the gen-tie line(s) were researched through a search of regulatory agency databases, including the California State Water Resources Control Board (SWRCB) Geotracker, Department of Toxic Substance Control (DTSC) Envirostor, and aerial photographs, to verify land uses of concern. The agency databases identify sites with current or past hazardous waste concerns, such as the use and storage of chemicals, leaks and spills of chemicals, and leaking underground storage tanks. This review was performed in order to note any issues related to use and storage of hazardous materials within the project site. The potential use of cadmium-telluride thin-film photovoltaic solar modules for the proposed project required research of the hazardous waste character of these materials through current California DTSC waste handling regulations and scientific literature related to potential environmental releases.

Three Phase I or Limited Phase II Environmental Site Assessments have been prepared for the project site in 2004 (AET 2004a; AET 2004b) and 2015 (McAlister Geoscience 2015). These documents reference two earlier Phase I Site Assessment reports prepared in 1988 and 2004 that were not available for this analysis. Appendix 7 includes the Phase I and Limited Phase II Environmental Site Assessment report.

The study area is defined as the area within 0.5 mile of the project site boundary for effects of potential existing contamination. The existing level of contamination in the area and at the project site were used as the baseline against which to compare potential hazards and hazardous materials-related impacts of the proposed project. The proposed gen tie line routes traverse along existing roadways approximately two miles to reach existing/proposed collector substations along West Avenue J.

C.8.1 Environmental Setting

This section presents information on conditions related to hazards and hazardous materials in the project area. The environmental setting involving the issues of environmental contamination and hazardous materials included research of sites with known and potential contamination within and nearby the project site to better define the areas where contaminated sites may impact construction activities. The primary reason to define potentially hazardous sites is to protect worker health and safety and to minimize public exposure to hazardous materials during construction and waste handling. Where encountered, contaminated soil may qualify as hazardous waste, thus requiring handling and disposal according to local, State, and federal regulations.

Land uses on the project site and in surrounding areas include rural residential and agricultural use with some evidence of unauthorized off-highway vehicle use. Historic agricultural uses in the area include dry and irrigated farming for grain or hay crops (alfalfa), and livestock operations (animal feeding) (Zeiser 1988). Existing and past land use activities are used as potential indicators of hazardous material storage.
Del Sur Solar Project
C. ENVIRONMENTAL SETTING, ANALYSIS, AND MITIGATION MEASURES

and use. Historic agricultural use may indicate the presence of pesticides and herbicides in soils. Other hazardous materials sources in rural areas may include leaking underground and above ground petroleum storage tanks. Waste from illegal dumping in rural areas can sometimes include hazardous waste, such as waste from clandestine drug manufacturing. In addition, motor vehicle fuel leaks from unauthorized off-highway vehicle use can be a source of contaminated surface runoff or soil. There are no documented releases of hazardous materials on the project site although at least two underground storage tanks were reported on the site in 2004 (AET 2004a; AET 2004b), but could not be located in 2015 (McAlister Geoscience 2015). Historic aerial photographs indicate that agricultural activities began to decrease by 1974 and that by 1989 very limited agriculture activity and empty/dry storage ponds were evident (McAlister Geoscience 2015, Appendix B). None of the proposed generation-tie/communication routes traverse commercial or industrial land use areas. There is low potential for existing hazardous materials contamination at the project site or along the proposed generation-tie lines and communication line routes because there is no indication that current or past land uses have resulted in significant contamination. However, past uses of the project site may have resulted in minor localized soil contamination resulting from application of pesticides and herbicides and leaks or spills of fuel at underground storage tanks or dispensers. In addition, the presence of underground storage tanks could affect construction and possibly result in soil contamination if the tanks are accidentally damaged during construction. If cadmium-telluride (CdTe) thin-film photovoltaic solar modules are selected for the proposed project, these modules contain heavy metals encapsulated in sheets of glass and cadmium, which is a known carcinogen leading to regulatory characterization of the CdTe compound as elemental cadmium (NTP 2003).

Electric and magnetic fields (EMF) could be generated by the solar panels and the gen-tie lines. Although there is no consensus on the health effects of EMF exposure, there is public interest and concern, particularly related to high voltage (230 kV and greater) power lines. The project gen-tie lines are low voltage (34 kV and 66 kV) and will be placed underground with the individual insulated conductors spaced close together that will result in greater cancellation and lower EMFs. Ground-level EMF from underground cables decline rapidly with distance as compared to overhead lines, although the EMF field can actually be higher at short distances from the buried cable (EMFsInfo 2015). The underground gen-tie lines may result in potential exposure to low levels of EMFs. The EMF from solar panels has also been identified as low and comparable to household appliances such as televisions and refrigerators (USDOE 2009). As noted earlier, there is no consensus on the approach to addressing EMF. Currently, the State has not adopted any specific limits or regulation on EMF levels related to electric power facilities, and there is no guidance in CEQA on this issue. For this reason, EMF is not considered in this EIR as a CEQA issue and no impact significance is presented.

C.8.2 Regulatory Setting

Federal Regulations

U.S. Environmental Protection Agency. The United States Environmental Protection Agency (USEPA) was established in 1970 in response to the growing public demand for cleaner water, air and land. The USEPA was established to consolidate in one agency a variety of federal research, monitoring, standard-setting, and enforcement activities to ensure environmental protection. The USEPA’s mission is to protect human health and to safeguard the natural environment — air, water, and land — upon which life depends. The USEPA works to develop and enforce regulations that implement environmental laws enacted by Congress, is responsible for researching and setting national standards for a variety of environmental programs, and delegates to states and tribes the responsibility for issuing permits and for monitoring and enforcing compliance. Where national standards are not met, the USEPA can issue sanctions and take
other steps to assist the states and tribes in reaching the desired levels of environmental quality.

The Federal Toxic Substances Control Act (1976) and the Resource Conservation and Recovery Act of 1976 established a program administered by the USEPA for the regulation of the generation, transportation, treatment, storage, and disposal of hazardous waste. The Resource Conservation and Recovery Act of 1976 was amended in 1984 by the Hazardous and Solid Waste Act, which affirmed and extended the “cradle to grave” system of regulating hazardous wastes.

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), commonly known as Superfund, was enacted by Congress on December 11, 1980. This law (United States Code [USC] Title 42, Chapter 103) provides broad federal authority to respond directly to releases or threatened releases of hazardous substances that may endanger public health or the environment. CERCLA establishes requirements concerning closed and abandoned hazardous waste sites, provides for liability of persons responsible for releases of hazardous waste at these sites, and establishes a trust fund to provide for cleanup when no responsible party could be identified. CERCLA also enables the revision of the National Contingency Plan. The National Contingency Plan (Title 40, Code of Federal Regulations [CFR], Part 300) provides the guidelines and procedures needed to respond to releases and threatened releases of hazardous substances, pollutants, and/or contaminants. The National Contingency Plan also established the National Priorities List. CERCLA was amended by the Superfund Amendments and Reauthorization Act on October 17, 1986.

Other federal regulations overseen by the USEPA relevant to hazardous materials and environmental contamination include Title 40 CFR Chapter I, Subchapter D – Water Programs and Subchapter I – Solid Wastes. Title 40 CFR Chapter I, Subchapter D Parts 116 and 117 designate hazardous substances under the Federal Water Pollution Control Act and set forth a determination of the reportable quantity for each substance that is designated as hazardous in Title 40 CFR Part 116. Title 40 CFR 117 applies to quantities of designated substances equal to or greater than the reportable quantities that may be discharged into Waters of the United States.

**Occupational Safety and Health Administration, U.S. Department of Labor.** The Occupational Safety and Health Administration’s (OSHA’s) mission is to assure the safety and health of America’s workers by setting and enforcing standards; providing training, outreach, and education; establishing partnerships; and encouraging continual improvement in workplace safety and health. OSHA staff establishes protective standards, enforce those standards, and reaches out to employers and employees through technical assistance and consultation programs. OSHA standards are listed in Title 29 CFR Part 1910.

**State Regulations**

**California Environmental Protection Agency.** The California Environmental Protection Agency (Cal-EPA) was created in 1991. It centralized California’s environmental authority, consolidating the Air Resources Board, SWRCB, Department of Resources Recycling and Recovery (CalRecycle, formerly Integrated Waste Management Board), DTSC, Office of Environmental Health Hazard Assessment, and Department of Pesticide Regulation under one agency. These agencies were placed within the Cal-EPA “umbrella” to create a cabinet-level advocate for the protection of human health and the environment and to ensure the coordinated deployment of State resources. Its mission is to restore, protect and enhance the environment, and to ensure public health, environmental quality, and economic vitality. The Department of Pesticide Regulation, DTSC, CalRecycle, and SWRCB regulate hazardous materials and hazardous waste that have the potential to cause soil, water, and groundwater contamination, and their missions are summarized below.
**Department of Pesticide Regulation.** The Department of Pesticide Regulation has the primary responsibility for regulating all aspects of pesticide sales and use to protect the public health and the environment. The Department’s mission is to evaluate and mitigate impacts of pesticide use, maintain the safety of the pesticide workplace, ensure product effectiveness, and encourage the development and use of reduced-risk pest control practices while recognizing the need for pest management in a healthy economy.

**Department of Toxic Substances Control.** The DTSC mission is to restore, protect, and enhance the environment, and to ensure public health, environmental quality, and economic vitality by regulating hazardous waste, conducting and overseeing cleanups, and developing and promoting pollution prevention.

**CalRecycle.** The mission of the CalRecycle is to protect the public health and safety and the environment through waste prevention, waste diversion, and safe waste processing and disposal.

**State Water Resources Control Board.** The SWRCB mission is to preserve and enhance the quality of California’s water resources, and ensure their proper allocation and efficient use for the benefit of present and future generations.

**California Office of Emergency Services.** In order to protect the public health and safety and the environment, the California Office of Emergency Services is in charge of establishing and managing statewide standards for business and area plans relating to the handling and release or threatened release of hazardous materials. Basic information on the location, type, quantity, and the health risks of hazardous materials handled, used, stored, or disposed of in the State, which could be accidentally released into the environment, needs to be made available to firefighters, health officials, planners, public safety officers, health care providers, regulatory agencies, and other interested parties. The information provided by businesses and area plans is necessary in order to prevent or mitigate the damage to the health and safety of persons and the environment from the release or threatened release of hazardous materials into the workplace and environment. These regulations are covered under Chapter 6.95 of the California Health and Safety Code Article 1 – Hazardous Materials Release Response and Inventory Program (Sections 25500-25520), and Article 2 – Hazardous Materials Management (Sections 25531-25543.3).

Code of California Regulations (CCR) Title 19, Public Safety, Division 2, Office of Emergency Services, Chapter 4 – Hazardous Material Release Reporting, Inventory, And Response Plans, Article 4 (Minimum Standards for Business Plans) establishes minimum statewide standards for Hazardous Materials Business Plans. These plans shall include the following: (1) a hazardous material inventory in accordance with Sections 2729.2 - 2729.7, (2) emergency response plans and procedures in accordance with Section 2731, and (3) training program information in accordance with Section 2732. Business plans contain basic information on the location, type, quantity, and health risks of hazardous materials stored, used, or disposed of in the State. Each business shall prepare a Hazardous Materials Business Plan if that business uses, handles, or stores a hazardous material or an extremely hazardous material in quantities greater than or equal to the following:

- 500 pounds of a solid substance,
- 55 gallons of a liquid,
- 200 cubic feet of compressed gas,
- hazardous compressed gas in any amount, and/or
- hazardous waste in any quantity.
California Occupational Safety and Health Administration. The California Occupational Safety and Health Administration (Cal-OSHA) is the primary agency responsible for worker safety in the handling and use of chemicals in the workplace. Cal-OSHA standards are generally more stringent than federal regulations. The employer is required to monitor worker exposure to listed hazardous substances and notify workers of exposure (Title 8 CCR Sections 337-340). The regulations specify requirements for employee training, availability of safety equipment, accident-prevention programs, and hazardous substance exposure warnings.

Title 8 CCR, Chapter 4, Subchapter 7, Group 14 and 15, and Group 16, Articles 107, 109, and 110 sets forth the Permissible Exposure Limit, the exposure, inhalation or dermal permissible exposure limit for numerous chemicals. Included are chemicals, mixture of chemicals, or pathogens for which there is statistically significant evidence, based on at least one study conducted in accordance with established scientific principles, that acute or chronic health effects may occur in exposed employees.

It is the responsibility of Cal-OSHA to ensure that compliance with the provisions of the Hazard Communication Standard. California Labor Code Sections 6360 through 6399.7 and Title 8 CCR Sections 5191 and 5194 are intended to ensure that both employers and employees understand how to identify potentially hazardous substances in the workplace, understand the health hazards associated with these chemicals, and follow safe work practices. This is accomplished by preparation of a Hazard Communication Plan.

Office of Environmental Health Hazard Assessment. Proposition 65, the Safe Drinking Water and Toxic Enforcement Act of 1986, was enacted as a ballot initiative in November 1986. Proposition 65 was intended by its authors to protect California citizens and the State’s drinking water sources from chemicals known to cause cancer, birth defects, or other reproductive harm, and to inform citizens about exposures to such chemicals. Proposition 65 requires the Governor to publish, at least annually, a list of chemicals known to the State to cause cancer or reproductive toxicity. The Office of Environmental Health Hazard Assessment has established safe harbor levels (levels of exposure that trigger the warning requirement) for some, but not all, listed chemicals. Businesses that cause exposures greater than the safe harbor level must provide Proposition 65 warnings. These safe harbor levels are available in the October 2007 Status Report available at http://www.oehha.ca.gov/prop65/pdf/October2007StatusRpt.pdf. If there is no safe harbor level for a chemical, businesses that knowingly expose individuals to that chemical would generally be required to provide a Proposition 65 warning, unless the business could show that risks of cancer or reproductive harm resulting from the exposure would be below levels specified in Proposition 65 and its accompanying regulations.

Local Regulations and Plans

Los Angeles County. The County of Los Angeles Department of Public Works, Environmental Programs Division (DPW EPD) through the Underground Storage Tank (UST) Program, permits and inspects underground storage tanks within the unincorporated areas of Los Angeles County and 77 cities, including Lancaster. The UST Program regulates all unauthorized releases from underground storage tanks. Los Angeles County Code (LACC), Title 11, Division 4, established the underground storage tank program in Los Angeles County in 1983. The UST Program’s goal is to protect the public, the environment (air, soil and groundwater) and UST owners/operators by ensuring that UST facilities are permitted, designed/installed/modified, operating and eventually closed in compliance with local-State/federal requirements.

The Los Angeles County Fire Department, Prevention Services Bureau, Health Hazardous Materials Division (HHMD) is a Certified Unified Program Agency (CUPA) that administer the Hazardous Waste
Generator Program, the Hazardous Materials Release Response Plans and Inventory Program, the California Accidental Release Prevention Program (Cal-ARP), the Aboveground Storage Tank Program, and the Underground Storage Tank Program.

City of Lancaster. The City of Lancaster General Plan Objective 4.5 outlines the City’s responsibility and goals to enforce hazardous material regulations. The City will implement the goals and policies of the Los Angeles County CUPA Program and HMMD to ensure the availability of safe and legal options for hazardous waste management generated in the City, coordinate with Los Angeles County to ensure industrial activities comply with federal, state, county and local laws regulating hazardous materials and wastes, and that any business using, generating, storing, or discharging hazardous materials shall submit a Hazardous Materials Business Plan and Hazardous Waste Contingency Plan to Los Angeles County.

C.8.3 Environmental Impacts and Mitigation Measures

The following significance criteria for hazards and hazardous materials are derived largely from the CEQA Guidelines Appendix G Environmental Checklist, and are supplemented with additional criteria related to potential hazards specific to solar photovoltaic systems. Potential impacts of the proposed project would be considered significant and would require mitigation if they would:

- Create a substantial hazard to people or the environment through the routine transport, use, or disposal of hazardous materials or as a result of an accidental release of hazardous materials;
- Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school;
- Create a substantial hazard to people or the environment as a result of being located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5;
- Create a substantial hazard to people or the environment by mobilizing existing contamination or generating disease vectors.

Environmental Impact Analysis

**Impact HAZ-1: Soil and Groundwater Contamination could result from accidental spills or leaks and create a hazard to people or the environment through the routine transport, use, or disposal of hazardous materials (Class II – Less than Significant with Mitigation).**

During construction, hazardous materials such as vehicle fuels, oil, hydraulic fluid, and other vehicle maintenance fluids would be used and stored in construction staging areas. Gasoline, diesel fuel, oil, hydraulic fluid, lubricants, paints, solvents, adhesives, and cleaning chemicals used in construction activities, equipment, and vehicles could be released during construction as a result of accidents and/or leaking equipment or vehicles. Spills and leaks of hazardous materials during construction activities could result in soil or groundwater contamination.

An accidental release of a potentially harmful or hazardous material into a dry stream bed or wash would not directly affect water quality. Similarly, an accidental spill or release of hazardous materials outside of a stream channel would not directly affect water quality. However, accidental spills or releases of hazardous materials into a dry stream bed or wash, or on the banks of a stream channel, could indirectly adversely affect water quality through runoff during a subsequent storm event, when the spilled material would be washed into a stream or waterbody. Analysis of the potential for an accidental spill or leak of hazardous materials to affect water resources is presented in Section 3.9.3 (Hydrology and Water Quality).
Accidental spills or releases of hazardous materials could also indirectly affect groundwater through leaching. Hazardous material spills that are left on the ground surface for an extended period or that are followed quickly by a storm event could leach through the soil and into the groundwater, thereby resulting in the degradation of groundwater quality. The potential for these effects to occur as a result of the proposed project are addressed in Section 3.9.3 (Hydrology and Water Quality).

A project-specific Storm Water Pollution Prevention Plan (SWPPP) will be prepared for the proposed project (Sustainable Power 2014, Section 2.3.2). The SWPPP, as well as implementation of best management practices (BMPs) related to fueling and the handling, use, and storage of hazardous materials would mitigate accidental spills and leaks of hazardous materials. Preparation, approval prior to the start of construction, and compliance with such plans and BMPs would be included as part of the proposed project in order to reduce the likelihood of spills. Mitigation Measure HAZ-1 requires a project-specific SWPPP be prepared and approved prior to the start of construction. Implementation of these plans can reduce the likelihood of spills through implementation of several measures including: proper storage and handling procedures, standard hazardous waste transport, project-specific training for personnel, procedures for fueling and maintaining construction equipment, and an emergency response program to ensure quick and safe cleanup of accidental spills. The measures provided in the SWPPP would reduce the potential for spills to occur through implementation of protocols for storage, transport, and handling of hazardous materials on site for the proposed construction activities. In addition, any hazardous waste generated on site would be managed according to procedures specified in the Plan that address California requirements for storing, labeling and transporting the material. Fueling and maintenance of equipment would be performed according to written procedures prepared prior to any construction activities.

An Emergency Response Plan applicable to the construction of the solar facility, generation-tie lines, and communication line would be in place in the event of an accidental spill. Such a plan, as required by Mitigation Measure HAZ-2, would enable workers to respond to any potential release of hazardous materials and ensure quick and safe cleanup. Any hazardous materials spill or threatened release, regardless of quantity, would be reported immediately to the appropriate agency per State and federal emergency response reporting guidelines.

In the event CdTe solar modules are used for the proposed project and become damaged or broken during installation, these modules could result in a very small release of cadmium or tellurium. The amount of cadmium, a known carcinogen, and tellurium available for release would be much less than the estimated 5 to 7 grams, respectively, that are contained in each module. Only the CdTe located along the fracture lines would have the potential to be released from the solid CdTe and cadmium sulfide film matrices of the modules. Leaching studies using finely powdered CdTe film and low pH water (pH<6) found that cadmium could be leached from the material. However, the design of solar modules include a strong laminate material that will result in cracking rather than shattering and will not produce finely ground material. Contact with natural rainwater is not anticipated to result in cadmium contamination of the underlying soil. CdTe modules are considered to be hazardous waste and will require proper disposal if not recycled. HAZ-3 would ensure that if these type of modules are used and somehow damaged or broken during construction they would be recycled into new modules or other products.

During operation, maintenance, and decommissioning, hazardous materials such as vehicle fuels, oil, hydraulic fluid, and other vehicle maintenance fluids would be used by field crews. For these activities the same potential exists for accidental spills and leaks. A Hazardous Materials Business Plan related to the proper storage and providing applicable measures for clean-up of spills of hazardous materials would be implemented throughout the life of the proposed project. A solar module disposal or recycling would be
implemented throughout operation for proper disposal or recycling of damaged solar modules. For decommissioning, the solar module disposal or recycling would be modified to include proper disposal, recycling, or reuse of all removed solar facility structures.

Mitigation Measures

MM HAZ-1 Prior to the start of construction, the applicant shall prepare a project-specific SWPPP. Implementation of this plan can reduce the likelihood of spills through implementation of several measures including: proper storage and handling procedures, standard hazardous waste transport, project-specific training for personnel, procedures for fueling and maintaining construction equipment, and an emergency response program to ensure quick and safe cleanup of accidental spills. The measures provided in the SWPPP would reduce the potential for spills to occur through implementation of protocols for storage, transport, and handling of hazardous materials on site for the proposed construction activities. In addition, any hazardous waste generated on site would be managed according to procedures specified in the Plan that address California requirements outlined in for storing, labeling and transporting the material. Fueling and maintenance of equipment would be performed according to written procedures prepared prior to any construction activities. Refueling stations would be located in designated areas to guard against accidental spills, and equipment would be inspected daily for any potential leakage.

MM HAZ-2 Prior to the start of construction, the applicant shall prepare a project-specific Emergency Response Plan in the event of an accidental spill. Such a plan would enable workers to respond to any potential release of hazardous materials and ensure quick and safe cleanup. Implementation of the Emergency Response Plan would reduce the potential for contamination and exposure of workers or the public to hazardous materials in the event of an accidental spill, by providing various measures to ensure that any spilled material and any resulting surficial contaminated soil was quickly cleaned up and disposed of properly.

MM HAZ-3 The applicant shall be required to dispose of panels or recycle panels in accordance with current local, State, and federal regulations. Broken and end of project life PV modules shall be:

- Handled in a manner that is protective of human health and the environment.
- Stored onsite in a manner that complies with federal and State law until recycling or disposal actions can be taken.
- Stored onsite no longer than allowed by federal and State law.
- All end-of-life solar modules, materials and components will be recycled in accordance with federal and State law applicable at that time.

Impact HAZ-2: Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school (Class II – Less than Significant with Mitigation)

The Del Sur Elementary school is located about 1,000 feet east of the project site. While there would be a limited use of hazardous materials during construction as noted earlier for construction vehicles and equipment, the proposed project would not emit hazardous emissions. Some solar modules include CdTe
or CdS (cadmium sulfide), which is encased in the modules. Although elemental cadmium is an acutely toxic substance, human exposure from CdTe photovoltaic modules would only occur if CdTe flakes or dust particles were generated. Dust particles would not be generated unless the modules were finely ground up or vaporized in a fire (Fthenakis and Zweibel 2003), neither of which are reasonable scenarios for the proposed project.

Mitigation Measure HAZ-3 would ensure that modules damaged or broken during construction and throughout the project’s life are discovered quickly, handled properly, and are disposed of properly or recycled.

**Impact HAZ-3:** Mobilization of existing contaminants could create a hazard to people or the environment. *(Class II – Less than Significant with Mitigation)*

There are no known hazardous waste sites on or within 0.25 miles of the project site and depth to groundwater is greater than 100 feet which would preclude encountering groundwater during construction. However, unanticipated soil contamination could exist at the project site due to former waste handling practices, illegal dumping, or the former agricultural activities. In addition, the presence of two underground storage tanks (USTs) in 2004 that could not be confirmed in 2015 may have resulted in unknown soil contamination. Possible types of contamination include gasoline and diesel fuel residuals, former USTs, and/or agricultural pesticides and herbicides. A Phase II environmental site assessment completed in 2004 (AET 2005) included the excavation of 11 borings and 16 backhoe trenches and laboratory testing of 27 soil samples for total chlorinated pesticides. Nine of the 27 samples contained low concentrations of DDE (metabolite of DDT) ranging from 5.1 to 51 micrograms per kilogram (μg/kg). One sample contained DDT at a concentration of 11 μg/kg. No other chlorinated pesticides were identified. These low levels of DDE and DDT are well below the action levels of 7 to 9 parts per million (OSA 1992) for proposed residential developments. Consequently, residual trace amounts of pesticides in soil at the project site will not impact construction or operation.

While project-specific SWPPP (MM HAZ-1) would partly address the excavation, handling and disposal of contaminated soil, additional mitigation is required to fully protect workers and the public from unanticipated soil contamination. If field screening and laboratory data are not properly interpreted, environmentally contaminated soil could be improperly handled and disposed of, resulting in additional environmental contamination or exposure of workers to contaminated materials. In addition, the presence of USTs encountered during grading or installation of solar module supports (screw or driven anchors) could result in a release and soil contamination.

Future ground disturbance activities during operation and maintenance is unlikely but could occur during decommissioning. The project’s potential direct and indirect adverse impacts related to encountering unanticipated contaminated soil or encountering USTs can be reduced through the implementation of Mitigation Measure HAZ-4.

**Mitigation Measure**

**MM HAZ-4**  
Prior to the start of construction, the applicant shall prepare a Soil Management Plan that outlines procedures to verify the presence of the former USTs by methods such as probing, excavation, or ground penetrating radar, and subsequent removal in accordance with Los Angeles County Department of Public Works permit requirements. The Soil Management Plan shall also outline the procedures to identify and dispose of potentially contaminated soil at the former USTs and dispensers, identify the qualifications of the appropriately trained professionals to monitor soil conditions, conduct soil sampling,
coordinate laboratory testing, oversee soil excavation and disposal, determine the anticipated field screening methods, and appropriate regulatory limits. The Soil Management Plan would include requirements for documentation and reporting of incidents of encountered contaminants, such as documenting and reporting actions taken to remediate contaminated materials to the City of Lancaster and Los Angeles County CUPA. Alternatively, a record research that provides documentation of the previous removal of the tanks under permit and verification by the appropriate oversight agency will also provide the required mitigation.

**Impact HAZ-4:** Create a substantial hazard to people or the environment by mobilizing existing contamination or generating disease vectors. (Class II – Less than Significant with Mitigation).

There are no known hazardous waste sites with existing contamination at the project site and no mitigation is required. Section C.4 (Air Quality and Greenhouse Gases) evaluated the potential for exposure to valley fever. The analysis concluded that there is a potential risk of exposure to valley fever during construction. The requirement for a dust control plan, MM AQ-1, would reduce this potential impact to a less than significant level.

### C.8.4 Cumulative Impact Analysis

Table C.1-1 provides a listing of current or reasonably foreseeable projects in the geographic area of the proposed project. Twenty three approved, operational, or pending solar projects would have a cumulative impact with the proposed project if contaminated soil required disposal at the same time and hazardous waste facilities could not accommodate the simultaneous waste stream. However, due to the low potential for contaminated soil at the project site and the gen-tie routes there is no cumulatively considerable impact related to disposal of contaminated soil. However, during project decommissioning disposal/recycling of many thousands of solar modules will require that each project coordinate and schedule with the disposal or recycling facilities to accommodate the waste stream from one or more solar facilities.

### C.8.5 Level of Significance After Mitigation

Each of the hazardous material significant impacts can be mitigated to a less than significant level (Class II) with implementation of Mitigation Measures HAZ-1, HAZ-2, HAZ-3, and HAZ-4.
C.9 Hydrology and Water Quality

The proposed project is located in the Antelope Valley, which lies in the northern portion of Los Angeles County and the southeast portion of Kern County. The Valley constitutes the western tip of the Mojave Desert, situated between the Tehachapi and San Gabriel Mountains. The Antelope Valley region is defined in the Antelope Valley Integrated Regional Water Management Plan (RWMG 2013) as “bounded by the San Gabriel Mountains to the south and southwest, the Tehachapi Mountains to the northwest, and a series of hills and buttes that generally follow the San Bernardino County Line to the east, forming a well-defined triangular point at the Antelope Valley Region’s western edge.”

Water demands throughout the Antelope Valley region are supplied by a combination of wholesale water agencies, irrigation districts, municipal water districts, and private groundwater use (RWMG 2013). Primary water supply sources for the region include groundwater extracted from the Antelope Valley Groundwater Basin, imported surface water delivered through the State Water Project (SWP), and local runoff that is captured and stored in Little Rock Reservoir (RWMG 2013).

Data was collected through review of a wide variety of applicable resources, including the following: aerial photographs; United States Geological Survey (USGS) topographic maps; the Antelope Valley Integrated Regional Water Management Plan; the Basin Plan of the Lahontan Regional Water Quality Control Board (RWQCB); the 2006 Clean Water Act (CWA) Section 303(d) List of Water Quality Limited Segments from the State Water Resources Control Board (SWRCB); groundwater basin data from Bulletin 118 – Update 2003 published by the Department of Water Resources (DWR); flood hazard data from the Federal Emergency Management Agency (FEMA); field reconnaissance data, and the Preliminary Jurisdictional Waters/Wetlands Delineation Report (Appendix 4b).

The study area for hydrology and water quality has been defined as the existing surface and groundwater resources overlain by the project site. The current condition and quality of these water resources was used as the baseline against which to compare potential impacts of the proposed project.

C.9.1 Environmental Setting

C.9.1.1 Regional Setting

The project site is within the South Lahontan Hydrologic Region (HR). The South Lahontan HR is a large region that includes approximately 21 percent of the surface area of California and extends from Mono Lake in the north to the Mojave Desert and the Antelope Valley in the south. The project site is located in the southwestern portion of the South Lahontan HR. The region is generally arid due to the rain shadow caused by the Sierra Nevada Mountains, although substantial precipitation occurs in the higher elevations of the region. Average annual precipitation for the entire HR is approximately 7.9 inches (DWR 2004). Three major surface water drainages are located within the South Lahontan HR: the Mono Lake, Owens River, and Mojave River watersheds (LRWQCB 2005).

Topography

The project site is located on relatively level ground and is composed of mostly disturbed, vacant land that was previously used for agricultural production. The applicant’s Phase I report that was prepared for the proposed project identifies six eroded areas within the project site, several of which appear to be old retention basins.

The project site is located in the northwestern portion of the City of Lancaster. The surface area of the city is comprised almost entirely of dry land with very little surface water. The City is located in the...
C. ENVIRONMENTAL SETTING, ANALYSIS, AND MITIGATION MEASURES

southern portion of the Antelope Valley, north of the San Gabriel Mountains and north and west of the Portal Ridge and Leona Valley. The Tehachapi Mountains lie to the northwest. The Antelope Buttes are located approximately 3 miles to the west of the project site, and the Rosamond Hills and Rosamond Dry Lake are located approximately 15 miles to the northeast. Lancaster’s elevation is 2,355 feet above sea level and the area is often referred to as the High Desert (City-data.com 2015).

Climate

Climate in the project area is characterized by hot summer days, cool summer nights, and cool winters. Average summer high temperatures in degrees Fahrenheit (°F) reach the upper 90s in July and August, and average winter low temperatures fall to the low 30s in December and January. Average annual precipitation is 7.36 inches of rainfall and 2 inches of snowfall (US Climate Data 2015). Most precipitation occurs during the months of December through March. Almost no rain falls during the summer months. Streams in the Antelope Valley are generally ephemeral. Average annual evapotranspiration (ETo) greatly exceeds average annual precipitation, and a large majority of the runoff that follows a storm event in the region either evaporates or quickly infiltrates into the permeable sands of the Valley floor. Some runoff occasionally reaches one of several dry lakes (Rogers, Rosamond, and Buckhorn Dry Lakes). These dry lakes are also known as playa lakes, and their clay-rich soils largely prevent infiltration of stormwater. However, these lakes remain dry most of the year because any water that collects in these lakes quickly evaporates. Table C.9-1 provides a summary of the Antelope Valley Region’s climate and presents the average monthly and annual maximum and minimum temperature and the average monthly and annual rainfall and evapotranspiration. Climatic data is based on records collected from 1931 to 2005.

| Table C.9-1: Climate in the Antelope Valley Region |
|-------------------------------|------------|---------|----------|----------|----------|----------|
| Standard Monthly Average ETo (inches) | Jan   | Feb   | Mar   | Apr   | May   | Jun   |
| Average Rainfall (inches) | 2.02  | 2.61  | 4.55  | 6.19  | 7.30  | 8.85  |
| Average Max Temperature (°F) | 58.5  | 62.1  | 67.4  | 74.0  | 81.9  | 90.2  |
| Average Min Temperature (°F) | 32.4  | 35.6  | 39.2  | 44.0  | 51.0  | 58.0  |
| Jul   | Aug   | Sept  | Oct   | Nov   | Dec   | Annual |
| Standard Monthly Average ETo (inches) | 9.77  | 8.99  | 6.52  | 4.66  | 2.68  | 2.05  | 66.19  |
| Average Rainfall (inches) | 0.05  | 0.15  | 0.19  | 0.33  | 0.67  | 1.36  | 7.62  |
| Average Max Temperature (°F) | 97.6  | 96.9  | 91.4  | 80.2  | 67.3  | 58.7  | 77.2  |
| Average Min Temperature (°F) | 65.3  | 63.9  | 57.6  | 48.1  | 38.1  | 32.7  | 47.2  |

Source: RWMG 2013. (Table 2-1)

The highest recorded temperature in Lancaster was 115 °F on June 30, 2013 and the lowest recorded temperature was 2 °F on December 24, 1984. The wettest year on record was 1983, when the city received nearly 30 inches of precipitation. The highest one-day precipitation total occurred on March 1st of that same year, with 2.93 inches of rainfall. The highest recorded monthly snowfall, which totaled 23.9 inches, occurred in January of 1979 (WRCC 2015).

C.9.1.2 Surface Water

Surface watersheds in California are divided into ten hydrologic regions, as defined by the California DWR. The proposed project is located within the South Lahontan HR and is subject to the objectives and limits of the Water Quality Control Plan for the Lahontan Region (Basin Plan) under the jurisdiction of the Lahontan Regional Water Quality Control Board (LRWQCB). Hydrologic Regions are subdivided into
Hydrologic Units (HUs), and further into Hydrologic Areas (HAs). The study area is located in the Antelope HU and within the Lancaster HA.

**Antelope Valley Watershed**

The Antelope HU is named and delineated by the DWR, and this naming convention is also used by the LRWQCB. The same hydrologic area is named at the national level (in the National Hydrography Dataset) as the Antelope-Fremont Valleys Watershed (HUC 18090206). For the purposes of this analysis, this hydrologic region will be referred to as the Antelope Valley Watershed, which is defined as the geographic extent of the Antelope HU. The Antelope Valley Watershed is a large, flat topographic depression that formed due to geologic activity along the Garlock, Cottonwood-Rosamond, and San Andreas Fault Zones (RWMG 2013). The basin has no hydrologic outlet to the ocean. Runoff in the basin is conveyed via broad ephemeral washes towards several dry lakes towards the center of the watershed, including Rosamond Dry Lake which is located approximately 15 miles northeast of the project site. The watershed drains approximately 3,400 square miles. Of this area, 80 percent of the land surface is relatively flat (slopes less than 7 percent), and the remaining land consists of the more steeply sloped foothills and mountains that define the borders of the basin (CPUC 2006). Due to the flat and mostly undeveloped character of the majority of the basin, unpredictable sheet flow patterns and flooding can occur following large precipitation events (LACSD 2005). The vast majority of the roughly 1.5 million acre-feet of precipitation that enters the basin annually is lost to evapotranspiration, and the USGS estimates that less than 100,000 acre-feet of that water percolates into the underlying groundwater (RWMG 2013).

Natural surface water features in the project area are generally ephemeral, meaning that they only convey flows in direct response to precipitation events. Figure C.9-1 (Surface Water Features) shows blue line drainages near the project site. Within the Antelope Valley Watershed and in the vicinity of the project site, most surface water features are broad, ephemeral desert washes or developed facilities intended for water storage, treatment, and/or delivery. The key surface water features within the watershed are described below.

**Regional Streams and Waterbodies**

In addition to the numerous unnamed ephemeral creeks and washes that traverse the mostly flat valley floor, several named streams originate as perennial waterbodies in the San Gabriel and Tehachapi Mountains and flow towards the center of the watershed. Notable named streams in the watershed include Amargosa Creek, Big Rock Creek, and Little Rock Creek which begin as well-defined channels in the San Gabriel Mountains and become broad, ephemeral washes as they flow northeast onto the valley floor towards Rosamond Dry Lake. Oak Creek and Cottonwood Creek begin in the Tehachapi Mountains and flow southeast towards the center of the watershed. The major streams and waterbodies in the region are described below.

**Littlerock Creek** is the only developed surface water supply in the Antelope Valley Region. The Little Rock Reservoir, jointly owned by Palmdale Water District (PWD) and Littlerock Creek Irrigation District (LCID), collects runoff from the San Gabriel Mountains. The reservoir has an average seasonal inflow of approximately 3,500 acre-feet per year (afy), but storage capacity has been reduced to approximately 2,700 afy due to the accumulation of sediment behind the dam. (RWMG 2013). Historically, water stored in the Littlerock Reservoir has been used directly for agricultural uses within LCID’s service area and for Municipal and Industrial uses within PWD’s service area following treatment at PWD’s water purification plant. PWD and LCID jointly hold long-standing water rights to divert 5,500 afy from Littlerock Creek flows per an agreement between the two districts. LCID has not exercised its right to surface water diversions since 1994 and has made those rights available to PWD by agreement for a 50-year period (RWMG 2013).
Beyond Littlerock Reservoir, Little Rock Creek becomes Little Rock Wash, an ephemeral desert wash that flows across the valley floor before disappearing due to evaporation or infiltration.

**Lake Palmdale** is located in the southern portion of the City of Palmdale. The lake is fed by the California Aqueduct and has a storage capacity of approximately 4,250 acre-feet. From the lake, water is conveyed in a 42-inch-wide pipeline to Palmdale Water District’s water treatment plant. The Palmdale Water District administers and maintains the lake.

**California Aqueduct** delivers water from the Sierra Nevada Mountains and Northern/Central California Valleys to Southern California. It begins in the Clifton Court Forebay, Contra Costa County, and splits into three branches after passing through several counties. The coastal branch ends at Lake Cachuma, Santa Barbara County, the west branch ends at Castaic Lake, Los Angeles County, and the east branch ends at Silverwood Lake, San Bernardino County. It runs approximately 701.5 miles in length, with a 108 foot maximum height and 33 foot maximum width. The DWR administers and maintains the aqueduct (DWR 2013).

**Wetlands, Jurisdictional Waters/Waters of the US**

Federal jurisdiction over non-wetland Waters of the US extends to the ordinary high water mark (OHWM), which is defined in 33 CFR Part 328.3 as the line on the shore established by fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of the soil, destruction of terrestrial vegetation, or the presence of litter and debris (USACE 2008). In the Arid West Region of the Western US, including the project site, most surface water is ephemeral and identification of the OHWM is made using stream geomorphology and vegetation response to the dominant stream discharge (USACE 2008).

Appendix 4b includes the Preliminary Jurisdictional Waters/Wetlands Delineation Report for the proposed project. This report provides information regarding jurisdictional waters and wetlands within the project site. According to the report, there are no wetlands or Waters of the United States within the project site that meet federal criteria and are subject to US Army Corps of Engineers (USACE) jurisdiction. Using a combination of vegetation mapping and bed/bank delineation and field observations, 15.64 acres of California Department of Fish and Wildlife (CDFW) jurisdictional waters were identified within the Study Area (9.90 acres within the potential project impact areas). Refer to Attachment B of the Delineation Report (Appendix 4b) for information regarding the drainage areas identified in the study area.

**Floodplains**

In addition to the defined drainage channels and ephemeral washes within the project area, floodplains are an important part of the surface water setting. A floodplain is a geographic area of relatively level land that is occasionally subject to inundation by surface water from rivers or streams. The proposed project area is contained within the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) Panel 06037C0400F, dated September 26, 2008. These maps show that portions of the project site lie within two different floodplain classifications. Portions of the project site lie within floodplains classified as Flood Hazard Area “Zone A” and “Zone X”. FEMA defines Zone A as areas subject to inundation by the 1 percent annual chance flood event. Detailed flood analyses are not performed for areas with the Zone A classification, which is a rough estimate of the potential extent of a 100-year flood. The other portions of the project site lie within the unshaded Zone X. This Zone is the area determined to be outside both the 100-year and 500-year flood zones (See Figure C.9-2).
C. ENVIRONMENTAL SETTING, ANALYSIS, AND MITIGATION MEASURES

Figure C.9-2

Source: FEMA, 2014
Surface Water Quality

Based on a review of the CWA 303d list, the closest impaired waterbody to the project site is Elizabeth Lake, approximately 5.5 miles to the southwest; however this waterbody does not lie within the Antelope Valley HU. Littlerock Reservoir which is jointly owned by the PWD and the LCID collects runoff from the San Gabriel Mountains and discharges to Lake Palmdale, where the water is ultimately treated by PWD’s WTP. The quality of the water in Lake Palmdale is considered good (RWMG 2013).

C.9.1.3 Groundwater

The Antelope Valley Groundwater Basin underlies approximately 1,580 square miles of alluvial valley in the western Mojave Desert. The basin is bounded on the northwest by the Garlock fault zone at the base of the Tehachapi Mountains and on the southwest by the San Andreas Fault zone at the base of the San Gabriel Mountains. The basin is bounded on the east by ridges, buttes, and low hills that form a surface and groundwater drainage divide. On the north, the basin is bounded by the Fremont Valley Groundwater Basin at a groundwater divide approximated by a southeastward-trending line from the mouth of Oak Creek through Middle Butte to exposed bedrock near Gem Hill. Farther east, the Antelope Valley Groundwater Basin is bounded by the Rand Mountains. Runoff in Big Rock and Little Rock Creeks from the San Gabriel Mountains and in Cottonwood Creek from the Tehachapi Mountains flows toward a closed basin at Rosamond Dry Lake. Rogers Dry Lake is a closed basin in the northern part of Antelope Valley that collects ephemeral runoff from surrounding hills (DWR 2003).

Recharge to the Antelope Valley Groundwater Basin comes mainly from runoff leaving the surrounding mountains and hills. Most recharge occurs at the foot of the mountains and hills by percolation through the head of alluvial fan systems. Big Rock and Little Rock Creeks, in the southern part of the basin, contribute about 50 percent of runoff into the basin. Other minor recharge is from return of irrigation water and septic system effluent (DWR 2003).

The primary water-bearing materials in the Antelope Valley Groundwater Basin are Pleistocene and Holocene age unconsolidated alluvial and lacustrine deposits that consist of compact gravels, sand, silt, and clay. Coarse alluvial deposits form the two main aquifers of the basin: a lower aquifer and an upper aquifer. The upper aquifer, which is the primary source of groundwater for the valley, is generally unconfined whereas the lower aquifer is generally confined (DWR 2003).

Total basin storage capacity is approximately 70,000,000 acre-feet (af), with a range in annual natural recharge of 31,200 to 59,100 af/year. Because of increased pumping since the 1920s, groundwater use has exceeded estimated natural recharge, resulting in overdraft conditions (USGS 2003). This overdraft has caused water levels to decline by more than 200 feet in some areas and by at least 100 feet in most of the Antelope Valley. Water data collected in 1996 shows that depth to water within the Antelope Valley Groundwater basin ranges between 100 feet and 500 feet below ground surface (bgs) (USGS 2003).

The USEPA and the California Department of Public Health regulate drinking water quality under the Safe Drinking Water Act of 1974. This Act sets health-based standards, known as Maximum Contaminant Levels (MCLs), which are used to assess the suitability of groundwater supply for use as drinking water (SCE, 2007). In the Antelope Valley Groundwater Basin, MCLs are exceeded in several wells throughout the basin for the following contaminants: inorganics, radiology, nitrates, pesticides, volatile organic compounds (VOCs) and semivolatile organic compounds (SVOCs) (DWR 2003).
C.9.2 Regulatory Setting

Federal Regulations

Clean Water Act. The Clean Water Act (33 United States Code [USC] Section 1251 et seq.), formerly the Federal Water Pollution Control Act of 1972, was enacted with the intent of restoring and maintaining the chemical, physical, and biological integrity of the Waters of the United States. The CWA establishes the basic structure for regulating discharges of pollutants into the Waters of the United States (US) and has given the EPA the authority to implement pollution control programs. The CWA requires states to set standards to protect, maintain, and restore water quality through the regulation of point source and certain non-point source discharges to surface water. Those discharges are regulated by the National Pollutant Discharge Elimination System (NPDES) permit process (CWA Section 402). In California, NPDES permitting authority is delegated to, and administered by, the nine RWQCBs. The proposed project is within the jurisdiction of the Lahontan RWQCB.

Section 402 of the CWA authorizes the California State Water Resources Control Board to issue NPDES General Construction Storm Water Permit (Water Quality Order 99-08-DWQ), referred to as the “General Construction Permit”. Construction activities can comply with and be covered under the General Construction Permit provided that they:

- Develop and implement a Storm Water Pollution Prevention Plan (SWPPP) which specifies Best Management Practices (BMPs) that will prevent all construction pollutants from contacting storm water and with the intent of keeping all products of erosion from moving off site into receiving waters.
- Eliminate or reduce non-storm water discharges to storm sewer systems and other waters of the nation.
- Perform inspections of all BMPs.

The SWPPP must contain a visual monitoring program; a chemical monitoring program for “non-visible” pollutants to be implemented if there is a failure of BMPs; and a sediment monitoring plan if the site discharges directly to a water body listed on the 303(d) list for sediment. Increased compliance tasks under the adopted 2009 Construction General Permit include project risk evaluation, effluent monitoring, receiving water monitoring, electronic data submission of the SWPPP and all other permit registration documents, and a Rain Event Action Plan, which must be designed to protect all exposed portions of a project site within 48 hours prior to any likely precipitation event. For the proposed project, NPDES regulations are administered by the Lahontan RWQCB. Projects that disturb one or more acres, including the proposed project, are required to obtain NPDES coverage under the Construction General Permits.

Section 401 of the CWA requires that any activity, including river or stream crossing during road, pipeline, or transmission line construction, which may result in discharges into a State waterbody, must be certified by the RWQCB. This certification ensures that the proposed activity does not violate State and/or federal water quality standards. The limits of non-tidal waters extend to the OHWM, defined as the line on the shore established by the fluctuation of water and indicated by physical characteristics, such as natural line impressed on the bank, changes in the character of the soil, and presence of debris. The USACE may issue either individual, site-specific permits or general, nationwide permits for discharge into Waters of the United States.

Section 404 of the CWA requires a permit for construction activities involving placement of any kind of fill material into Waters of the US or wetlands. A Water Quality Certification pursuant to Section 401 of the CWA is required for Section 404 permit actions. If applicable, construction would also require a request
for Water Quality Certification (or waiver thereof) from the Lahontan RWQCB. When an application for a Section 404 permit is made the applicant must show it has:

- Taken steps to avoid impacts to wetlands or Waters of the US where practicable;
- Minimized unavoidable impacts on Waters of the US and wetlands; and
- Provided mitigation for unavoidable impacts.

Proposed project activities would adhere to State and federal water quality standards and would be in compliance with Sections 401 and 404 of the CWA.

**Section 303(d)** of the CWA (CWA, 33 USC 1250, et seq., at 1313(d)) requires states to identify “impaired” water bodies as those which do not meet water quality standards. States are required to compile this information in a list and submit the list to the USEPA for review and approval. An affected waterbody, and associated pollutant or stressor, is then prioritized in a list of impaired water bodies known as the 303(d) List. The Clean Water Act further requires the development of a Total Maximum Daily Load (TMDL) for each listing. The current list, approved by the EPA, is the 2010 303(d) List. The SWRCB and RWQCBs have ongoing efforts to monitor and assess water quality, to prepare the Section 303(d) list, and to develop TMDL requirements. The State and Regional Boards are currently working on updating the 303(d) list as part of the development of the 303(d)/305(b) Integrated Report (SWRCB 2015).

**National Flood Insurance Program.** The National Flood Insurance Program (NFIP), implemented by Congress in 1968, enables participating communities to purchase flood insurance. Flood insurance rates are set according to flood-prone status of property as indicated by FIRMs developed by FEMA. FIRMs identify the estimated limits of the 100-year floodplain for mapped watercourses, among other flood hazards. As a condition of participation in the NFIP, communities must adopt regulations for floodplain development intended to reduce flood damage for new development through such measures as flood proofing, elevation on fill, or floodplain avoidance. City of Lancaster participates in the NFIP. The following FIRM for Lancaster, effective September 26, 2008, covers the project site: #06037C0400F.

**State Regulations**

**Senate Bill 610.** Senate Bill (SB 610) was passed on January 1, 2002, amending California state law to require detailed analysis of water supply availability for large development projects. An SB 610 Water Supply Assessment (WSA) must be prepared if the following three conditions are met: 1) the proposed project is subject to CEQA under Water Code Section 10910; 2) the proposed project meets criteria to be defined as a “Project” under Water Code Section 10912; and 3) the applicable water agency’s current Urban Water Management Plan does not account for the water supply demand associated with the proposed project. A proposed project would meet the definition of “project” per Water Code Section 10912 if it is:

- A proposed residential development of more than 500 dwelling units;
- A proposed shopping center or business establishment employing more than 1,000 persons or having more than 500,000 square feet of floor space;
- A proposed commercial office building employing more than 1,000 persons or having more than 250,000 square feet of floor space;
- A proposed hotel or motel, or both, having more than 500 rooms;
A proposed industrial, manufacturing, or processing plant, or industrial park planned to house more than 1,000 persons, occupying more than 40 acres of land, or having more than 650,000 square feet of floor area;

A mixed-use project that includes one or more of the projects specified in this subdivision; or

A project that would demand an amount of water equivalent to, or greater than, the amount of water required by a 500 dwelling unit project (DWR 2003b).

The proposed project is a utility-scale photovoltaic (PV) solar power plant, which would not include any structures or units characterized as residential, shopping, business, commercial, industrial, manufacturing, processing, or mixed-use.

The proposed project is not a manufacturing plant, processing plant, or industrial park. The language of SB 610 is not clear on whether renewable energy projects such as the proposed project should be considered an “industrial plant.” If the proposed project is considered to be an industrial plant, it should also be considered a “project” under SB 610 because it would occupy more than 40 acres of land. However, the passing of SB 267 on October 11, 2011 clarified that renewable energy projects are subject to the requirements of SB 610 by amending California Water Law to revise the definition of “project” specified in SB 610. Under SB 267, wind and photovoltaic projects which consume less than 75 AFY of water are not considered to be a “project” under SB 610. SB 267 does not state that renewable energy projects which use more than 75 AFY are subject to SB 610 and must prepare a WSA; rather, it clarifies that those renewable projects which use less than 75 AFY are not subject to such requirements. Additionally, SB 267 does not clarify whether a project’s water usage may be amortized over the lifetime of the project, such that the higher construction water requirements are averaged over the years of project operations and maintenance.

The proposed project would require water during the 12-month construction period for soil conditioning and dust control, as well as during the operational period for panel washing. Project water demand during construction would be approximately 196 af. Operational water demand once fully constructed would be approximately 4.8 afy, mainly for panel washing. When the combined construction and operational water demands are amortized over the expected 35-year life of the proposed project, the annual water demand is 10.3 afy. This amount is lower than the 75 afy threshold for consideration of a “project” under SB 610 and SB 267. If water demand for the proposed project is not amortized, then the 12-month construction water demand of 196 af would exceed the threshold for consideration of a “project” under SB 610 and SB 267.

**Porter-Cologne Water Quality Control Act.** The SWRCB regulates water quality through the Porter-Cologne Water Quality Act of 1969, which contains a complete framework for the regulation of waste discharges to both surface waters and groundwater of the state. On the regional level, the proposed project falls under the jurisdiction of the Lahontan RWQCB which is responsible for the implementation of State and federal water quality protection statutes, regulations and guidelines. The Lahontan Region has developed a Water Quality Control Plan (Basin Plan) to show how the quality of the surface and ground waters in the Antelope Valley Region should be managed to provide the highest water quality reasonably possible. The proposed project is located within the Antelope Valley Basin Plan area. The Basin Plan lists designated Beneficial Uses of water within the region, describes the water quality which must be maintained to allow those uses, describes the programs, projects, and other actions which are necessary to achieve the standards established in this plan, and summarizes plans and policies to protect water quality.

**California Fish and Game Code.** Section 1602 of the California Fish and Game Code protects the natural flow, bed, channel, and bank of any river, stream, or lake designated by the California Department of Fish and Wildlife (CDFW, formerly CDFG) in which there is, at any time, any existing fish or wildlife resources,
or benefit for the resources. Section 1602 applies to all perennial, intermittent, and ephemeral rivers, streams, and lakes in the state, and requires any person, state or local governmental agency, or public utility to notify the CDFW before beginning any activity that will:

- Substantially divert or obstruct the natural flow of any river, stream or lake;
- Substantially change or use any material from the bed, channel, or bank of, any river, stream, or lake; or
- Deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake.

As described in Appendix 4b, approximately 15.64 acres of CDFW jurisdictional waters were identified within the biological resources study area (9.90 acres within the project impact areas). This area was identified through a combination of vegetation mapping, bed/bank delineation, and field observation. During final engineering and design of the proposed project, if it is determined that any project-related actions would have the potential to necessitate a Streambed Alteration Agreement, then such an agreement would be prepared and implemented prior to construction of the proposed project, thus maintaining compliance with Section 1602 of the California Fish and Game Code.

**California Water Code Section 13050.** California Water Code Section 13050(e) defines “waters of the state” as “any surface water or groundwater, including saline waters, within the boundaries of the state.” Therefore, all surface and groundwater resources in the proposed project area are waters of the State and are subject to designated Beneficial Uses identified in the Lahontan Basin Water Quality Control Plan.

**California Water Code Section 13260.** California Water Code Section 13260 requires that any person discharging waste, or proposing to discharge waste, within any region that could affect the quality of the waters of the State, other than into a community sewer system, must submit a report of waste discharge to the applicable RWQCB. Any actions related to the proposed project that would be applicable to California Water Code Section 13260 would be reported to the Lahontan RWQCB.

**Local Regulations and Plans**

**City of Lancaster General Plan.** The goals, objectives, policies, and specific actions identified in the City of Lancaster General Plan for water resources that are applicable to the proposed project are provided below.

- **Objective 3.1:** Protect, maintain, and replenish groundwater supplies to meet present and future urban and rural needs.
- **Policy 3.1.1:** Ensure that development does not adversely affect the groundwater basin.
  - Specific Action 3.1.1(b): Through the development review process, evaluate proposals under the California Environmental Quality Act (CEQA) to identify potential negative impacts on existing watershed areas, and to ensure inclusion of appropriate mitigation measures.
  - Specific Action 3.1.1(d): To ensure that the potential effect on the groundwater basin from proposed land use changes is appropriately evaluated, the applicants for all general plan and zoning ordinance amendments shall provide a factual statement of current water demand, proposed water demand, potential conservation, and water from new sources.
- **Policy 3.1.2:** Promote efforts to exert greater City control over the existing water supply and to explore potential new sources.
Specific Action 3.1.2(d): Work with Los Angeles County to ensure that individual wells are permitted only if it can be proven that an adequate supply of good quality water at appropriate standards for its intended use is available; individual wells should only be used in areas where it is not feasible to connect to a community water system.

Antelope Valley Integrated Water Management Plan. The Antelope Valley Integrated Water Management plan includes a description of the region and participants, regional objectives and priorities, water management strategies, implementation, impacts and benefits, data management, financing, stakeholder involvement, relationships to local planning, and state and federal coordination.

C.9.3 Environmental Impacts and Mitigation Measures

The following significance criteria for hydrology and water quality are based on the Environmental Checklist in CEQA Appendix G. The Appendix G significance criteria have been amended or supplemented, as appropriate, to address the nature of solar PV facilities in general, and the full range of potential impacts related to this proposed project in particular. As described in the regional and environmental setting, the project site would not be located near a dam/levee or areas subject to seiche, tsunami or mudflow. Therefore, these criteria in Appendix G do not apply to the proposed project. An impact of the proposed project would be considered significant and would require mitigation if it would meet one of the following criteria.

- Substantially deplete local groundwater supplies or interfere with groundwater recharge.
- Substantially alter the existing drainage pattern of the project site in a manner that results in flooding on- or off-site.
- Construction activity and excavation could degrade water quality due to erosion and sedimentation.
- Creation of new impervious areas could cause increased runoff resulting in flooding or increased erosion downstream.
- Project features located in a floodplain or watercourse could result in flooding, flood diversions, or erosion.
- Construction or operation of the proposed project could result in accidental releases of contaminants that could degrade water quality.

Environmental Impact Analysis

Impact WQ-1: Substantially deplete local groundwater supplies or interfere with groundwater recharge (Class III - Less than Significant).

Construction of the proposed project would occur over an approximately 12 month period and would require approximately 196 af of water for soil conditioning and dust suppression. During operation, water use would be mainly limited to PV module washing; operational water demand would be approximately 4.8 af. Potential sources of water for construction and operation of the proposed project include the use of water from a private well and/or reclaimed water. The Antelope Valley groundwater basin has been in overdraft continuously since about 1930. Legal action to adjudicate production rights in the Basin began in 1999. In the spring of 2011, the Court issued a ruling on the adjudication that the safe yield for the basin is 110,000 afy. Current aggregate production is about 170,000 afy; the basin is in a state of overdraft of 60,000 afy (PWD 2012). The Antelope Valley Groundwater Basin is currently not adjudicated, which means that groundwater pumping is unregulated, and property owners have overlying rights to the use of groundwater underlying their property (on an equal and correlative basis). After completion of the adjudication process, these water rights may be further defined and limited.
The applicant has entered into a water supply agreement with the owners of an adjacent property. The applicant will be allowed to utilize water from a well on the adjacent property without limit during construction of the project, subject to applicable laws, rules and regulations. The applicant will also be allowed to use up to 15 afy from the nearby well during operation of the project. The owners of the nearby property are a party to the current water rights adjudication case for the Antelope Valley Groundwater Basin, and have historically used approximately 500 to 700 afy on their property (Reca 2015).

To address a worst-case scenario consistent with CEQA, this assessment assumes all proposed project water demand would be met through the use of groundwater that would be extracted from the Antelope Valley Groundwater Basin through a nearby water well. The vast majority of water demand for the proposed project would be short-term and limited to the construction period. Although the Antelope Valley Groundwater Basin is currently in a state of overdraft and the region is currently experiencing a drought, the extraction of 196 af of groundwater during construction would be a temporary use and is not expected to lower levels or otherwise impair the use of neighboring water supply wells. Groundwater extraction during the construction period would likely lead to temporary, localized depressions of groundwater levels. However, local groundwater levels would recover following cessation of pumping. Also, the 196 af that would be used during construction is well below the long-term historic water use from the proposed water supply well as described above. Groundwater extraction during operations would not exceed approximately 4.8 afy, and would not be expected to lead to substantial localized groundwater level depressions or impairments of nearby water supply wells. Therefore, construction and operational water use for the proposed project would be a less than significant impact (Class III).

**Impact WQ-2:** Substantially alter the existing drainage pattern of the project site in a manner that results in flooding on- or off-site (Class III – Less than Significant).

Because the majority of the project site occupies relatively flat terrain, it is not anticipated that the grading activities for the proposed project would result in substantial changes to drainage patterns, creating flooding on- or off-site. The National Hydrography Dataset (NHD) shows one small ephemeral channel entering the project site at the southwest corner and continuing east across half of the width of the project site. Substantial alterations to this ephemeral drainage are not anticipated. Multiple additional small, ephemeral drainages that are not shown in the NHD are located on the project site, as described in the Preliminary Jurisdictional Waters/Wetlands Delineation Report (Appendix 4b). Impacts to these drainages will be minimized to the extent feasible, but minor alterations to these ephemeral drainages may occur. These potential minor drainage alterations are not expected to result in increased flooding on- or off-site. In addition, several ephemeral drainages cross the proposed gen-tie alignments. The gen-tie lines would be installed underground and are not anticipated to alter the drainage pattern for any ephemeral watercourse. For activities involving alteration of a jurisdictional drainage channel or construction within a floodplain (road crossings, gen-tie installation, or PV panel installation), compliance with NPDES General Construction Storm Water Permit requirements (including preparation of a project-specific SWPPP) would ensure that potential impacts remain less than significant (Class III).

**Impact WQ-3:** Construction activity and excavation could degrade water quality due to erosion and sedimentation (Class III – Less than Significant).

Site preparation, including grading and excavation for PV panel installation, grading of access roads, and trenching for gen-tie installation, could potentially degrade water quality through erosion and sedimentation. Disturbed, loose, or stockpiled soil could be eroded during a rainfall event leading to increased turbidity and sedimentation. However, the project site is generally flat and arid, and contains no perennial waterbodies. The potential for water quality degradation due to erosion and sedimentation from project-
related construction activity is negligible. Compliance with existing regulations, including implementation of a SWPPP, would minimize this potential impact. This impact would be less than significant (Class III).

**Impact WQ-4**: Creation of new impervious areas could cause increased runoff resulting in flooding or increased erosion downstream (Class III – Less than Significant).

Construction of the proposed project would result in minimal new impervious areas. The foundations for the PV module mounting system are anticipated to consist of piles driven into the soil using vibratory or pneumatic pile driving techniques. This type of foundation design would result in a very minimal increase in impervious surface. In addition, all but the most substantial of precipitation events in the area quickly infiltrate into the permeable soils that surround the project area or are quickly lost to evapotranspiration. The rate or amount of runoff that would result from a large precipitation event in the area would not be altered by the very minor addition of project-related impervious surface. This impact would be less than significant (Class III).

**Impact WQ-5**: Project features located in a floodplain or watercourse could result in flooding, flood diversions, or erosion (Class III – Less than Significant).

The southwestern portion of the project site is located in a FEMA-designated 100-year floodplain associated with an ephemeral drainage that enters the project site at the southwest corner. This floodplain is listed as Zone A Approximate, which means that detailed studies have not been performed for this floodplain. The PV panels that would be installed for the proposed project would be supported on direct-driven piles and would not substantially impede or divert flood flows. Any alteration to drainage patterns on-site would be minimal, and the conveyance of floodwater across the project site is expected to remain substantially unchanged from baseline conditions after construction of the proposed project. Any crossings or alterations of washes, creeks, and drainages that are potentially waters of the state and regulated by the CDFW shall be permitted through the submittal of a Lake and Streambed Alteration Agreement Notification. The crossings would be designed and engineered so as to not result in flooding or diversion of floodwaters. Erosion that would be caused by construction of these stream crossings would be controlled through implementation of a SWPPP. This impact would be less than significant (Class III).

**Impact WQ-6**: Construction or operation of the proposed project could result in accidental releases of contaminants that could degrade water quality (Class II – Less than Significant with Mitigation).

The accidental release of hazardous materials during construction or operation and maintenance of the proposed project could potentially result in water quality degradation within the Antelope Valley Watershed or the Antelope Valley Groundwater Basin. Potentially hazardous materials may include diesel fuel, gasoline, lubricant oils, hydraulic fluid, antifreeze, transmission fluid, lubricant grease, and other fluids required for the operation of construction vehicles and equipment. Motorized equipment used at the project site during construction or operation and maintenance could leak hazardous materials such as motor oil, transmission fluid, or antifreeze due to inadequate or improper maintenance, unnoticed or un repaired damage, improper refueling, or operator error. This type of leak could occur on the project site as well as the vehicle/equipment routes between off-site origination point and the project site. Any activities requiring the use of motorized equipment may result in the accidental spill or release of potentially hazardous materials.

Direct contact with potentially hazardous materials could result from a spill or leak that occurs directly above or within the bed and banks of a flowing stream or waterbody. The lack of perennial streams in the project area minimizes the potential for direct contact with hazardous materials. An accidental release of a potentially harmful or hazardous material into a dry stream bed or wash would not directly impact water quality. Similarly, an accidental spill or release of hazardous materials outside of a stream channel would
not directly impact water quality. However, accidental spills or releases of hazardous materials could indirectly impact water quality through runoff during a subsequent storm event, when the spilled material could come in contact with or be washed into flowing water. Similarly, groundwater could be contaminated through direct or indirect contact with potentially harmful or hazardous materials.

Mitigation Measure WQ-1 would be required to ensure that the project’s SWPPP includes BMPs to prevent and respond to accidental spills of hazardous or potentially hazardous materials. With implementation of the recommended mitigation, potential water quality impacts associated with an accidental spill/release of hazardous materials would be less than significant (Class II) because the recommended mitigation would ensure that procedures and materials are available for the quick and safe cleanup of accidental spills.

Mitigation Measures

**MM WQ-1**

The applicant shall prepare a SWPPP for the proposed project, which includes procedures for quick and safe cleanup of accidental spills. The SWPPP shall prescribe hazardous materials handling procedures for reducing the potential for a spill during construction, and shall include an emergency response program to ensure quick and safe cleanup of accidental spills. Additionally, an environmental training program shall be established to communicate environmental concerns and appropriate work practices, including spill prevention and response measures, and SWPPP measures, to all field personnel. A monitoring program shall be implemented to ensure that the plans are followed during all construction, operations, and maintenance activities.

### C.9.4 Cumulative Impact Analysis

**Geographic Scope**

The geographic scope for the cumulative analysis includes the water resources that would be affected by the proposed project, as well as any downstream receiving water and upland contributing area related to those water resources. Table C.1-1 lists current development projects within a two-mile radius of the project site, and all utility scale renewable energy projects within the western Antelope Valley. Twenty three approved, operational, or pending solar projects fall within the geographic scope of this analysis.

**Cumulative Effects of the Proposed Project**

Construction and operation of past and present projects within the study area have resulted in substantial changes to the physical hydrology and water quality of the region. Although groundwater levels fluctuate over time, due in part to the amount of recharge entering the basin, residential and agricultural water use has generally led to reduced groundwater storage and availability. Land disturbance and earth movement, including grading and excavation, have led to increased erosion and sedimentation. Floodplain functions have been impaired through the placement of structures (such as housing) within floodplains and through the deliberate alteration of floodplain hydrology (including construction of dams, levees, and engineered channels). The creation of vast areas of impervious surface (including parking lots, roadways, and rooftops) has altered the rate and amount of surface water runoff in the study area. Improper handling, storage, and disposal of hazardous materials have led to contamination of surface water and groundwater resources.

The current and reasonably foreseeable projects (Table C.1-1) would affect water resources in the cumulative analysis study area in a similar manner as past activities. Earth movement and grading would
lead to increased erosion and sedimentation. Many of the cumulative projects would involve the storage or use of hazardous materials, which could contaminate surface water and groundwater. Some of the cumulative projects could place structures in floodplains or require alteration of the floodplain. Construction and operation of the proposed project would result in less than significant impacts to hydrology and water quality due to water supply demand and groundwater use, the placement of structures in watercourses or flood hazard areas, increased erosion and sedimentation from ground disturbance, and the accidental spill or release of hazardous materials. Construction and operation of the proposed project would result in adverse impacts to water resources that would combine with the adverse impacts from construction and operation of other projects in the cumulative analysis study area to result in a significant cumulative adverse impact to water resources.

However, the incremental contribution of the proposed project to this significant cumulative adverse impact would be less than cumulatively considerable. Construction and operation of the proposed project would result in minor adverse impacts related to increased erosion and sedimentation and the accidental spill or release of hazardous materials. As described in Section C.9, ground disturbance associated with the proposed project is expected to result in little risk to water quality. The dry nature of most of the surface streams near the proposed project is such that should hazardous material spills occur during construction, these could easily be cleaned up prior to water being contaminated (because water is not generally flowing).

For groundwater use, construction of the proposed project would combine with the impacts from construction and operation of other projects in the cumulative analysis study area to result in a cumulative impact to water resources. The Antelope Valley Groundwater Basin is in an overdraft condition, and the region is currently experiencing the worst drought since records have been kept. The cumulative impact of groundwater extraction in this basin for construction and operation of all of the cumulative solar projects would be considerable. However, the incremental contribution of the proposed project to this significant cumulative adverse impact would be less than cumulatively considerable. The largest amount of water use for the project would be during construction, which would be short-term and temporary. In addition, the applicant has entered into a water supply agreement with a nearby property owner. The amount of water that would be supplied to the applicant by the nearby water supply well would be substantially less than the long-term historic water use on that well. The short-term construction water use for the project is not anticipated to lead to a disruption or impairment in the use of nearby water supply wells, and any depressions in groundwater levels would be localized and temporary.

C.9.5 Level of Significance After Mitigation

With implementation of Mitigation Measure WQ-1, the proposed project’s impact related to the degradation of water quality through the accidental release of hazardous materials would be less than significant with mitigation (Class II). All other impacts related to Hydrology and Water Quality would be less than significant (Class III).
C.10 Land Use, Population, and Recreation

This section describes effects on land use, population and recreational resources that would be caused by implementation of the proposed project. The following discussion addresses existing environmental conditions in the affected area, identifies and analyzes environmental impacts, and recommends measures to reduce or avoid significant impacts anticipated from project construction, operation, maintenance, and decommissioning. In addition, existing laws and regulations relevant to land use, population, and recreation are described. In some cases, compliance with these existing laws and regulations would serve to reduce or avoid certain impacts that might otherwise occur with implementation of the proposed project. Section C.10.4, below, provides the analysis of the cumulative impacts on land use, population and recreation and Section C.1.3 of this EIR provides the cumulative scenario.

Data collection was conducted through review of the Conditional Use Permit (CUP) applications and associated informational materials; responses to data requests; the City's applicable land use planning documents, maps and zoning ordinances (City of Lancaster 2009 and 2012; Municode 2015); recent map publications and aerial photography accessed online; and the US Census for population statistics (referenced as applicable). Also, field verification of land uses was conducted during two site visits conducted in February and March of 2015.

As related to land use, the study area for this analysis is defined as those lands that fall within the overall boundaries of the project site, as well as land uses falling within an approximate half-mile radius of these boundaries. For the purposes of recreation, the study area is focused on the land use study area, as defined above, but additionally takes into consideration those recreational resources and facilities located within an estimated one-mile radius of the study area boundaries. The current condition and quality of these land use and recreation resources were used as the baseline against which to compare potential impacts of the proposed project.

Potential project impacts on existing and projected population levels were determined using the most recently published demographic data available. For purposes of this analysis, the study area of potential population impacts is the Cities of Lancaster and Palmdale, as the regional workforce for the proposed project would consist largely of residents from these two cities.

C.10.1 Environmental Setting

Land Use Setting

Land Uses

The project site consists of mostly disturbed vacant land that was previously used for agricultural production. The project site has relatively flat topography, although the Phase I report identifies six locations that include bermed areas. Several of these areas appear to be old retention basins. The basin in the southeast quadrant of the project site includes piles of concrete debris (identified as concrete demolition in the Phase 1 Report).

Existing land uses surrounding the project site consist of rural residences, solar development, and agricultural land uses. Figure B-2 identifies the key land uses near the project site. Rural residences are scattered in close proximity to the project site with Antelope Acres, a residential community, approximately 0.5 miles north of the project site. Other nearby residences include:
Two occupied residences (northeast of the project site) near the corner of West Avenue G between 90th Street West and 93rd Street West

One unoccupied residence near West Avenue G on 95th Street (within an existing solar facility)

Two occupied residences and one unoccupied residence located immediately south of the project site along West Avenue H between 93rd Street West and 97th Street West

A single family residence and an unverified structure on 110th Street West about 0.5 miles to the west of the westernmost boundary of the project site

One unverified structure north of and across the street from the project site along West Avenue G and 100th Street West.

The existing Del Sur Elementary School is located near the southeast corner of the project site. The Del Sur Substation is located across the street and southeast of the elementary school on the southeast corner of West Avenue H and 90th Street West. Additionally, four existing solar generating facilities are located near the project site and other solar facilities have been approved but have not been constructed both within the City and areas under the jurisdiction of the County of Los Angeles (see Section C Cumulative Scenario and Methodology).

The Del Sur Elementary School has solar panels on school property, which are located near the project site’s eastern boundary. The solar panels are west of the school buildings, but are not currently in operation. The second solar facility is located to the east of the project site. This 12 MW facility is generally bounded by West Avenue G, West Avenue H, 95th Street West and 90th Street West. The third facility is located directly south of the Del Sur Elementary School. This 9 MW facility is located at the southwest corner of West Avenue H and 90th Street West. The fourth facility is located south of the project site. This 20 MW facility is generally bounded by West Avenue H, Lancaster Boulevard, 97th Street West, and 100th Street West.

Several transmission lines (T/Ls) also traverse the project area. An existing T/L corridor containing multiple T/Ls extends in a southeast direction from west of 110th Street West to Antelope Substation. Segment 4 of the Tehachapi Renewable Transmission Project (500-kV single-circuit transmission line) exits this T/L corridor and extends along 110th Street West before turning east on West Avenue J-6 to then turn north into Antelope Substation. Another existing T/L corridor extends in a southwest direction from a substation at the corner of West Avenue H towards Antelope Substation. A power line extends along 105th Street West.

Land Designations

As stipulated by California Government Code Section 65300 et seq., cities and counties are required to develop and adopt general plans to guide local decision-making related to existing and future land use, growth, and other local infrastructure, such as circulation systems, public open space, and other public facilities. Section C.10-2 below provides the policies that apply to the proposed project from the City of Lancaster’s General Plan 2030 (adopted in 2009). The City’s General Plan sets forth goals and policies for the future development of the City and designates the location of desired future land uses within the City. The General Plan Land Use designation for the majority of the project site is currently Urban Residential (UR), which allows for 2.1 to 6.5 dwelling units per acre. Other smaller portions of the project site are designated Open Space (O), Public Use (P), and Commercial (C) (Lancaster 2012).

The development of the proposed project is also governed by the applicable land use, zoning, and subdivision regulations in the Lancaster Municipal Code, particularly Title 17, Zoning Ordinance. The project site is zoned R-15,000 (single family residential, minimum lot size 15,000 square feet), R-10,000...
(single family residential, minimum lot size 10,000 square feet), R-7,000 (single family residential, minimum lot size 7,000 square feet), S (School), PK (Park), and CPD (commercial planned development). These designations do not allow for the development of utility-scale solar facilities. However, a majority of the project site (with the exception of APNs 3265-007-002 and 3265-007-008) is covered by Development Agreement No. 89-01. This Development Agreement was amended on June 26, 2012 to allow utility-scale solar development with a CUP without the need to change the existing general plan designations or zoning, although a General Plan Amendment and Zone Change would be required for the two parcels (80 acres) that are not covered by the Development Agreement. Therefore, the proposed project includes a General Plan Amendment (GPA) and Zone Change (ZC) to change the designation to NU (Nonurban Residential) and the zoning to RR-2.5 (rural residential, minimum lot size 2.5 acres) for these two parcels; these designations (NU and RR.2-5) allow solar facilities with a CUP. Table C.10-1 lists the general plan and zoning designations for areas surrounding the project site.

Table C.10-1. Surrounding Land Use Designations

<table>
<thead>
<tr>
<th>Direction</th>
<th>City of Lancaster General Plan</th>
<th>City of Lancaster Zoning</th>
<th>Los Angeles County Antelope Valley Area Plan Designation</th>
<th>Los Angeles County Zoning</th>
</tr>
</thead>
<tbody>
<tr>
<td>North of project site</td>
<td>Nonurban Residential (NU) Public Use</td>
<td>RR-2.5 School (S)</td>
<td>Non-Urban 1 (0.5 dwelling units per acre)</td>
<td>Light Agricultural (A-1)</td>
</tr>
<tr>
<td>South of project site</td>
<td>NU</td>
<td>RR-2.5 R</td>
<td>Non-Urban 1</td>
<td>A-1 Heavy Agricultural (A-2)</td>
</tr>
<tr>
<td>East of project site</td>
<td>NU S</td>
<td>RR-2.5 S (not adjacent but located ~270 feet from the northeast boundary of the project site)</td>
<td>A-1 A-2 (not adjacent but located ~270 feet from the northeast boundary of the project site)</td>
<td></td>
</tr>
<tr>
<td>West of project site</td>
<td>No City lands are west of the project site</td>
<td>Non-Urban 1</td>
<td>A-1 A-2</td>
<td></td>
</tr>
</tbody>
</table>

Sources: Lancaster 2012; Lancaster 2011; LA County 2015a and 2015b
Notes: 1. The 725-acre area for the solar generating facility is completely within the City of Lancaster. Portions of the gen-tie and communication line routes fall within the jurisdiction of the County of Los Angeles.

The project site is located at the northwest end of the City where County lands are interspersed with City lands. The footprint of the solar generating facility (725 acres) is all within the jurisdiction of the City. However, depending on the final location of the gen-tie and communication line route, the applicant may also have to obtain ministerial permits and a possible franchise agreement from the County of Los Angeles because portions of the identified routes fall under the jurisdiction of the County of Los Angeles.

Recreation Setting

There are no known authorized recreational activities or facilities that occur on the project site. Recreational resources immediately surrounding the project site include the school yard of the Del Sur Elementary School, which is located approximately 1,000 feet east of the southeast boundary of the project site. The school yard includes an open grass area, four basketball courts, and a playground area. These recreational facilities are for the school children enrolled at Del Sur Elementary and are not open to the public. To the west of the project site (along the west side of the 110 Street West) there is a trail that is available for pedestrian and equestrian uses. In addition to these authorized recreational activities, this area of the Antelope Valley is known for unauthorized off-road vehicle use.
Population Setting

The Antelope Valley is comprised of many communities; the largest are the Cities of Lancaster and Palmdale, with smaller towns and communities such as Quartz Hill, Rosamond, Lake Elizabeth, Lake Hughes, Pearblossom, Littlerock and Leona Valley. The entire Greater Antelope Valley area has a total population of 507,220 (GAVAR 2014). Given that approximately 65% of the Antelope Valley’s population is centered in the Cities of Lancaster and Palmdale, the current and forecasted population for these cities are summarized in Table C.10-2 for the purpose of the population analysis. As shown in Table C.10-2, the recent statistics for the Cities of Lancaster and Palmdale show population increases, and the projections for 2020 and 2035 indicate that the population will continue to increase.

<table>
<thead>
<tr>
<th>Jurisdiction</th>
<th>2010</th>
<th>2013 Estimate</th>
<th>2020 Projection</th>
<th>2035 Projection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lancaster</td>
<td>156,633</td>
<td>159,523</td>
<td>174,800</td>
<td>201,300</td>
</tr>
<tr>
<td>Palmdale</td>
<td>152,750</td>
<td>157,161</td>
<td>179,300</td>
<td>206,100</td>
</tr>
</tbody>
</table>

Source: US Census 2015a and 2015b; SCAG 2012

C.10.2 Regulatory Setting

Federal Regulations

No federal regulations apply to land use, population or recreational resources.

State Regulations

No State regulations apply to land use, population or recreational resources.

Regional and Local Regulations and Plans

Southern California Association of Governments – 2012 Regional Transportation Plan (RTP) and Sustainable Communities Strategy (SCS) Goals. In a scoping letter dated March 9, 2015, SCAG submitted nine goals of the 2012 RTP/SCS and requested the proposed project be considered within the context of achieving these goals. Table C.13-3 in Section C.13 (Transportation and Traffic) provides a side-by-side comparison of these goals with respect to the proposed project.

Lancaster General Plan 2030. The Lancaster General Plan is the City’s long-term outlook for the future, which identifies the types of development that will be allowed, the spatial relationships among land uses, and the general pattern of future development (Lancaster 2009). Table C.10-3 provides a review of the proposed project’s consistency with applicable goals, objectives and policies of the City’s General Plan. The Goals are statements of the City’s ideal characteristics, the Objectives serve to help determine the City’s success in achieving its plans for the future based on the goals presented in each of the elements of the General Plan, and the Policies serve as guidelines that the City will follow in attaining objectives (Lancaster 2009). As such, the Plan’s goals and objectives are presented in Table C.10-3 to provide the context for each policy; however, the consistency analysis is only provided for the policies, which are the guiding principles for development.
City of Lancaster Zoning Ordinance. The City’s zoning ordinance was reviewed to identify zoning requirements for solar generating facilities. Title 17 (17.08.050 - Uses and permit requirements) identifies the following for solar generating facilities:

- Commercial solar electrical generation facilities – Not Allowed in the R-15,000, R-10,000 and R-7,000 zones; conditional use in the RR-2.5 zone.

C.10.3 Environmental Impacts and Mitigation Measures

The following significance criteria are based on Appendix G of the State CEQA Guidelines:

- The proposed project would conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect;
- The proposed project would preclude an existing or permitted land use, or create a disturbance that would diminish the function of a particular land use;
- The proposed project would substantially contribute to the loss or degradation of the factors that contribute to the value of federal, State, or local recreational facilities or programs; or
- The proposed project would induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure).

Environmental Impact Analysis

Impact LU-1: The proposed project would conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect. (Class II – Less than Significant with Mitigation)

The proposed project requires a GPA and ZC on 80 acres of the 725 acres proposed for the solar generating facility. Current zoning on these 80 acres does not allow for utility solar development. The remaining 645 acres of the proposed site is under a Development Agreement that allows for solar development with an approved CUP.

The project site is designated as a mix of UR, O, P, and C by the City’s General Plan and zoned R-15,000, R-10,000, R-7,000, PK, S, and CPD. These designations do not allow for the development of utility-scale solar facilities. However, a majority of the project site (with the exception of APNs 3265-007-002 and 3265-007-008) is covered by Development Agreement No. 89-01. This Development Agreement was amended on June 26, 2012 to allow utility-scale solar development with a CUP without the need to change the existing general plan designations or zoning. To allow for utility-scale solar development on the two parcels that are not included in the Development Agreement, the applicant has submitted a request for a GPA and ZC.

In January 2010, the Lancaster City Council introduced Ordinance 941, amending Title 17 of the Lancaster Municipal Code, which established regulations to allow solar electrical generating plants in rural residential zones. The City’s zoning ordinance allows solar facilities on property zoned RR-2.5 (rural residential, minimum lot size 2.5 acres) with a CUP, and this is the zoning designation proposed for the 80 acres described above. Upon approval of the GPA and ZC, these two parcels would be designated NU and zoned RR-2.5 zone, which allows for solar facilities with a CUP and which would bring these parcels...
into compliance with the City’s General Plan and zoning requirements. Therefore, the GPA and ZC would result in less than significant impacts (Class III).

The applications for the CUPs, GPA, and ZC are the discretionary actions that require the need for an EIR. The mitigation measures proposed within this EIR would ensure the proposed project’s compliance with the City’s ordinances and regulations. Compliance with the mitigation measures included in this EIR would ensure conflicts with the City’s applicable plans and policies are avoided. Therefore, this impact is less than significant with implementation of the mitigation measures recommended within this EIR (Class II).

Table C.10-3 provides a consistency analysis for the goals, objectives and policies that are applicable to the proposed project.

<table>
<thead>
<tr>
<th>Goal/Objective/Policy</th>
<th>Consistency Analysis</th>
<th>Consistency Determination</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CITY OF LANCASTER GENERAL PLAN 2030</strong>&lt;br&gt;Plan for the Natural Environment</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Goal 3:</strong> To identify the level of natural resources needed to support existing and future development within the City and its sphere of influence, and ensure that these resources are managed and protected.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Objective 3.1:</strong> Protect, maintain, and replenish groundwater supplies to meet present and future urban and rural needs</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Policy 3.1.1:</strong> Ensure that development does not adversely affect the groundwater basin</td>
<td>Section C.9 (Hydrology and Water Quality) discusses the water source for the project and determined that less than significant impacts would result from the project.</td>
<td>Consistent</td>
</tr>
<tr>
<td><strong>Policy 3.1.2:</strong> Promote efforts to exert greater City control over the existing water supply and to explore potential new sources. (d): Work with Los Angeles County to ensure that individual wells are permitted only if it can be proven that an adequate supply of good quality water at appropriate standards for its intended use is available; individual wells should only be used in areas where it is not feasible to connect to a community water system.</td>
<td>Section C.9 (Hydrology and Water Quality) discusses the water source for the project and determined that less than significant impacts would result from the project. An established water well on an adjacent property would be used for the project but at a much lower level than historically used by the current well owner.</td>
<td>Consistent</td>
</tr>
<tr>
<td><strong>Objective 3.3:</strong> Preserve acceptable air quality by striving to attain and maintain national, state and local air quality standards.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Policy 3.3.3:</strong> Minimize air pollutant emissions generated by new and existing development.</td>
<td>The proposed project’s construction would have the potential to exceed the AVAQMD PM10 emissions thresholds without sufficient fugitive dust controls. However, with the implementation of Mitigation Measure (MM) AQ-1 the proposed project would have less than significant criteria emissions impacts during construction.</td>
<td>Consistent with mitigation</td>
</tr>
<tr>
<td><strong>Policy 3.3.4:</strong> Protect sensitive uses such as homes, schools and medical facilities, from the impacts of air pollution.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Policy 3.3.5:</strong> Cooperate with the AVAQMD and other agencies to protect air quality in the Antelope Valley.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Objective 3.4:</strong> Identify, preserve and maintain important biological systems within the Lancaster sphere of influence, and educate the general public about these resources, which include the Joshua Tree - California Juniper Woodlands, areas that support endangered or sensitive species, and other natural areas of regional significance.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Policy 3.4.2:</strong> Preserve significant desert wash areas to protect sensitive species that utilize these habitat areas. (a. …Areas of desert wash habitat considered to be highly important to special status species, or that is occupied by these species, shall be protected.) Impact BR-2 in Section C.5 (Biological Resources) discusses the proposed project’s potential impacts to special status species. With implementation of MMs BR-1 through BR-12, potential impacts would be less than significant.</td>
<td>Consistent with mitigation</td>
<td></td>
</tr>
</tbody>
</table>
### Table C.10-3. Policy Consistency Analysis

<table>
<thead>
<tr>
<th>Goal/Objective/Policy</th>
<th>Consistency Analysis</th>
<th>Consistency Determination</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Policy 3.4.3:</strong> Encourage the protection of open space lands in and around the Poppy Preserve, Ripley Woodland Preserve, and other sensitive areas to preserve habitat for sensitive mammals, reptiles, and birds, including raptors.</td>
<td>Impact BR-1 in Section C.5 (Biological Resources) discusses the proposed project’s potential impacts to riparian habitat or other sensitive natural communities. With implementation of MMs BR-1 through BR-4, potential impacts would be less than significant.</td>
<td>Consistent with mitigation</td>
</tr>
</tbody>
</table>

**Policy 3.4.4:** Ensure that development proposals, including City sponsored projects, are analyzed for short- and long-term impacts to biological resources and that appropriate mitigation measures are implemented.

<table>
<thead>
<tr>
<th>Goal/Objective/Policy</th>
<th>Consistency Analysis</th>
<th>Consistency Determination</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Objective 3.6:</strong> Encourage efficient use of energy resources through the promotion of efficient land use patterns and the incorporation of energy conservation practices into new and existing development, and appropriate use of alternative energy.</td>
<td>The proposed project is a solar energy-generating facility. Therefore, approval of this project would comply with this policy.</td>
<td>Consistent</td>
</tr>
</tbody>
</table>

### Plan for Public Health and Safety

| Goal 4: To provide a secure manmade environment which offers a high level of protection from natural and manmade hazards to life, health, and property. | Consistent with mitigation |

**Objective 4.3:** Promote noise compatible land use relationships by implementing the noise standards identified in Table 3-1 to be utilized for design purposes in new development, and establishing a program to attenuate existing noise problem.

**Policy 4.3.1:** Ensure that noise-sensitive land uses and noise generators are located and designed in such a manner that City noise objectives will be achieved – policies a through h

<table>
<thead>
<tr>
<th>Goal/Objective/Policy</th>
<th>Consistency Analysis</th>
<th>Consistency Determination</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Policy 4.3.2:</strong> Whenever feasible, manage the generation of single even noise levels (SENL) from motor vehicles, trains, aircraft, commercial, industrial construction, and other activities such that SENL levels are no greater than 15 dBA above the noise objectives included in the Plan for Public Health and Safety. <strong>Policy 4.3.2(d):</strong> As a condition of approval, limit non-emergency construction activities to daylight hours between sunrise and 8:00 p.m.</td>
<td>As discussed in Section C.11, construction work would be conducted during the hours specified in the City’s Municipal Code (7:00 a.m. to 8:00 p.m.) when occurring within 500 feet of an occupied residence, such that this short-term disturbance would not conflict with the local regulatory requirements.</td>
<td>Consistent</td>
</tr>
</tbody>
</table>

**Policy 4.3.3:** Ensure that the provision of noise attenuation does not create significant negative visual impacts – specific actions a and b

| Goal 12: To promote community appreciation for the unique history of the Antelope Valley and the City of Lancaster and to promote community involvement in the protection, preservation, and restoration of the area’s significant cultural, historical or architectural features. | Consistent |

**Objective 12.1:** Identify and preserve and/or restore those features of cultural, historical or architectural significance.
### Table C.10-3. Policy Consistency Analysis

<table>
<thead>
<tr>
<th>Goal/Objective/Policy</th>
<th>Consistency Analysis</th>
<th>Consistency Determination</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Policy 12.1.1:</strong> Preserve features and site of significant historical and cultural value consistent with their intrinsic and scientific values.</td>
<td>Section C.6 of the EIR presents the results of the cultural resources investigation of the project area. Appendix 5 supports the assessment in the EIR. The EIR presents mitigation measures to protect resources found near the perimeter of the project site and the gentle line routes consistent with State and federal requirements.</td>
<td>Consistent with mitigation</td>
</tr>
<tr>
<td><strong>Goal 15:</strong> A full range of municipal services and facilities at desired levels for urban and rural areas, as appropriate.</td>
<td><strong>Objective 15.1:</strong> Provides specific performance objectives for facilities and services (see page 6-5 of the General Plan)</td>
<td></td>
</tr>
<tr>
<td><strong>Policy 15.1.2:</strong> Cooperate with local water agencies to provide an adequate water supply system to meet the standards for domestic and emergency needs.</td>
<td>As discussed in Section C.9, the proposed project will use water available from an established water well, and therefore no coordination is needed with local water agencies.</td>
<td>Consistent</td>
</tr>
<tr>
<td><strong>Policy 15.1.5:</strong> Ensure sufficient infrastructure is built and maintained to handle and treat wastewater discharge.</td>
<td>Section C.12 (Public Services, Utilities, and Service Systems) found that potential impacts to wastewater associated with the proposed project would be less than significant.</td>
<td>Consistent</td>
</tr>
<tr>
<td><strong>Objective 15.2:</strong> Minimize the negative impacts of solid waste disposal using a variety of methods including mitigating the disposal of waste from outside the Antelope Valley</td>
<td><strong>Policy 15.2.2:</strong> Minimize the generation of solid wastes as required by State law (AB-939) through an integrated program of public education, source reduction, and recycling.</td>
<td>Consistent</td>
</tr>
<tr>
<td><strong>Goal 17:</strong> To establish a variety of land uses which serve to develop Lancaster into a balanced and complete community in which people live, work, shop, and play.</td>
<td><strong>Objective 17.1:</strong> Designate adequate land for a balanced mix of rural and urban residential and non-residential uses.</td>
<td></td>
</tr>
<tr>
<td><strong>Policy 17.1.1:</strong> Maintain an adequate inventory of land for residential, commercial, employment, quasi-public, public and open space uses.</td>
<td>The proposed project would be located in a rural, nonurban area of the City where the long-term plans include nonurban residential development.</td>
<td>Consistent</td>
</tr>
<tr>
<td><strong>Goal 18:</strong> To manage development by planning the location and intensity of urban and rural uses to create a comprehensive structure.</td>
<td><strong>Objective 18.1:</strong> Prevent future discordant land uses, and where possible reconcile existing discordant land uses, by establishing appropriate interface among conflicting uses and functions.</td>
<td></td>
</tr>
</tbody>
</table>
### Table C.10-3. Policy Consistency Analysis

<table>
<thead>
<tr>
<th>Goal/Objective/Policy</th>
<th>Consistency Analysis</th>
<th>Consistency Determination</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Policy 18.1.2:</strong> Encourage development that is compatible with the City’s designated rural and non-urban areas.</td>
<td>The majority of the project (645 acres) is under a Development Agreement that allows for a solar facility with a CUP. A GPA and ZC has been submitted on the remaining 80 acres to change the general plan designation to NU and zoning to RR-2.5 to allow for the solar development with a CUP. As discussed under Impact LU-1, an approved GPA/ZC would bring 80-acres of project into compliance with City regulations and compliance with the mitigation measures would result in further consistency with existing land use policies.</td>
<td>Consistent with mitigation</td>
</tr>
<tr>
<td><strong>Policy 18.1.3:</strong> Ensure that land use map designations are compatible with adjacent proposed land uses, surrounding developments, existing infrastructure, the roadway system, and Redevelopment Project Areas.</td>
<td>As discussed in Section C.12, in order to minimize adverse impacts to emergency response teams, MM PSU-1 requires the applicant to inform emergency service agencies of road closures, detours and delays, and includes provisions to accommodate emergency vehicles. With implementation of this measure, this impact would be less than significant. All other potential impacts to facilities and services were found to be less than significant.</td>
<td>Consistent with mitigation</td>
</tr>
<tr>
<td><strong>Policy 18.2.2:</strong> Encourage appropriate development to locate so that municipal services can be efficiently provided.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Goal 19:** To achieve an attractive and unique image for the community by creating a sustainable, cohesive and enduring built environment.

**Policy 19.2.6:** Minimize the visual impacts of utility corridors and their associated equipment.

Section C.2 (Aesthetics) found that potential visual impacts during the construction and operation would be less than significant.

**City of Lancaster Municipal Code**

**Title 8 Health and Safety, Chapter 8.24, Noise Regulations.**

Section 8.24.030 (Loud, unnecessary and unusual noises prohibited) and (Loud, unnecessary and unusual noise prohibited – Construction and building), prohibits any construction or repair work of any kind or performing any earth excavating, filling or moving between the hours of 8:00 PM and 7:00 AM.

Section C.11 (Noise) provides an analysis of the proposed project’s compliance with the City’s noise standards. Implementation of MMs N-1 through N-11 would reduce construction traffic noise impacts, and provide a mechanism to respond to and minimize noise complaints (MM N-9) such that impacts would be reduced to a less-than-significant level. Permanent noise levels during the operation and maintenance period were found to be less than significant.

**Title 17 Zoning:** 17.08 Residential Uses

17.08.050 - Uses and permit requirements (table) Commercial solar electrical generation facilities – Not Allowed in the R-15,000, R-10,000 and R-7,000 zones; conditional use in the RR-2.5 zone

The majority of the project (645 acres) is under a Development Agreement that allows for a solar facility with a CUP. A GPA and ZC has been submitted on the remaining 80 acres to change the general plan designation to NU and zoning to RR-2.5 to allow for the solar development with a CUP. As discussed under Impact LU-1, an approved GPA/ZC would bring 80-acres of project into compliance with City zoning requirements.

**Impact LU-2:** The proposed project would preclude an existing or permitted land use, or create a disturbance that would diminish the function of a particular land use. (Class III – Less than Significant)

The project site consists of mostly disturbed vacant land that was previously used for agricultural production. The site is currently vacant, but unauthorized livestock grazing was observed on the site during recent site visits.
The current land designations allow for residential, commercial, open space and public uses on the 725-acre project site. As noted earlier, the majority of the project site (645 acres of the 725-acre site) is covered by a Development Agreement. With an approved CUP, the proposed project would be consistent with the Development Agreement and would be a permitted land use.

Approximately 80 acres (or 11% of the 725 acres) of the project site are not covered by the Development Agreement, and current land use and zoning on this area of the project site does not permit utility-scale solar facilities. To address this situation, the applicant has submitted an application for a GPA to change the general plan designation to NU and a ZC to change the zoning to RR-2.5 to be consistent with the surrounding land uses and allow for the solar facility with a CUP. Although the proposed project has the potential to preclude permitted land uses on the 80 acres not under the Development Agreement, the GPA and ZC would bring the proposed project into compliance with existing City plans and zoning. The proposed project would not preclude the development of permitted land uses on a majority of the project site, is compatible with existing and proposed development, and includes GPA and ZC to bring a portion of the property into compliance with City plans and zoning. Therefore, this impact would be less than significant (Class III).

The proposed gen-tie and communication line route would traverse vacant land that is used for livestock grazing. There are existing transmission and distribution lines within and around the project site, and the current grazing activities occur alongside these transmission structures. Construction and decommissioning activities would temporarily disrupt any grazing activities that may occur along the gen-tie and communication line route. However, as the route is a passive land use that would disturb a minimal amount of land during the undergrounding of the lines, grazing activities could occur during the operation period. Therefore, impacts to the existing land use would be temporary and less than significant (Class III).

The maintenance activities associated with the proposed project would include equipment inspection and replacement, which would occur during daylight hours. Other maintenance activities on the PV modules and DC systems could include cleaning, responding to emergencies, and controlling vegetation on the project site, which may also include the use of grazing animals. The applicant has estimated that maintenance staff would visit the site approximately two times per year to clean the PV modules and would be on site seasonally to clear vegetation. Maintenance of the PV modules and the DC systems would typically be performed at night, but most activities would occur during daytime hours. Due to the limited maintenance activities that would occur onsite, there would not be significant disruptions to the surrounding land uses. Therefore, there would be no impact during the operation period.

The decommissioning activities associated with the proposed project would not result in direct impacts to the project site. However, indirect disturbances may occur to the surrounding land uses due to the potential for increased traffic and noise, and result in emissions or dust that negatively affect the air quality. These disturbances would occur temporarily, and would likely not be concentrated in one location for an extended period of time. Therefore, indirect impacts to surrounding land uses during the decommissioning period would be less than significant (Class III).

**Impact LU-3:** *The proposed project would substantially contribute to the loss or degradation of the factors that contribute to the value of federal, State, or local recreational facilities or programs. (Class III – Less than Significant)*

As discussed in the setting above, there are no recreational facilities or programs located within the project site. As the project site is vacant land without fencing, it is possible that unauthorized off-road vehicle use occurs within the project site. However, as these types of activities are not a part of a federal, State or local recreational program, there would be no direct impacts to recreational resources (No Impact).
The construction (and decommissioning) activities associated with the proposed project could result in indirect disruptions to the surrounding recreation activities at the Del Sur Elementary School, such as increased traffic and noise, or decreased air quality from fugitive dust or emissions from construction equipment. These disturbances would occur temporarily, and would likely not be concentrated in one location for an extended period of time. Therefore, indirect impacts to surrounding land uses during the construction period (or during decommissioning) would be less than significant (Class III).

Due to the limited maintenance activities that would occur onsite, potential disruptions to the recreation activities at the elementary school and surrounding uses would be minimal. Therefore, impacts to surrounding recreational resources would be less than significant (Class III).

**Impact LU-4:** The proposed project would induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure). (Class III – Less than Significant)

Construction activities are expected to be completed in approximately 12 months. The onsite workforce would consist of laborers, various skilled trades, supervisory personnel, support personnel, and construction management personnel. The proposed project would generate an estimated 250 new jobs during the construction phase and would provide approximately one full-time position (offsite) during operation and maintenance activities.

It is anticipated that the workforce would be from the local community within the Antelope Valley, to the extent practicable. It is possible that a small percentage of workers would commute from areas beyond the Antelope Valley, such as from the Los Angeles Basin, Inland Empire, or the High Desert in San Bernardino County. However, the distance from these surrounding areas would not require workers to relocate to the Antelope Valley. Also, the construction period (one year) is relatively short, which would likely not result in relocations. Therefore, it is unlikely that construction of the proposed project would permanently increase the population levels in the Antelope Valley. This impact would be less than significant (Class III).

One full-time (offsite) permanent employee would be required for project operation. One new permanent employee would not impact the current population in the Antelope Valley. Therefore, there would be no impact to population levels during the operation and maintenance period of the proposed project.

Upon decommissioning of the proposed project, the 725-acre site would be available for development. The GPA and ZC associated with this proposed project would change the land use and zoning on 80 of the 725 acres of the project site to NU and RR-2.5 zoning. The other 645 acres fall under the Development Agreement, which allow the solar facility with an approved CUP. Although the City is not required to change the land use and zoning on these 645 acres of the project site, the agreement allows the City to unilaterally change the general plan designation and zoning at any time once construction of a solar facility has started. Therefore, the designations on the 645 acres of the project site would likely be changed to NU under the General Plan and the zoning changed to RR-2.5 similar to the designations for the 80 acres that are part of the proposed project applications. Assuming the project site is developed according to these general plan and zoning designations, the zoning would allow for one dwelling unit to every 2.5 acres of land, which would be consistent with the surrounding land uses. Therefore, this level of residential development would comply with the City’s long-term plans for development and the population increase would not be a significant impact (Class III).
C.10.4 Cumulative Impact Analysis

Land Use

The geographic extent for the analysis of cumulative land use impacts is generally limited to areas within approximately one mile of the proposed project, including the gen-tie and communication line routes. This area is defined as the geographic extent because land use impacts would generally be localized. If approved, the proposed project would be developed within one mile of approximately 13 solar projects, of which five are already operational, as shown in Figure C.1-1 and listed in Table C.1-1.

If construction of the solar projects listed in Table C.1-1 were to occur at the same time as the proposed project, which is anticipated since several are already approved and one is expected to start construction in January 2016, off-site cumulative land use impacts would occur. As shown in Figure C.1-1, the approval of the proposed solar projects in the area surrounding the project site would result in a change in the community due to the conversion of vacant land to a fenced utility-scale energy-generating facility. When combined with the other proposed solar projects, the proposed project would contribute to this change. However, each of these projects would undergo the appropriate planning and environmental review processes for permitting, which would bring the projects into compliance with existing land use plans and zoning. In doing so, the solar facilities would be constructed and operated consistent with existing land use plans and regulations. Therefore, the project’s contribution to land use impacts would be less than significant (Class III).

Impact LU-2, above, discusses the maintenance activities that would occur under the proposed project. If maintenance activities associated the proposed project and the adjacent solar projects were to occur at the same time, there is little to no potential for these maintenance activities to disrupt nearby land uses because the maintenance activities would be confined to each specific facility and are not expected to be significant or long-term activities at any one location. Given that maintenance activities are temporary, the proposed project’s contribution to this cumulative impact would be less than significant (Class III).

Prior to decommissioning activities, many of the cumulative projects identified in Table C.1-1 are assumed to be operational and part of the baseline conditions. Assuming development occurs according to the City’s General Plan, the project site and surrounding area would be developed under the NU land use designation or similar designations and rural residences would continue to be the dominant land uses. The decommissioning activities would result in temporary disruptions to the surrounding residential land uses, such as increased noise and traffic. However, these impacts would be temporary and the project’s contribution to cumulative land use impacts would be less than significant (Class III).

Recreation

The geographic extent for the analysis of cumulative impacts related to recreation is generally limited to areas within approximately one mile of the proposed project, including the gen-tie and communication line routes. This area is defined as the geographic extent because impacts to recreational resources would generally be localized.

If construction of the solar projects listed in Table C.1-1 were to occur at the same time as the proposed project, which is anticipated since several are already approved and one is expected to start construction in January 2016, cumulative impacts (on-site and off-site) would occur. However, there are few recreational resources located near the project site that could be impacted by the proposed project.
Therefore, the proposed project’s contribution to cumulative impacts to recreational resources would be less than significant (Class III).

If maintenance activities associated the proposed project and the adjacent solar projects were to occur at the same time, the potential exists for these maintenance activities to disrupt the nearby recreational resources. However, given that maintenance activities are temporary and generally confined to each specific facility, the proposed project’s contribution to this cumulative impact would be less than significant (Class III).

Prior to decommissioning activities, many of the cumulative projects identified in Table C.1-1 are assumed to be operational and part of the baseline conditions. Assuming development occurs according to the City’s General Plan, rural residences would continue to be the dominant land use. Decommissioning activities in the future could result in temporary disruptions to recreational resources, such as fugitive dust or water runoff. However, it is unlikely that decommissioning for multiple solar facilities would occur at the same time. Therefore, the proposed project’s contribution to cumulative recreation impacts during decommissioning would be less than significant (Class III).

**Population**

The geographic scope for the analysis of population impacts consists of the Antelope Valley and the cities and communities contained therein. This geographic extent is appropriate because the local labor force is expected to come primarily from within this regional community.

The proposed project would require approximately 250 workers. Out of the six proposed solar projects in Table C.1-1 (the projects that are not operational and will require construction), the proposed project is one of the three largest projects in acreage and MWs. Therefore, the other smaller projects would require a smaller workforce. If construction of the proposed project and the surrounding six proposed solar projects occurred at the same time as the proposed project, this may result in the need for construction workers to come from outside of the Antelope Valley. So it is possible that a small percentage of workers would commute from areas beyond the Antelope Valley, such as from the Los Angeles Basin, Inland Empire, or the High Desert in San Bernardino County. Considering the short time period of construction (one year) and the high population density surrounding the Antelope Valley, particularly in Los Angeles, it is unlikely that workers would relocate to the Antelope Valley. Therefore, the proposed project would not contribute to a significant change in the long-term population growth. This impact would be less than significant (Class III).

If maintenance activities associated the proposed project and the adjacent solar projects were to occur at the same time, the population in the Antelope Valley would not be affected by an influx of short-term workers for maintenance activities. Therefore, the proposed project’s contribution to this cumulative impact would be less than significant (Class III).

Prior to decommissioning activities, many of the cumulative projects identified in Table C-1 are assumed to be operational and part of the baseline conditions. Assuming development occurs according to the City’s General Plan, rural residential development would continue to be the dominant land use. It is likely that the population in this area of the City would moderately increase, but the level of development would be consistent with the current characteristics of the surrounding community. Decommissioning activities would result in temporary increases to the local population for the duration of the decommissioning period. However, this impact would be temporary, so the project’s contribution to cumulative impacts to the population would be less than significant (Class III).
C.10.5  Level of Significance After Mitigation

With implementation of the mitigation measures presented throughout this EIR, the proposed project would not conflict with the applicable plans and policies, and the impacts to local land uses would be less than significant. The proposed project would have less than significant impacts to recreation and populations, and no mitigation is required for these issues areas.
C.11 Noise

This section describes effects of noise that would be caused by the implementation of the proposed project. The following discussion addresses existing environmental conditions in the affected area, identifies and analyzes environmental impacts for the proposed project, and recommends measures to reduce or avoid significant impacts anticipated from project construction, operation, maintenance, and decommissioning. The Noise Technical Report, provided in Appendix 8, provides background information on noise which supports the following analysis. Supporting noise calculations are also provided in Appendix 8, Attachment 1.

C.11.1 Environmental Setting

Regional Setting

Existing noise levels within the Antelope Valley result primarily from vehicular sources on the highways and secondary roads in the area. Aircraft noises also contribute to occasional short-term increases in the ambient noise levels; however, their contribution over a 24-hour exposure period (i.e., CNEL – Community Noise Exposure Level) is small, except for those areas in the immediate vicinity of Air Force Plant No. 42 (located approximately 12 miles southeast of the project site) or Edwards Air Force Base (located approximately 25 miles northeast of the project site). All areas of the Antelope Valley are subject to sonic booms from Edwards Air Force Base and Air Force Plant 42 related to military aircraft operations.

Existing land uses surrounding the project site consist primarily of rural residential. Two residences are located to the northeast of the project site along West Avenue G and 90th Street West, respectively. Two residences are located immediately south of the project site along 97th Street West (there is also one abandoned house). The existing Del Sur Elementary School is located near the southeast corner of the project site. One residence is located west of the project site approximately 0.3 miles away. There are several existing solar generating facilities located adjacent to the project site, including the Summer Solar (A-D) solar facility to the east, a solar facility on the Del Sur Elementary School site, as well as three solar facilities immediately south of the project site (Lancaster Dry Farm Ranch B Solar, Rodeo Solar, and a solar project bounded by West Avenue H, Lancaster Boulevard, 100th Street West, and 97th Street West). There are also two existing solar fields west of Antelope Substation – Canadian Solar (located west of 110th Street West near West Avenue J) and Western Antelope Blue Sky Ranch “A” (WABSR) (southeast corner of 110th Street West/West Avenue J).

Project Setting

The project site currently consists of mostly disturbed vacant land that was previously used for agricultural production. The project site has relatively flat topography with what appears to be several old drainage retention basins and a concrete rubble pile (in southeast quadrant of the site).

All of the roads surrounding the project site are unpaved except for Avenue G, Avenue H (paved up to 93rd Street West), 90th Street West, and 110th Street West. Along the proposed gen-tie routes, only 90th Street West, 110th Street West and West Avenue J are paved.
Existing Ambient Daytime Noise Levels

A full discussion of noise and how it is measured is provided in the Noise Technical Report (Appendix 8). Ambient noise measurements were taken by Aspen Environmental Group as part of the proposed project during a site visit conducted on March 9, 2015, as shown in Figure C.11-1. These measurements, as well as noted sources, are presented in Table C.11-1 and the following text.

Location 1: Located at the WABSR “A” 20-megawatt (MW) solar facility (44346 105th Street West) approximately 20 feet away from four existing inverters and two transformers. The noise measurement was taken in the afternoon (11:56 a.m. to 12:11 p.m.), where the noise sources included fans from the inverters/transformers and solar panel trackers repositioning (repositioned twice during the 15-minute measurement period). There was little to no wind during this measurement period.

Location 2: Located along the western boundary of the Del Sur Elementary School (9023 West Avenue H), adjacent to the school’s existing solar field to the west (non-operational). The noise measurement was taken in the afternoon (1:18 p.m. to 1:33 p.m.), where the noise sources included birds chirping, students playing on the playground, one plane passing overhead, and light wind.

Location 3: Located at 9148 West Avenue G at the property boundary of an occupied residence. The noise measurement was taken in the afternoon (1:51 p.m. to 2:06 p.m.), where the noise sources included wind, vehicles passing by (2 cars and 1 small bus), and vehicle noise from 90th Street West.

Location 4: Located at 46741 110th Street West across the street from an occupied residence. The noise measurement was taken in the late afternoon (4:02 p.m. to 4:17 p.m.), where traffic along 110th Street West was the dominant noise source (16 cars/trucks passes by during the measurement period and where a large super-duty truck caused the peak noise level).

Location 5: Located at 45944 97th Street West at the corner of an occupied residence and an existing solar field, where noise sources included birds chirping and a dog barking.

Existing Roadway Noise Levels Off Site

As noted above, existing noise levels within the Antelope Valley result primarily from vehicular sources on the highways and secondary roads in the area. Table C.11-2 presents the roadway characteristics and existing traffic conditions for roadways in the project area.

---

**Table C.11-1. Ambient Noise Measurements**

<table>
<thead>
<tr>
<th>Measurement Sites (Location ID)</th>
<th>15-Minute Measurements, dBA (Aspen, 2015)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Leq</td>
</tr>
<tr>
<td>Western Antelope Blue Sky Ranch A 20 MW solar facility – Existing inverter and transformer noise (1)</td>
<td>65.9</td>
</tr>
<tr>
<td>Del Sur Elementary School (9023 West Avenue H) (2)</td>
<td>54.5</td>
</tr>
<tr>
<td>9148 West Avenue G (3)</td>
<td>62.9</td>
</tr>
<tr>
<td>46741 110th Street West (4)</td>
<td>61.3</td>
</tr>
<tr>
<td>45944 97th Street West (5)</td>
<td>44.9</td>
</tr>
</tbody>
</table>

Source: Aspen, 2015.

dBA – A-weighted decibel scale, which best reflects the human ear's reduced sensitivity to low frequencies and correlates well with human perceptions of the annoying aspects of noise.

Leq – Equivalent noise level over a given period of time.

Lmax – Maximum noise level over a given period of time.

Lmin – Minimum noise level over a given period of time.
The main access road to the project site would be West Avenue G off of Highway 14 (55 mph speed limit on West Avenue G). Existing roadway noise levels were estimated for the two segments closest to the project site, where existing traffic levels are the lowest. Traffic noise west of 90th Street West (where there is the lowest existing traffic volume) is estimated to be approximately 48 dBA CNEL (see Appendix 8, Attachment 1). Between 60th Street West and 70th Street West, where existing traffic volumes are around 900 vehicles per day (vpd), traffic noise is estimated to be approximately 58 dBA CNEL (see Appendix 8, Attachment 1). These estimates appear to be somewhat conservative considering the ambient noise level measured on West Avenue G west of 90th Street West was 62.9 dBA Leq (15-minute) (see Table C.11-1, noise measurement location #3).

### C.11.2 Regulatory Setting

#### Federal Regulations

Under the Occupational Safety and Health Act of 1970 (OSHA) (29 United States Code [USC] Section 651 et seq.), the United States Department of Labor, Occupational Safety and Health Administration (OSHA) adopted regulations (29 Code of Federal Regulations [CFR] Section 1910.95) designed to protect workers against the effects of occupational noise exposure. These regulations list limits on noise exposure levels as a function of the amount of time during which the worker is exposed, as shown in Table C.11-3. The regulations further specify requirements for a hearing conservation program (Section 1910.95(c)), a monitoring program (Section 1910.95(d)), an audiometric testing (i.e., test of hearing ability) program (Section 1910.95(g)), and hearing protection (Section 1910.95(i)). There are no federal laws governing community noise.

#### State Regulations

California Government Code Section 65302 encourages each local government entity to implement a noise element as part of its general plan. In addition, the California Governor’s Office of Planning and Research (OPR) has developed guidelines for preparing noise elements, which include recommendations for evaluating the compatibility of various land uses as a function of community noise exposure. The recommendations established by the OPR are listed in Table C.11-4. As shown in Table C.11-4, normally acceptable noise levels for a rural yet residential area such as the area around the SGF would be 60 dBA Ldn/CNEL or less.
## Guidelines for Land Use Compatibility

<table>
<thead>
<tr>
<th>LAND USE CATEGORY</th>
<th>COMMUNITY NOISE EXPOSURE – Ldn or CNEL (dBA)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>50</td>
</tr>
<tr>
<td>Residential - Low Density Single Family, Duplex, Mobile Home</td>
<td></td>
</tr>
<tr>
<td>Residential - Multi-Family</td>
<td></td>
</tr>
<tr>
<td>Transient Lodging - Motels, Hotels</td>
<td></td>
</tr>
<tr>
<td>Schools, Libraries, Churches, Hospitals, Nursing Homes</td>
<td></td>
</tr>
<tr>
<td>Auditorium, Concert Hall, Amphitheaters</td>
<td></td>
</tr>
<tr>
<td>Sports Arena, Outdoor Spectator Sports</td>
<td></td>
</tr>
<tr>
<td>Playgrounds, Neighborhood Parks</td>
<td></td>
</tr>
<tr>
<td>Golf Courses, Riding Stables, Water Recreation, Cemeteries</td>
<td></td>
</tr>
<tr>
<td>Office Buildings, Business Commercial and Professional</td>
<td></td>
</tr>
<tr>
<td>Industrial, Manufacturing, Utilities, Agriculture</td>
<td></td>
</tr>
</tbody>
</table>

**Normally Acceptable.** Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.

**Conditionally Acceptable.** New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features are included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.

**Normally Unacceptable.** New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.

**Clearly Unacceptable.** New construction or development should generally not be undertaken.

Local Regulations and Plans

City of Lancaster General Plan 2030. Within the City of Lancaster General Plan 2030, noise is addressed from the long-term planning perspective under the Plan for Public Health and Safety. Noise compatible land use objectives are provided in Table 3-1 of the General Plan (Objective 4.3). For residential land uses, the objective is a maximum exterior noise level of 65 dBA CNEL. For schools, the maximum exterior noise level is 65 dBA CNEL for classrooms and 70 dBA CNEL for playgrounds (City of Lancaster 2009b).

The following policies from the City of Lancaster General Plan 2030 would apply to the proposed project (City of Lancaster 2009b):

- **Policy 4.3.1:** Ensure that noise-sensitive land uses and noise generators are located and designed in such a manner that City noise objectives will be achieved.
- **Policy 4.3.1(a):** Where new development is proposed for areas within which the exterior or interior noise levels outlined in Table 3-1 of Objective 4.3 are likely to be exceeded by existing or planned land uses, require a detailed noise attenuation study to be prepared by a qualified acoustical engineer, in order to determine appropriate mitigation and ways to incorporate such mitigation into project design.
- **Policy 4.3.1(d):** When proposed projects include uses that could be potentially significant noise generators, require noise analyses to be prepared by an acoustical expert, including specific recommendations for mitigation when: 1) the project is located in close proximity to noise sensitive land uses or land which is planned for noise sensitive land uses, or 2) the proposed noise source could violate the noise provisions of the General Plan or Municipal Code.
- **Policy 4.3.1(e):** For purposes of consistency, require that noise reports incorporate the following methodology:
  - Assume three (3) dBA attenuation with doubling of distance for the natural attenuation of noise emanating from roadways (with the exception of freeways where a 4.5 dBA attenuation with doubling of distance may be utilized.
  - Use the daily design capacity of roadways as outlined in the City of Lancaster Transportation Master Plan and the posted speed limit to quantify the design noise levels adjacent to master planned transportation routes for mitigation purposes.
- **Policy 4.3.1(f):** Minimize motor vehicle noise impacts from streets and highways through proper route location and sensitive roadway design (partially applies):
  - Consideration shall be given to the location of truck routes, effects of truck mix, and future motor vehicle volumes on noise levels adjacent to master planned roadways when improvements to the circulation system are planned.
  - Traffic volumes and speed through residential neighborhoods shall be minimized.
- **Policy 4.3.1(h):** Ensure that new commercial or industrial activities (including the placement of mechanical equipment) are designed so that activities comply with the maximum noise level standards at the property line of adjacent uses, thereby minimizing impacts on adjacent land uses (see Table 3-1).
- **Policy 4.3.2:** Whenever feasible, manage the generation of single event noise levels (SENL) from motor vehicles, trains, aircraft, commercial, industrial construction, and other activities such that SENL levels are no greater than 15 dBA above the noise objectives included in the Plan for Public Health and Safety.
Policy 4.3.2(d): As a condition of approval, limit non-emergency construction activities to daylight hours between sunrise and 8:00 p.m.

Policy 4.3.3: Ensure that the provision of noise attenuation does not create significant negative visual impacts.

Policy 4.3.3(a): In reviewing noise impacts, utilize site and architectural design features to mitigate impacts on sensitive land uses in conjunction with the provision of noise barriers. Design techniques are provided, including use of building setbacks, placement of noise tolerant land uses, such as parking areas, between the noise source and receiver, etc.

Policy 4.3.3(b): Whenever feasible, require the use of noise barriers (walls, berms, or a combination thereof) to reduce significant noise impacts. Additional criteria are presented for the noise barriers.

City of Lancaster Municipal Code. The City of Lancaster Municipal Code addresses noise from non-transportation sources, such as stationary equipment, animals, construction, etc. in Title 8, Health and Safety, Chapter 8.24, Noise Regulations. Section 8.24.030 (Loud, unnecessary and unusual noises prohibited) states that “no person shall make, cause or suffer, or permit to be made upon any premises owned, occupied or controlled by him/her any unnecessary noises or sounds which are physically annoying to persons of ordinary sensitiveness which are so harsh or so prolonged or unnatural or unusual in their use, time, or place as to occasion physical discomfort to the inhabitants of any neighborhood” (City of Lancaster 2011).

Additionally, Section 8.24.040 (Loud, unnecessary and unusual noise prohibited - Construction and building) prohibits any construction or repair work of any kind or performing any earth excavating, filling or moving “where any of the foregoing entails the use of any air compressor, jack hammer, power-driven drill, riveting machine, excavator, diesel-powered truck, tractor or other earth-moving equipment, hard hammers on steel or iron or any other machine tool, device or equipment which makes loud noises within five hundred (500) feet of an occupied dwelling, apartment, hotel, mobile home or other place of residence” between the hours of 8:00 PM and 7:00 AM (City of Lancaster 2011).

C.11.3 Environmental Impacts and Mitigation Measures

Potential noise from the proposed project would consist of two types: short-term noise from construction activities, and long-term (continuous or periodic) noise from operation and maintenance of the solar generating facility (SGF).

The following significance criteria for noise were derived from Appendix G of the State CEQA Guidelines. Impacts from the proposed project would be considered significant and would require mitigation if:

- Construction noise would substantially disturb sensitive receptors and violate local rules, standards, and/or ordinances, such as the City of Lancaster General Plan and Municipal Code;
- Construction activity would temporarily cause excessive groundborne vibration or groundborne noise;
- Permanent noise levels in the project vicinity would substantially increase (greater than 5 dBA CNEL) due to operation of project-related stationary noise sources above levels existing without the project; or
- Routine inspection and maintenance activities would substantially increase ambient noise levels (greater than 5 dBA CNEL) in the project vicinity above levels existing without the project.
Environmental Impact Analysis

**Impact N-1:** Construction noise would substantially disturb sensitive receptors and violate local rules, standards, and/or ordinances, such as the City of Lancaster General Plan and Municipal Code. (Class II – Less than Significant with Mitigation)

Construction activities associated with earth-moving, installation of solar facilities, as well as deliveries of materials and equipment and workers commuting to the project site all have the potential to temporarily increase noise levels in the project area. There would be intermittent high noise levels both on and off-site throughout construction. Noise levels would fluctuate depending on the construction activity, equipment type, duration of use, and the distance between the noise source and receiver.

Table C.11-5 provides the estimated noise levels of construction equipment, similar to what may be required to construct the proposed project based on the Federal Highway Administration (FHWA) Roadway Construction Noise Model (RCNM). Equipment and operation noise levels in this inventory are expressed in terms of Lmax noise levels and are accompanied by a usage factor value to assume for modeling purposes. The acoustical usage factor estimates the fraction of time each piece of construction equipment is operating at full power (i.e., its loudest condition) during construction operations. The values presented in Table C.11-5 are based on extensive measurements taken in conjunction with the Central Artery/Tunnel (CA/T) Project (FHWA, 2006). Noise levels associated with these individual pieces of equipment would range from 101 dBA Lmax at 50 feet for a vibratory pile driver, and between 74 to 85 dBA Lmax at 50 feet from other equipment.

Construction of the proposed project would involve the use of various pieces of construction equipment throughout the various phases of construction, including site preparation, facility installation (assemblage of PV module arrays, gen-tie installation), and commissioning/finishing. The primary source of noise during construction would result from driving foundation support posts (similar to steel posts used in highway guard rails) for the PV module arrays.

Simultaneous heavy equipment use at the project site during construction would generate a combined maximum noise level during facility installation activities, which is when post driving activities would occur (the primary source of noise during construction), of up to approximately 84 dBA Leq at 225 feet (the shortest distance between the solar arrays and adjacent residences – closest occupied residence is located just west of 93rd Street West on West Avenue H) from the construction activities, if using impact pile drivers. Noise levels would diminish at approximately 6 dBA per doubling of distance (see “Background on

<table>
<thead>
<tr>
<th>Equipment</th>
<th>Acoustical Usage Factor (%)</th>
<th>Measured Lmax, dBA (at 50 feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Backhoe</td>
<td>40</td>
<td>78</td>
</tr>
<tr>
<td>Compactor (ground)</td>
<td>20</td>
<td>83</td>
</tr>
<tr>
<td>Compressor (air)</td>
<td>40</td>
<td>78</td>
</tr>
<tr>
<td>Concrete Mixer Truck</td>
<td>40</td>
<td>79</td>
</tr>
<tr>
<td>Concrete Pump Truck</td>
<td>20</td>
<td>81</td>
</tr>
<tr>
<td>Crane</td>
<td>16</td>
<td>81</td>
</tr>
<tr>
<td>Dozer</td>
<td>40</td>
<td>82</td>
</tr>
<tr>
<td>Dump Truck</td>
<td>40</td>
<td>76</td>
</tr>
<tr>
<td>Excavator</td>
<td>40</td>
<td>81</td>
</tr>
<tr>
<td>Flat Bed Truck</td>
<td>40</td>
<td>74</td>
</tr>
<tr>
<td>Front End Loader</td>
<td>40</td>
<td>79</td>
</tr>
<tr>
<td>Generator</td>
<td>50</td>
<td>81</td>
</tr>
<tr>
<td>Grader</td>
<td>40</td>
<td>83</td>
</tr>
<tr>
<td>Paver</td>
<td>50</td>
<td>77</td>
</tr>
<tr>
<td>Pickup Truck</td>
<td>40</td>
<td>75</td>
</tr>
<tr>
<td>Pneumatic Tools</td>
<td>50</td>
<td>85</td>
</tr>
<tr>
<td>Roller</td>
<td>20</td>
<td>80</td>
</tr>
<tr>
<td>Scraper</td>
<td>40</td>
<td>84</td>
</tr>
<tr>
<td>Tractor1</td>
<td>40</td>
<td>84</td>
</tr>
<tr>
<td>Vibratory Pile Driver</td>
<td>20</td>
<td>101</td>
</tr>
<tr>
<td>Warning Horn</td>
<td>5</td>
<td>83</td>
</tr>
<tr>
<td>Welder/Torch</td>
<td>40</td>
<td>74</td>
</tr>
</tbody>
</table>

Notes: Lmax – maximum A-weighted sound level (dBA, slow). 1 - Noise level shown is from Spec. 721.560 rather than from actual measurements, due to measured data being unavailable.
Noise levels from site preparation activities were determined to be approximately 79 dBA at 75 feet (the shortest distance between the project site boundary and adjacent residences). As such, noise levels would be greater than 65 dBA Leq when operating within 390 feet (or less) from a sensitive receptor. Commissioning and finishing activity noise levels were calculated to be less than the noise levels generated by the facility installation or site preparation activities (see Appendix 8, Attachment 1).

With incorporation Mitigation Measures N-1 through N-11, levels of this magnitude would be clearly audible to the nearest residences and at Del Sur Elementary School, where ambient noise levels in the range of 45-55 dBA Leq were measured. Noise levels of 65 dBA and above represent substantial increases over the ambient outdoor noise levels, which would be quite noticeable (3 dBA is a perceptible change in environmental noise; 5 dBA difference typically causes a change in community reaction; 10 dBA increase is perceived as a doubling of loudness). Compliance with the City’s noise standards and implementation of Mitigation Measures N-1 through N-11 would reduce construction noise impacts, and provide a mechanism to respond to and minimize noise complaints (Mitigation Measure N-9) such that impacts would be reduced to less than significant.

The loudest phases of construction involving earth-moving equipment and pile driving would occur intermittently over the course of construction, during daylight hours, Monday through Saturday. Construction work would be conducted during the hours specified in the City’s Municipal Code (7:00 a.m. to 8:00 p.m.) when occurring within 500 feet of an occupied residence, such that this short-term disturbance would not conflict with the local regulatory requirements. Additionally, the noises and noise levels produced are anticipated to be consistent with general construction noise and would not be prolonged or unnatural or unusual in their use, time, or place as to cause physical discomfort to the local residences, who have already experienced similar construction activities associated with the other SGFs located in the project vicinity.

**Noise from Construction Traffic.** During construction, the daily number of truck trips would vary widely, depending on the construction phase. As noted in the Project Description, approximately 250 new jobs are anticipated during the construction phase, which would result in increased traffic along the local roadways. Additionally, equipment and material haul truck trips during construction would contribute to traffic and noise. The main access road to the project site would be West Avenue G off of Highway 14. Assuming at the peak of construction all 250 workers were to commute to the project site (assumes a single work-shift), as well as a greater than average number of delivery haul truck trips (1.5 times the average – 13 heavy haul truck trips, 9 medium duty truck trips, and 16 water truck trips) the increase in traffic noise west of 90th Street West (where there is the lowest existing traffic volume) would be approximately 8 dBA CNEL (Existing = 48 dBA CNEL; Existing + Project = 56 dBA CNEL – see Appendix 8, Attachment 1). This increase in noise levels would be noticeable to residences along West Avenue G. However, on other portions of West Avenue G further east of the project site, the increase in traffic noise would be less as the existing traffic volumes are much greater. For example, between 60th Street West and 70th Street West, where existing traffic volumes are around 900 vpd, the increase in noise levels would be approximately 2 dBA CNEL (Existing = 58 dBA CNEL; Existing + Project = 60 dBA CNEL – see Appendix 8, Attachment 1). This level of increase would not be noticeable to residences located along West Avenue G.
Compliance with the City’s noise standards and implementation of Mitigation Measures N-1 through N-11 would reduce construction traffic noise impacts, and provide a mechanism to respond to and minimize noise complaints (Mitigation Measure N-9) such that impacts would be reduced to less than significant.

Gen-tie construction activities would include standard trenching activities, where noise levels are anticipated to be approximately 72 dBA Leq at 100 feet (the shortest distance between the gen-tie line and adjacent residences along any of the possible routes identified). These activities would proceed in a linear fashion along the gen-tie alignment; it is not expected that any one location would be impacted for more than a week. Compliance with the City’s noise standards and implementation of Mitigation Measures N-1 through N-11 would reduce gen-tie construction noise impacts, and provide a mechanism to respond to and minimize noise complaints (Mitigation Measure N-9) such that impacts would be reduced to less than significant.

Impacts related to decommissioning would be similar to construction; however, the intensity would be less as site preparation activities would not be required nor would pile driving activities occur. The same mitigation measures, as presented below (N-1 through N-11), would apply to decommissioning. Impacts would be reduced to a less-than-significant level.

Mitigation Measures

MM N-1  The applicant and/or its contractor shall coordinate with the Westside Unified School District and Del Sur Elementary School to schedule noise generating construction activities that are anticipated to result in noise levels greater than 75 dBA, and are planned to occur within 500 feet of the Del Sur Elementary School, such that they would be the least disruptive to the school’s operations which occur between 7:45 a.m. and 2:00 p.m.

MM N-2  All noise-producing construction equipment and vehicles using internal combustion engines shall be equipped with mufflers, air-inlet silencers where appropriate, and any other shrouds, shields, or other noise-reducing features in good operating condition and appropriate for the equipment that meet or exceed original factory specifications. Mobile or fixed “package” equipment (e.g., arc-welder, air compressors) shall be equipped with shrouds and noise control features that are readily available for that type of equipment.

MM N-3  Limit unnecessary idling of construction equipment.

MM N-4  Electric-powered equipment shall be used instead of pneumatic or internal combustion power equipment, where feasible.

MM N-5  The use of noise-producing signals, including horns, whistles, alarms, and bells, shall be limited to safety warning purposes only.

MM N-6  No project-related public address system or music system shall be audible at any adjacent receptor.

MM N-7  Material and equipment staging, parking, and maintenance areas shall be located as far as practicable from residences and the Del Sur Elementary School.

MM N-8  Inform property owners within 0.5 mile of the project boundary of anticipated noise disturbances at least two to four weeks prior to construction, including a contact number to register noise complaints.
Del Sur Solar Project

C. ENVIRONMENTAL SETTING, ANALYSIS, AND MITIGATION MEASURES

Provide a project hotline where residents can call with questions or issues. All calls shall be returned by the applicant and/or its contractor within 24 hours to answer noise questions and handle complaints. Documentation of the complaint and resolution shall be submitted to the City monthly. A clear appeal process with the City shall be established prior to construction commencement that allows for resolution of noise problems that cannot be immediately solved.

Where feasible, construction traffic shall be routed to avoid noise-sensitive areas, such as residences and schools. The project site shall be accessed via West Avenue G.

Actively pursue and implement measures to reduce project-related automobile trip generation, such as ride-share and carpooling programs.

**Impact N-2:** Construction activity would temporarily cause excessive groundborne vibration or groundborne noise. *(Class III – Less than Significant)*

Vibration-sensitive land uses include high-precision manufacturing facilities or research facilities with optical and electron microscopes. None of these occur in the project area. Therefore, the significance threshold for “excessive groundborne vibration” depends on whether a nuisance, annoyance, or physical damage to any structure could occur.

Construction of the proposed project and gen-tie lines would not require blasting; however, impact-pile driving would be utilized for installation of the PV module foundation support posts, and could cause vibration impacts at close distances. While these construction activities would result in some minor amounts of groundborne vibration, such groundborne noise or vibration would attenuate rapidly (i.e., 200 feet or less) from the source and would not be perceptible outside of the construction areas *(FHWA 2006).* As such, limited sources of groundborne vibration would be expected to affect receptors outside of the work areas, and there would not be any potential for excessive exposure of persons to or generation of ground borne vibration levels. Impacts would be less than significant.

**Impact N-3:** Permanent noise levels in the project vicinity would substantially increase (greater than 5 dBA CNEL) due to operation of project-related stationary noise sources above levels existing without the project. *(Class III – Less than Significant)*

As discussed in the Project Description, the proposed project would be managed, monitored, and controlled remotely. However, the project site would be visited regularly for security, maintenance, and system monitoring. Maintenance would occur during daylight hours, when possible; however, nighttime maintenance would typically occur on the PV modules and DC systems. Maintenance activities at the project site would consist of equipment inspection and repair/replacement, vegetation trimming, as well as periodic PV module washing. No major equipment is anticipated to be required for maintenance of the facility. As such, the long-term operational noise levels are generally anticipated to be related to the tracker modules, inverters, and other electrical equipment at the site, similar to other solar facilities in the area.

Noise measurements were taken at the WABSR “A” site on March 9, 2015, where noise levels 20 feet from the existing transformers and inverters at the site were measured at approximately 66 dBA Leq (see Table C.11-1, noise measurement #1), which would equate to a noise level of 41 dBA Leq at a distance of 440 feet (shortest distance between closest inverter/electrical equipment pad shown in Figure B-3, Site Plan, and the closest residence). This is below the range of ambient noise levels measured at the nearest residences and at Del Sur Elementary School.
With respect to the noise associated with the tracker modules, during the short-term (15-minute) measurement completed at the WABSR “A” site, the tracker modules which were located approximately 30 feet away repositioned twice. Tracker modules make noise on a periodic basis throughout a solar facility as they readjust to align with the sun. The noise associated with these adjustments results in a low electric hum which lasts less than a minute. Additional tracker module adjustments would occur in the mornings when they power up (“wake up”) and at night when they power down (stowing or “going to sleep”). These noise levels are substantially less than the noise associated with the inverters and transformers and would have little to no effect on the ambient noise of the area over any notable duration of time. Furthermore, based on Figure B-1, the applicant plans to install fixed arrays along the southern boundary of the project site, where the panels are located closest to sensitive receptors (Del Sur Elementary School and residences along West Avenue H). As such, less than significant noise impacts would occur related to the tracker modules during operations.

**Impact N-4:** Routine inspection and maintenance activities would substantially increase ambient noise levels (greater than 5 dBA CNEL) in the project vicinity above levels existing without the project. (Class II – Less than Significant with Mitigation)

Periodic maintenance would result in temporary increases in noise levels, generally associated with use of trucks for accessing the site and PV module washing. For example, assuming up to two panel washing crews would be operating simultaneously and in close proximity to one another, a noise level of approximately 68 dBA Leq at 225 feet would be generated, which is the shortest distance between the PV panel arrays and the closest residence (see Appendix 8, Attachment 1). Panel washing activities would occur only during daylight hours and would be of short duration in any one area; however, this level of noise represents a potential adverse temporary increase in noise levels above the ambient conditions measured at the nearest residences (45 dBA Leq daytime – See Table C.11-1, noise measurement #5). To reduce the noise impacts related to washing the PV panels to a less than significant level, Mitigation Measure N-12 is recommended, which would limit the hours during which these activities would occur in close proximity to the project boundary to limit the impacts on surrounding residences.

Due to the distance between the PV panels and Del Sur Elementary School (1,100 feet), no mitigation is necessary for the school, as noise levels are anticipated to be approximately 54 dBA Leq at 1,100 feet, which is consistent with the ambient noise level of 54.5 dBA Leq measured at the school.

If construction-grade trucks (medium-size trucks with two axles and dual rear wheels) are used for routine operational activities, they could generate intermittent maximum noise levels of up to approximately 75 dBA Lmax at 50 feet; 62 dBA Lmax at 225 feet, which is the shortest distance between the project site boundary and the closest residence. However, use of maintenance trucks to inspect the project site or perform routine maintenance activities would be of short duration and only occur intermittently. Impacts would be less than significant.

**Mitigation Measure**

**MM N-12** During operations, panel washing activities shall be limited to the hours of 8:00 a.m. to 5:00 p.m. when occurring within 325 feet of an occupied residence to ensure noise levels of 65 dBA or less are maintained.
C.11.4 Cumulative Impact Analysis

Geographic Extent

The geographic extent for the analysis of cumulative impacts related to noise is generally limited to areas within approximately one mile of the proposed project, including the gen-tie line and haul truck route (West Avenue G). This area is defined as the geographic extent of the cumulative noise impact area because noise impacts would generally be localized. It is possible that noise from different sources could combine to create a significant impact to receptors at any point between the projects, as well as along the common roadways utilized by the projects. At distances greater than one mile, impulse noise may be briefly audible; steady construction and/or operational noise would generally dissipate such that the level of noise would reduce to below the City of Lancaster General Plan noise limits and blend in with the background noise levels. The baseline for assessing cumulative noise impacts includes the noise sources associated with other projects in the immediate vicinity (within one mile) of the proposed project and the existing sensitive receptors near project-related activities or noise sources.

If approved, the proposed project would be developed within one mile of approximately 13 solar projects, of which five are already operational, as shown in Figure C.1-1 and listed in Table C.1-1.

Cumulative Effects of the Proposed Project

If construction of these projects were to occur at the same time as the proposed project, which could occur since several are already approved and one is expected to start construction in January 2016, cumulative noise impacts would occur. However, similar to the proposed project, development of solar projects generally occur in phases over large sites, where the probability of noisy construction activities occurring at the same time and in close proximity to one another in such a way as to result in a cumulative noise impact is fairly low. Furthermore, the proposed project’s temporary construction noise impacts would be reduced to less than significant with implementation of Mitigation Measures N-1 through N-11, as would those of the other cumulative projects, such that cumulative impacts would be less than significant.

Temporary vibration impacts would be limited during the construction period. As discussed above, the geographic extent of potentially significant ground vibrations seldom extends beyond the immediate vicinity of the vibration source. Therefore, the proposed project’s contribution would not be cumulatively considerable.

The proposed project would not result in substantial permanent increase in ambient noise levels; therefore, the project’s contribution would not be cumulatively considerable.

Prior to decommissioning activities, many of the cumulative projects identified in Table C.1-1 are assumed to be operational and part of the overall ambient noise conditions. Additionally, given the time frame prior to decommissioning, further population growth, and other development projects, the ambient noise levels in the project area are expected to have increased. Decommissioning activities associated with the proposed project would result in less-than-significant temporary noise impacts that would not likely combine with other projects occurring at the same time and in close proximity. Therefore, impacts would be less than significant.

C.11.5 Level of Significance After Mitigation

Compliance with the City’s noise standards and implementation of Mitigation Measures N-1 through N-11 would reduce noise levels during construction (and decommissioning) at the SGF and along the gen-tie
line route. Mitigation Measures N-10 and N-11 apply to off-site traffic associated with construction, limiting construction traffic to avoid residences and the Del Sur Elementary School to the extent possible, as well as reduce automobile trip generation. With implementation of these measures construction noise, both on- and off-site, would be reduced to less than significant.

Impacts related to groundborne vibration and noise during construction have been found to be less than significant, as groundborne vibration or groundborne noise would attenuate rapidly and would not be expected to affect receptors outside of the work areas.

Operational noise impacts associated with the SGF stationary noise sources (transformers, inverters, trackers, and electrical equipment) and gen-tie line would be less than significant and would not require mitigation. Operational noise impacts associated with routine inspection and maintenance, specifically panel washing activities, would be reduced to less than significant with implementation of Mitigation Measure N-12, which limits the hours during which panel washing activities would occur when located in close proximity to occupied residences. Security patrols would also have the potential to disturb residences; however, these activities would be of short duration and only occur intermittently such that impacts associated with site inspections would be less than significant.
C.12 Public Services, Utilities, and Service Systems

This section describes effects on public services, utilities, and service systems that would be caused by the implementation of the proposed project. The following discussion addresses existing environmental conditions in the affected area, identifies and analyzes environmental impacts for the proposed project, and recommends measures to reduce or avoid significant impacts anticipated from proposed project construction, operation, maintenance, and decommissioning. In addition, existing laws and regulations relevant to public services, utilities, and service systems are described. In some cases, compliance with these existing laws and regulations would serve to reduce or avoid certain impacts that might otherwise occur with the implementation of the proposed project.

Data collection was conducted through review of the following resources:

- City of Lancaster municipal resources
- County of Los Angeles municipal resources
- Consultation with public service and utility providers.

The study area was defined as the City of Lancaster. The current condition and quality of these public services, utilities, and service systems resources were used as the baseline against which to compare potential impacts of the proposed project.

C.12.1 Environmental Setting

This section presents information on public services, utilities, and service systems conditions in the project area. All public service providers serving the proposed project are located within the City of Lancaster. Therefore, the study area for the public services analysis is limited to the City of Lancaster.

Government agencies have categorized data pertaining to utility systems as sensitive critical infrastructure information (including location, capacity, and type). As a result, public access to these data is generally restricted for security reasons; therefore, only information that is readily and publicly accessible is presented in this section. The following section discusses the size and extent of the public services that serve the project area, as well as the existing utility infrastructure that would be crossed by or co-located with the proposed project components.

Public Services

Crime Prevention and Protection Services

The City contracts with the Los Angeles County Sheriff’s Department (LASD) for police services. Located approximately 8.5 miles east of the project site, the Lancaster Sheriff’s station sits at the northwest corner of Lancaster Boulevard and Sierra Highway (501 West Lancaster Boulevard, Lancaster, CA 93534). The Lancaster Station has 189 sworn personnel and 74 civilian personnel assigned to cover an area of more than 600 square miles, including the City of Lancaster, and the communities of Lake Los Angeles, Quartz Hill, and Antelope Acres. Law enforcement services are provided for over 190,000 residents. (LASD 2015)

Fire Prevention and Suppression Services

The City of Lancaster contracts with the Los Angeles County Fire Department for fire and paramedic services. There are currently six fire stations within the City of Lancaster, as well as one in the...
unincorporated community of Antelope Acres. Services provided include fire suppression, fire prevention, paramedic response, swift water rescue, and hazardous materials response. (City of Lancaster 2015a)

The following fire stations are within the City of Lancaster:

- Fire Station 33, Battalion Headquarters, 44947 Date Avenue
- Fire Station 112 CFF\(^1\), 8812 West. Ave. E-8
- Fire Station 117, 44851 30\(^{th}\) Street East
- Fire Station 129, Division Headquarters, 42110 6\(^{th}\) Street West
- Fire Station 130, 44558 40\(^{th}\) Street West
- Fire Station 134, 43225 North 25\(^{th}\) Street West
- Fire Station 135, 1846 East Avenue K-4

**Schools**

The City of Lancaster is served by four public school districts: Antelope Valley Union High School District (AVUHSD), Eastside Union School District (EUSD), Lancaster School District (LSD), and the Westside Union School District (WUSD). The following table provides the number of schools, grade levels, and the number of enrolled students in public school districts serving the project area.

<table>
<thead>
<tr>
<th>School District</th>
<th>No. of Schools</th>
<th>Grade Level</th>
<th>Number Enrolled</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antelope Valley Union High School District</td>
<td>12</td>
<td>7-12</td>
<td>Over 23,000</td>
</tr>
<tr>
<td>Eastside Union School District</td>
<td>5</td>
<td>K-8</td>
<td>Over 3,000</td>
</tr>
<tr>
<td>Lancaster School District</td>
<td>22</td>
<td>Preschool, K-8, Alternative Education</td>
<td>Over 14,000</td>
</tr>
<tr>
<td>Westside Union School District</td>
<td>14</td>
<td>K-8</td>
<td>Approx. 9,000</td>
</tr>
</tbody>
</table>


The City of Lancaster also has 23 private schools as an alternative to the public school system and six colleges or universities of higher education.

**Parks**

More than 450 acres of parks exist in the City of Lancaster. Twelve City parks provide ample access to picnic shelters, barbeques, volleyball, tennis, basketball, and horseshoe courts, softball fields, swimming pools, playgrounds, and walking trails. The following parks are located in the City of Lancaster:

- American Heroes Park, 701 West Kettering Avenue
- Deputy Pierre W. Bain Park, 45045 North 5\(^{th}\) Street East
- El Dorado Park, 44501 North 5\(^{th}\) Street East
- Forrest E. Hull Park, 2850 West Avenue L-12
- Jane Reynolds Park, 716 Oldfield Street

\(^1\) CFF refers to “call firefighters,” which means firefighters are on call; there are no full-time firefighters at this station.
Lancaster City Park, 43063 10th Street West
Mariposa Park, 45755 North Fig Avenue
Prime Desert Woodland Preserve, 43201 35th Street West
Rawley Duntley Park, 3334 West Avenue K
Skytower Park, 43434 North Vineyard
Tierra Bonita Park, 44910 27th Street East
Whit Carter Park, 45635 Sierra Highway

**Emergency Health Care Facilities**

Two hospitals serve the project site:

- **Antelope Valley Hospital**
  
  1600 West Avenue J

  The Antelope Valley Hospital is a full-service 420-bed, not-for-profit, acute care, medical and surgical hospital established in 1955, with a 24-hour emergency room (AVH 2015).

- **Palmdale Regional Medical Center**
  
  38600 Medical Center Drive, Palmdale, CA 93551

  The Palmdale Regional Medical Center is an acute-care hospital and medical center that serves the Antelope Valley and surrounding areas. The hospital features 157 licensed acute care beds, inpatient and outpatient surgery, cardiac services featuring a STEMI Receiving Center (heart attack), and a 35-bed 24-hour emergency department (PRMC 2015).

**Utility Systems**

**Natural Gas**

Southern California Gas Company is the distributor of natural gas in the project area. The Gas Company maintains pipelines in easements on 95th Street West, 100th Street West and West Avenue H.

**Electricity**

Southern California Edison currently provides electrical service to the project area.

**Water Services**

The two primary sources of water for the Lancaster area are local groundwater and the State Water project. The primary source of imported water is the California Aqueduct. Water is purchased by the Antelope Valley-East Kern Water Agency (AVEK), a regional water importer and water wholesale supply organization. AVEK sells and distributes water to retail public and private water agencies, who in turn sell the water directly to consumers.

There are 11 retail water districts or mutual water companies serving the Lancaster area. Areas not served by these agencies receive water by individual wells or by truck. Except in emergencies, there is little need for cooperation between the 11 separate companies due to different types of systems.

Currently, there are 13 individual water companies providing water to customers in the City of Lancaster.
Wastewater Facilities

Wastewater flows from the City are treated at the Lancaster Water Reclamation Plant. This plant has a current capacity of 18 million gallons per day (mgd); capacity needs by the year 2020 are estimated at 26.0 mgd (County of LA 2015 and City of Lancaster 2009).

The City has made considerable progress in reducing its reliance on potable water at City facilities and commercial locations by replacing potable water consumption with the use of recycled water from the Lancaster Water Reclamation Plant (LWRP). The LWRP uses a three-stage water treatment process to produce reclaimed/recycled water for non-potable uses. The City, with help from the US Army Corps of Engineers, have constructed eight miles of pipeline to facilitate the use and transport of this recycled water. The pipelines extend from the LWRP on Avenue D to Lancaster City Park via Division Street, Avenue K, and 10th Street West. To maintain minimum operating pressure on the recycled water pipelines, a pump station is under construction at the northwest corner of Division Street and Avenue E. In addition to the current users of the recycled water (e.g. Lancaster City Park, Lancaster University Center, and Kaiser Permanente Facility), many of the City’s solar developers have used recycled water for dust control (City of Lancaster 2015b).

Solid Waste Management

Waste Management of Antelope Valley is currently the sole franchise private hauler serving the incorporated areas and in the study area for waste collection. The Lancaster Landfill and Antelope Valley Landfill are two landfill sites located in the Antelope Valley. Both sites are in the process of expanding to accommodate increasing waste generation. Nearly 100 percent of Lancaster’s solid waste is taken to one of these landfills; however, other regional landfills in Los Angeles County also accept solid waste from the City.

Assembly Bill (AB) 939 requires cities and counties to divert 25 percent of their wastes by 1995 and 50 percent by 2000 through source reduction, recycling, and composting. More recent legislation (AB 341) requires 75 percent recycling, composting, or source reduction of solid waste by 2020 (CalRecycle 2015a). Lancaster has established recycling and resource recovery programs in accordance with the requirements of AB 939.

C.12.2 Regulatory Setting

Federal Regulations

There are no applicable federal plans or policies for this issue area.
C. ENVIRONMENTAL SETTING, ANALYSIS, AND MITIGATION MEASURES

State Regulations

Protection of Underground Infrastructure. California Government Code, Division 5, Chapter 3.1, “Protection of Underground Infrastructure” (Sections 4216-4216.9) requires that an excavator must contact a regional notification center at least two days prior to excavation of any subsurface installation. Anyone seeking to begin a project that may damage underground infrastructure can call Underground Service Alert, the regional notification center. Underground Service Alert will notify the utilities that may have buried lines within 1,000 feet of the project. Representatives of the utilities are required to mark the specific location of their facilities within the work area prior to the start of project activities in the area.

California Integrated Waste Management Board Solid Waste Policies, Plans, and Regulations. The Integrated Waste Management Act of 1989 (Public Resources Code [PRC] 40050 et seq.) or Assembly Bill 939 (AB 939, codified in PRC 40000), administered by the California Integrated Waste Management Board, requires all local and county governments to adopt a Source Reduction and Recycling Element to identify means of reducing the amount of solid waste sent to landfills. This law currently requires 75 percent recycling, composting, or source reduction of solid waste by 2020 (CalRecycle 2015a). To assist local jurisdictions in achieving these targets, the California Solid Waste Reuse and Recycling Access Act of 1991 requires all new developments to include adequate, accessible, and convenient areas for collecting and loading recyclable and green waste materials.

Local Regulations and Plans

City of Lancaster General Plan. The City of Lancaster has an adopted General Plan that includes public utilities and service system goals and policies (City of Lancaster 2009). The following policies:

- **Objective 15.1 (Level of Service):** Achieve and maintain the following levels of service:
  - **Streets:** Level of Service “C” wherever possible; Level of Service “D” during peak hours.
  - **Water Systems:** Adequate fire flow as established by the County Fire Department; sufficient storage for emergency situations.
  - **Police Protection:** Reduce part one crimes (from FBI Uniform Crime Report) to below three hundred (300) crimes per 10,000 population.
  - **Fire Protection:** Five (5) minute average response time from receipt of alarm at station to time of arrival on scene.
  - **Paramedic Services:** Eight (8) minute average response time from alert at station to arrival on scene.
- **Policy 15.1.1:** Promote continued coordination between the City of Lancaster and local service providers.
- **Policy 15.1.2:** Cooperate with local water agencies to provide an adequate water supply system to meet the standards for domestic and emergency needs.
- **Objective 15.2:** Minimize the negative impacts of solid waste disposal using a variety of methods including mitigating the disposal of waste from outside the Antelope Valley.

C.12.3 Environmental Impacts and Mitigation Measures

Public service systems and utilities were evaluated by reviewing the most current data available from State and local agency websites, and the City of Lancaster General Plan.
The criteria listed below were used to determine if the proposed project would result in significant impacts related to utilities and public services, and were derived from Appendix G of the State CEQA Guidelines.

- Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for fire protection, police protection, schools, parks, or other public facilities?
- Would the project exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?
- Would the project require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?
- Would the project require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?
- Would the project have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?
- Would the project result in a determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project’s projected demand in addition to the provider’s existing commitments?
- Would the project be served by a landfill with sufficient permitted capacity to accommodate the project’s solid waste disposal needs?
- Would the project comply with federal, State, and local statutes and regulations related to solid waste?

**Environmental Impact Analysis**

**Impact PSU-1:** The proposed project would result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for fire protection, police protection, schools, parks, or other public facilities. (Class II – Less than Significant with Mitigation)

**Fire/Police Protection/Emergency Response**

Fire protection, police protection, or other emergency response services would be necessary if a construction accident or other emergency incident occurred at the project site. In the immediate area of the proposed project, the influx of up to 250 workers would increase the area population and could result in new demands on public services for the duration of construction activities. During operation of the proposed project, only one full-time equivalent position would be required. The site would be unoccupied most of the time, and would only require a small crew during periodic maintenance and inspection activities. Due to the capabilities of the existing fire protection services (seven fire stations) in the area, this current condition is considered adequate to respond to emergencies at the project site. Located approximately 8.5 miles east of the project site, the Lancaster Sheriff’s station sits at the northwest corner of Lancaster Boulevard and Sierra Highway. The Lancaster Station has 189 sworn personnel and 74 civilian personnel assigned to cover an area of more than 600 square miles, which would be sufficient to respond...
to a potential criminal incident at the project site. Therefore, impacts to fire and police protection would be less than significant.

Worker commute traffic and construction and operational activities at the project site could increase the potential for accidents, or other medical emergencies. Construction traffic, including deliveries of large equipment, may temporarily block or slow traffic along West Avenue G. In order to minimize adverse impacts, Mitigation Measure PSU-1 requires the applicant to inform emergency service agencies of road closures, detours, and delays. This measure also includes provisions to accommodate emergency vehicles, such as immediately stopping work for emergency vehicle passage, short detours, and alternate routes developed in conjunction with local agencies.

The potential to interfere with emergency response vehicles would be reduced during operation and maintenance (O&M). Additionally, no personnel would be permanently stationed at the project site. Impacts during decommissioning would be the same as the impacts described under construction. With the implementation of MM PSU-1, impacts to emergency response vehicles would be less than significant.

Schools/Parks

The anticipated workforce necessary for construction of the proposed project would be approximately 250 construction personnel working on any given day. The number of workers expected to relocate to the surrounding area is not expected to be substantial. If temporary housing should be necessary, it is expected that accommodations would be available in the City of Lancaster and the nearby City of Palmdale. Construction workers who relocate to these areas may enroll their children in local schools. However, because it is expected that most construction workers would not relocate, the addition of children of relocated workers would be minimal and would not affect the capacity of the schools they might attend. This temporary workforce would not induce an increase in population levels that could adversely affect local school service levels or require new or expanded school facilities. Likewise, this temporary workforce would not increase population in a manner that would result in additional demand for park facilities.

Only one full-time worker would be required for the proposed project once operational. Therefore, O&M would not induce an increase in population levels that could adversely affect local school service levels or require new or expanded school facilities. Likewise, O&M would not increase population in a manner that would result in additional demand for park facilities. Impacts during decommissioning would be the same as the impacts described under construction. Impacts would be less than significant.

Mitigation Measures

**MM PSU-1** The applicant shall coordinate in advance with emergency service providers to avoid restricting the movements of emergency vehicles. The Sheriff’s department, fire department, ambulance services, and paramedic services shall be notified in advance by the applicant of the proposed locations, nature, timing, and duration of any construction, major repair, and decommissioning activities, and shall be advised of any access restrictions that could impact their effectiveness. At locations where roads will be blocked, provisions shall be ready at all times to accommodate emergency vehicles, such as immediately stopping work for emergency vehicle passage, providing short detours, and developing alternate routes in conjunction with the public agencies. Traffic control/detour plans shall include details regarding coordination procedures with emergency service providers and copies of the plans shall be provided to all relevant...
service providers. Documentation of coordination with emergency service providers shall be provided to the City of Lancaster prior to the start of construction.

**Impact PSU-2:** The proposed project would exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board. (*Class III – Less than Significant*)

Wastewater generated during construction would be limited to that generated by construction personnel and would be accommodated by temporary portable toilets brought to staging areas for construction crews. These portable toilets would be maintained by a licensed sanitation contractor. The licensed contractor would dispose of the waste at an off-site location and in compliance with standards established by the RWQCB.

Long-term operation and maintenance would not generate substantial amounts of wastewater. When in operation, the proposed project would be unstaffed and remotely operated and would not require dedicated, full-time personnel. Routine maintenance would require workers to visit the proposed project throughout the year, and workers would bring portable restroom facilities during maintenance activities. These toilets would be maintained as described above. Therefore, minimal wastewater would be generated, and operating the project would not result in discharge of concentrated wastewater or large volumes of wastewater to a wastewater treatment facility that would exceed treatment requirements set forth by the RWQCB. Impacts during decommissioning would be the same as impacts described during construction. Impacts from the proposed project would be less than significant.

**Impact PSU-3:** The proposed project would require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects. (*Class III – Less than Significant*)

Approximately 196 acre-feet (af) of water would be required during construction, with actual consumption strongly dependent upon climatic conditions. Construction water needs would be limited to soil conditioning and dust suppression. Potable water would be brought to the project site for drinking and domestic needs. During the operational phase, the proposed project would require minimal water use. The annual water consumption for operations of the facility, including periodic PV module washing, is expected to be 4.8 acre-feet per year (afy) and would be supplied from nearby existing wells. The project would not generate a substantial amount of wastewater. Therefore, the proposed project would not require the construction of new water or wastewater treatment facilities or the expansion of existing facilities, the construction of which could cause significant environmental effects. Impacts from the proposed project would be less than significant.

**Impact PSU-4:** The proposed project would require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effect. (*Class III – Less than Significant*)

The project site has relatively flat topography. In compliance with Section 402 of the Clean Water Act, the project would be subject to the Best Management Practices specified in the Stormwater Pollution Prevention Plan (SWPPP) that include boundary protection (measures to prevent or control surface runoff leaving the area), dewatering requirements, and concrete waste management. The SWPPP would be based on final engineering design and would address each component of the proposed project.

Activities associated with O&M would be conducted within new access roads created during construction, existing roads, and existing disturbed areas. On-site drainage patterns established for the construction of the proposed project would generally remain unchanged with long-term O&M. Impacts during decommissioning would be the same as impacts described during construction.
The proposed project would not require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effect. Impacts would be less than significant.

**Impact PSU-5:** The proposed project would have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed. (Class III – Less than Significant)

Approximately 196 af of water would be required during construction, with actual consumption strongly dependent upon climatic conditions. Construction water needs would be limited to soil conditioning and dust suppression. Potable water would be brought to the project site for drinking and domestic needs. The annual water consumption for operations of the proposed project, including periodic PV module washing, is expected to be 4.8 afy.

The applicant has entered into a water supply agreement with the owners of a nearby property. The applicant will be allowed to utilize water from the neighboring well without limit during construction of the project, subject to applicable laws, rules and regulations. The applicant will also be allowed to use up to 15 afy from this well during operation of the project. The owners of the nearby property are a party to the current water rights adjudication case for the Antelope Valley Groundwater Basin, and have historically used approximately 500 to 700 afy on their property (Reca 2015). Therefore, adequate water supplies are available for the project and impacts would be less than significant.

**Impact PSU-6:** The proposed project would result in a determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project’s projected demand in addition to the provider’s existing commitments. (Class III – Less than Significant)

The proposed project would not tie into the sanitary sewer system, and therefore would not affect any wastewater treatment provider’s capacity. Waste from portable toilets used during construction, operation, and decommissioning would be handled by a licensed sanitation contractor. The licensed contractor would dispose of the waste at an off-site location and in compliance with all applicable regulations and standards. Impacts would be less than significant.

**Impact PSU-7:** The proposed project would be served by a landfill with sufficient permitted capacity to accommodate the proposed project’s solid waste disposal needs. (Class III – Less than Significant)

Construction of the proposed project would result in the temporary generation of various waste materials, including wood, metal, soil, and vegetation. Sanitation waste (i.e., human-generated waste) would be disposed of in accordance with sanitation waste management practices. Any soil excavated could be distributed at construction areas, used to backfill excavations, or used for access roads near or within the ROWs for the gen-tie and communication lines. Any excess soil would be disposed of off-site at an appropriately licensed facility (Lancaster Landfill or Antelope Valley Landfill). Although waste from construction activities would be sent to one or more landfills in the area, the amount is not anticipated to be enough to affect the permitted capacity of a landfill. The Lancaster Landfill would be the closest disposal facility to the site and currently, the remaining capacity of the Lancaster Landfill is approximately 52 percent (CalRecycle 2015b).

O&M activities would consist of routine maintenance and emergency work at the project site. These activities would not generate solid waste in an amount that would affect the permitted capacity of landfills in the area. Since local landfills are capable of serving project construction, they would be able to accommodate the project’s solid waste disposal needs during operation. Decommissioning activities would be the same as during construction.
The proposed project would be served by a landfill with sufficient permitted capacity to accommodate the proposed project’s solid waste disposal needs. Impacts would be less than significant.

**Impact PSU-8: The project would comply with federal, State, and local statutes and regulations related to solid waste. (Class III – Less than Significant)**

The Integrated Waste Management Act of 1989 (AB 939), which is described in Section C.12.2 (Regulatory Setting), requires all local and county governments to adopt a Source Reduction and Recycling Element to identify means of reducing the amount of solid waste sent to landfills. Lancaster has established recycling and resource recovery programs in accordance with the requirements of AB 939. During construction, soil from drilling or excavation would be screened and separated for use as backfill to the maximum extent possible. Other waste such as packing crates, spare bolts, and other construction debris would be hauled off site for recycling when possible.

O&M activities associated with the proposed project would not generate a significant amount of solid waste and would not affect the permitted capacity of landfills in the area. Impacts during decommissioning would be the same as impacts described during construction. The proposed project would comply with federal, State, and local statutes and regulations related to solid waste and impacts would be less than significant.

**C.12.4 Cumulative Impact Analysis**

**Geographic Scope**

The geographic scope for cumulative impacts to public services, utilities, and service systems encompasses the City of Lancaster. This geographic scope of analysis is appropriate because it reflects any potential service providers that may be affected by implementation of the proposed project.

**Cumulative Effects of the Proposed Project**

The proposed project is not expected to have a significant impact on fire-fighting services. The limited construction and operation personnel associated with the proposed project is not expected to exceed capacity for school enrollment at local schools, adequate capacity of hospitals to provide emergency services or capacity of existing parks. Also, the proposed project is not expected to result in the need to construct new, or to physically alter existing, police protection facilities to maintain acceptable services. With regard to cumulative impacts, other planned projects collectively could stimulate population growth and contribute to development of this region. In particular, population growth in this region would require additional emergency and medical services, would increase enrollment in local schools, and would increase recreational activities in local and regional parks. Other planned projects are expected to have a similar amount of construction and operation personnel. Therefore, the proposed project would not combine with impacts from other related projects to result in a cumulative impact to public services.

The proposed project would not generate a substantial amount of stormwater runoff and would not drain into an existing stormwater drainage system as no stormwater systems exist in the vicinity of the project site. The other planned projects may generate stormwater runoff but would be expected to comply with their respective SWPPP, NPDES permit conditions and to install systems to manage stormwater runoff so that impacts would be less than significant. Therefore, the proposed project would not have the potential to combine with impacts from other related projects to result in a cumulative impact to stormwater runoff.
The proposed project would not generate substantial volumes of wastewater during operation. The other planned projects would be expected to operate with a similar number of employees. Therefore, the proposed project would not have the potential to combine with impacts from other related projects to result in a cumulative impact to wastewater.

The applicant has entered into a water supply agreement with the owners of a nearby property. The applicant will be allowed to utilize water from the neighboring wells without limit during construction of the project, subject to applicable laws, rules and regulations. The applicant will also be allowed to use up to 15 afy from this water well during operation of the project. The owners of the nearby property are a party to the current water rights adjudication case for the Antelope Valley Groundwater Basin, and have historically used approximately 500 to 700 afy on their property (Reca 2015). Adequate water supplies exist to accommodate the project. Therefore, the project would not have the potential to combine with impacts from past, present, or reasonably foreseeable projects to result in a cumulative impact to water supplies.

The proposed project would generate a minimal amount of waste and is not expected to significantly impact local landfills. However, generation of waste from cumulative projects could result in a cumulative impact. The Integrated Waste Management Act of 1989 (AB 939), which is described in Section C.12.2 (Regulatory Setting), requires all local and county governments to adopt a Source Reduction and Recycling Element to identify means of reducing the amount of solid waste sent to landfills. Lancaster has established recycling and resource recovery programs in accordance with the requirements of AB 939. Other planned projects are expected to comply with waste reduction policies as well. Therefore, the proposed project would not be expected to combine with impacts from other related projects to result in a cumulative impact to landfills.

In conclusion, the proposed project would be self-contained and would not have a significant impact on public services and utilities. Therefore, the proposed project would not contribute to cumulative impacts on public services, utilities, and service systems.

**C.12.5 Level of Significance After Mitigation**

Impacts to public services, utilities, and service systems, would be less than significant. Project traffic during construction could potentially interfere with emergency response vehicles, such as police, fire, and medical vehicles. MM PSU-1 would reduce potential impacts to emergency response to less than significant.
C.13 Transportation and Traffic

This section focuses on the proposed project’s potential to adversely impact capacity of the existing street system, impede the flow of emergency service vehicles, and create roadway/aviation hazards. Potential impacts related to adopted policies, plans, or programs supporting alternative transportation are also analyzed.

C.13.1 Environmental Setting

Terminology

Level of service (LOS) is a qualitative indicator used for describing the performance of a roadway segment or intersection operating conditions. It is measured from LOS A (excellent conditions) to LOS F (extreme congestion), with LOS A through D considered to be acceptable. The LOS is based on the intersection capacity utilization (ICU) methodology value, which is a comparison of the traffic volume to the overall capacity (V/C). The relationship between the V/C value and the level of service is shown in Table C.13-1.

<table>
<thead>
<tr>
<th>V/C Value</th>
<th>LOS</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.00 to 0.60</td>
<td>A</td>
</tr>
<tr>
<td>&gt; 0.60 to 0.70</td>
<td>B</td>
</tr>
<tr>
<td>&gt; 0.70 to 0.80</td>
<td>C</td>
</tr>
<tr>
<td>&gt; 0.80 to 0.90</td>
<td>D</td>
</tr>
<tr>
<td>&gt; 0.90 to 1.00</td>
<td>E</td>
</tr>
<tr>
<td>&gt; 1.00</td>
<td>F</td>
</tr>
</tbody>
</table>

Source: FHWA 2015

Existing Study Area Road Conditions

The affected environment for the proposed project includes public roadways providing regional and local access to the project site. Trucks delivering all proposed infrastructure would come from the Los Angeles/Long Beach area. These trucks would eventually utilize State Route 14 (SR-14) to access the Lancaster area. Access to the project site would only occur from a driveway on West Avenue G (between 90th Street West and 110th Street West). Because SR-14 has both exit and entrance ramps to West Avenue G, these roads comprise the study area for traffic. The following provides a description of these two study area roads:

- **State Route 14 (Antelope Valley Freeway)**. SR-14 is a north-south highway that connects the greater Los Angeles Area to the Mojave Desert. The route connects Interstate 5 near Granada Hills with US Route 395 near Inyokern. SR-14 serves as the primary north–south thoroughfare for the communities of Palmdale and Lancaster. Between Palmdale Boulevard (in the nearby City of Palmdale) and Avenue D (in the City of Lancaster), SR-14 runs concurrently with SR-138. Within this analysis, these shared segments are referred to as SR-14.

- **West Avenue G between State Route 14 and 110th Street West**. West Avenue G is an east-west roadway connecting the project access point to SR-14. The study area segment of West Avenue G ranges between two and four lanes and is designated a major arterial roadway by the City of Lancaster, which is defined as a roadway primarily intended to serve through, non-local traffic and provide limited local access (City of Lancaster 2009a). At LOS D, major arterials (including West Avenue G) are designed...
to accommodate between 40,000 and 44,000 vehicles per day (City of Lancaster 2009b). West Avenue G travels through unincorporated Los Angeles County between 70th Street West and 90th Street West.

The existing roadway characteristics and traffic conditions for each of the study area roadways are summarized in Table C.13-2. The data presented in this table represents the most currently available traffic counts and is considered representative of current conditions on study area roadways.

### Table C.13-2. Study Area Roadway Characteristics and Existing Traffic Conditions

<table>
<thead>
<tr>
<th>Roadway</th>
<th>Lanes</th>
<th>Total Average Daily Traffic Volume</th>
<th>Average Daily Truck Traffic (% Of Total)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SR-14 (Year 2013)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Avenue G</td>
<td>4</td>
<td>37,000</td>
<td>2,059 (5.6%)</td>
</tr>
<tr>
<td>West Avenue G (Year 2009)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SR-14 to 30th Street W.</td>
<td>4</td>
<td>2,000</td>
<td>16,000</td>
</tr>
<tr>
<td>30th Street W. to 50th Street W.</td>
<td>2</td>
<td>1,700</td>
<td>16,000</td>
</tr>
<tr>
<td>60th Street W. to 60th Street W.</td>
<td>2</td>
<td>1,300</td>
<td>16,000</td>
</tr>
<tr>
<td>60th Street W. to 70th Street W.</td>
<td>2</td>
<td>900</td>
<td>16,000</td>
</tr>
<tr>
<td>90th Street W. to 100th Street W.</td>
<td>2</td>
<td>100</td>
<td>16,000</td>
</tr>
</tbody>
</table>

Source: Caltrans 2015; City of Lancaster 2009b

### Aviation Facilities

**Civil Aviation.** The runway at William J. Fox Airfield is located approximately 3.1 miles (16,368 feet) east of the nearest portion of the proposed project site. This public airport contains one runway and averaged 224 aircraft operations per day for the 12-month period ending December 31, 2013 (AirNav 2015). During this time period, over 99 percent of operations were general aviation aircraft.

**Military Aviation.** The three paved runways at Edwards Air Force Base (AFB) are located 25.5-miles northeast of the project site center. AFB also utilizes runways located within the Rogers and Rosamond Dry Lakebeds. As a military installation, civilian access is severely restricted.

### Other Roadway Characteristics

Based on a review of the City of Lancaster General Plan, Master Environmental Assessment, and Parks, Recreation, Open Space and Cultural Master Plan, West Avenue G is not designated as an emergency evacuation route or as containing any existing or planned transit routes (Lancaster, 2009a, 2009b, and 2007). Furthermore, field observation of West Avenue G does not identify any designated parking areas beyond emergency stopping on the roadway shoulder. The City of Lancaster Master Plan of Trails and Bikeways has designated West Avenue G from SR-14 to the project site as a “proposed Class II Bike Lane” (City of Lancaster 2012). Along this route, the plan proposes to add 6-foot wide bike lanes with painted buffers (City of Lancaster 2012). However, the plan does not specify when this proposed improvement would occur (City of Lancaster 2012).

### C.13.2 Regulatory Setting

Study area roadways are within the jurisdiction of Caltrans, the County of Los Angeles, and the City of Lancaster. These agencies are responsible for the operation and maintenance of all study area roadways.
Federal Regulations

Federal Aviation Administration (FAA) – Technical Guidance for Evaluating Selected Solar Technologies on Airports. The FAA has broad authority for airspace review and the evaluation of any solar project that could pose a potential hazard to air navigation. The clearest trigger for FAA review is a physical penetration of airspace. As discussed in the Notice of Preparation prepared for the proposed project, due to the distance of the William J. Fox Airfield runway, the proposed project would not need FAA review pertaining to structures whose height could result in hazards to navigable airspace.

With respect to solar glare on aviation safety, currently, no defined thresholds for project size, type, or distance from the airport are available that automatically trigger FAA airspace review (FAA 2010). However, proximity to the airport and solar technology are two indicators of likely FAA interest in a solar project (FAA 2010). According to this FAA technical guidance document, it is the responsibility of local governments, solar developers, and other stakeholders in the vicinity of an airport to check with the airport sponsor and the FAA to ensure there are no potential safety or navigational problems with a proposed solar facility, especially if it is a large facility (FAA 2010). Sponsors should notify the FAA when such activities are proposed and FAA needs to participate in public meetings or permitting processes (FAA 2010).

State Regulations

California Vehicle Code (CVC) (DMV 2015) includes regulations pertaining to licensing, size, weight, and load of vehicles operated on highways; safe operation of vehicles; and the transportation of hazardous materials.

California Government Code Sections 65352, 65404, 65940, and 65944, amended by Senate Bill 1462, requires local planning agencies to notify the military whenever a proposed development project or general plan amendment is located within 1,000 feet of a military installation, located within special use airspace, or is located beneath a low-level flight path.

Caltrans. Within the Guide for the Preparation of Traffic Impact Studies (TIS), the following criterion are a starting point in determining when a TIS for a project is needed (Caltrans 2002):

1. Generates over 100 peak hour trips assigned to a State highway facility.
2. Generates 50 to 100 peak hour trips assigned to a State highway facility – and, affected State highway facilities are experiencing noticeable delay; approaching unstable traffic flow conditions (LOS “C” or “D”).
3. Generates 1 to 49 peak hour trips assigned to a State highway facility – and, affected State highway facilities are experiencing significant delay; unstable or forced traffic flow conditions (LOS “E” or “F”).

As discussed later in Section C.13.3, during construction, the proposed project would generate over 100 peak hour trips to SR-14. As stated in Caltrans’ Guide for the Preparation of Traffic Impact Studies, a TIS may be as simple as providing a traffic count to as complex as a microscopic simulation (Caltrans 2002). The appropriate level of study is determined by the particulars of a project, the prevailing highway conditions, and the forecasted traffic. Because the proposed project would only generate traffic volumes exceeding this threshold temporarily during the 12-month construction period, a stand-alone TIS was not considered necessary. The analysis provided in Section C.13.3 compares the worst-case daily construction and operational trips against the existing volumes and capacities of study area roadways. This level of analysis is considered consistent with the Guide for the Preparation of Traffic Impact Studies.
Local Regulations and Plans

Southern California Association of Governments (SCAG) Regional Transportation Plan (RTP) and Sustainable Communities Strategy (SCS). In a scoping letter dated March 9, 2015, SCAG submitted nine goals of the 2012 RTP/SCS and requested the proposed project be considered within the context of achieving these goals. Consistent with the request of SCAG’s comment letter, Table C.13-3 provides a side-by-side comparison of these goals with respect to the proposed project.

<table>
<thead>
<tr>
<th>Goal</th>
<th>Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>RTP/SCS G1: Align the plan investments and policies with improving regional economic development and competitiveness</td>
<td>Not Applicable: This goal refers to investments and projects completed through SCAG’s RTP. The proposed project would be a privately owned solar generating facility and is not part of the RTP or SCS.</td>
</tr>
<tr>
<td>RTP/SCS G2: Maximize mobility and accessibility for all people and goods in the region</td>
<td>Consistent: As discussed in Section C.13.3 (Impact T-1), maximum project construction and operational traffic volumes would result in less than significant impacts and would not cause a substantial increase in traffic in relation to the existing traffic load and capacity of the street system.</td>
</tr>
<tr>
<td>RTP/SCS G3: Ensure travel safety and reliability for all people and goods in the region</td>
<td>Consistent: As discussed in Section C.13.3 (Impact T-4), the proposed project would not increase hazards due to design features or incompatible uses.</td>
</tr>
<tr>
<td>RTP/SCS G4: Preserve and ensure a sustainable regional transportation system</td>
<td>Consistent: As discussed in Section C.13.3 (Impact T-1), maximum project construction and operational traffic volumes would result in less than significant impacts and would not cause a substantial increase in traffic in relation to the existing traffic load and capacity of the street system.</td>
</tr>
<tr>
<td>RTP/SCS G5: Maximize the productivity of our transportation system</td>
<td>Consistent: As discussed in Section C.13.3 (Impact T-1), maximum project construction and operational traffic volumes would result in less than significant impacts and would not cause a substantial increase in traffic in relation to the existing traffic load and capacity of the street system.</td>
</tr>
<tr>
<td>RTP/SCS G6: Protect the environment and health of our residents by improving air quality and encouraging active transportation (non-motorized transportation, such as bicycling and walking)</td>
<td>Consistent: As discussed in Section C.13.3 (Impact T-7), the proposed project would not conflict with existing facilities or adopted policies, plans, or programs supporting alternative transportation.</td>
</tr>
<tr>
<td>RTP/SCS G7: Actively encourage and create incentives for energy efficiency, where possible</td>
<td>Consistent: The proposed project would provide a 100 MW solar facility that would help provide sustainable renewable energy generation within the region.</td>
</tr>
<tr>
<td>RTP/SCS G8: Encourage land uses and growth patterns that facilitate transit and non-motorized transportation</td>
<td>Consistent: As discussed in Section C.13.3 (Impact T-7), the proposed project would not conflict with existing facilities or adopted policies, plans, or programs supporting alternative transportation.</td>
</tr>
<tr>
<td>RTP/SCS G9: Maximize the security of the regional transportation system through improved system monitoring, rapid recovery planning, and coordination with other security agencies</td>
<td>Not Applicable: This goal refers to transportation projects completed through SCAG’s RTP. The proposed project would be a privately owned solar generating facility and is not part of the RTP or SCS.</td>
</tr>
</tbody>
</table>

County of Los Angeles General Plan. A segment of West Avenue G (between 70th Street West and 95th Street West) that would be utilized by project traffic travels outside the City of Lancaster limits and through unincorporated Los Angeles County lands. The Los Angeles County General Plan is the foundational document for all community-based plans that serve the unincorporated areas. Both the approved General Plan (1974) and public review draft of the 2035 General Plan (2014) were reviewed for transportation goals and policies applicable to the project (County of Los Angeles 1974 and 2014). The 2035 Draft General Plan contains the following applicable policy pertaining to LOS performance standards (County of Los Angeles 2014).
Policy M 4.7: Maintain a minimum LOS D, where feasible; however, allow LOS below D on a case by case basis in order to further other General Plan goals and policies, such as those related to environmental protection, infill development, and active transportation.

Los Angeles County Metropolitan Transportation Authority (Metro). As the Congestion Management Agency for Los Angeles County, Metro is responsible for implementing the Congestion Management Program (CMP) for the County. The CMP addresses the impact of local growth on the regional transportation system. Statutory elements of the CMP include Highway and Roadway System monitoring, multi-modal system performance analysis, the Transportation Demand Management Program, the Land Use Analysis Program and local conformance for all the county’s jurisdictions.

City of Lancaster General Plan. The City’s General Plan includes policies and programs pertaining to the Transportation Master Plan in the Plan for Physical Mobility (City of Lancaster 2009, p.1-33). While there are many policies and requirements within this Plan, none of these policies were directly applicable to the proposed project. The majority of the policies addressed roadways; the proposed project will use existing roads, does not include new roadways except for internal access roads (which are private), and will only temporarily add substantial traffic to existing roadways during construction. The proposed project also does not include the need for long-term parking during operation; therefore policies that address parking are not applicable.

City of Lancaster Municipal Code. Section 15.56 of the City’s Municipal Code includes Trip Reduction and Travel Demand Measures. The code requires coordination with transit operators and consideration of the County’s CMP (see above regarding the CMP). The code also identifies transportation demand and trip reduction measures for nonresidential development such as providing transportation information in areas with the greatest number of employees and making ridesharing information available. These measures would not apply to the proposed project because during construction there would be a temporary increase in employees and during operation, with one offsite employee, the proposed project would not decrease the level of service on local roadways.

C.13.3 Environmental Impacts and Mitigation Measures

In accordance with Appendix G to the State CEQA Guidelines, traffic Impacts would be considered significant if the proposed project would:

- Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit;
- Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways;
- Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks;
- Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment);
- Result in inadequate emergency access; or
- Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.
Impact Assessment Methodology

Project Trip Generation

Construction. To evaluate worst-case daily construction trips, peak traffic volumes were used. Peak traffic volumes during construction would occur anytime between day 21 and 180 of the 240-day project schedule, which is consistent with the construction assumptions utilized for the air quality assessment (refer to Appendix 3). Table C.13-4 provides the maximum daily trips generated by the proposed project during this peak construction period, which are used to analyze worst-case traffic impacts.

<table>
<thead>
<tr>
<th>Trip Type</th>
<th>Maximum Daily Construction Traffic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employee¹</td>
<td></td>
</tr>
<tr>
<td>Passenger Vehicles</td>
<td>500</td>
</tr>
<tr>
<td>Trucks²</td>
<td></td>
</tr>
<tr>
<td>Heavy Haul</td>
<td>39</td>
</tr>
<tr>
<td>Medium Duty</td>
<td>27</td>
</tr>
<tr>
<td>Water</td>
<td>48</td>
</tr>
<tr>
<td><strong>Truck Subtotal</strong></td>
<td><strong>114</strong></td>
</tr>
<tr>
<td><strong>TOTAL DAILY TRIPS</strong></td>
<td><strong>614</strong></td>
</tr>
</tbody>
</table>

¹ No employee rideshare/carpooling is assumed.
² Daily truck trips have been increased utilizing a passenger car equivalent (PCE) of 1.5 trips per truck.

Operation and Maintenance. Once operational, the proposed project would generate a maximum of 14 trips per day on study area roadways (8 daily truck trips and 6 employee trips). This maximum daily operational traffic would occur during two solar panel washing events per year (which are assumed to be four employees for 25 days using a water truck and work/utility truck). During solar panel washing events, the water truck would make 8 short local trips daily to the water source. During the remainder of the year, operational traffic would be limited to twice weekly inspections by one vehicle.

Project Trip Distribution

As discussed earlier in this section, all construction and operational traffic would utilize SR-14 to access the City of Lancaster from the greater Los Angeles area. Site access would only come from West Avenue G, which can be access directly from SR-14. The following assumptions are made regarding construction trip distribution and timing:

- Employee trips would occur during the morning peak period (7:00 a.m. to 9:00 a.m.) and afternoon peak period (4:00 p.m. to 6:00 p.m.)
- Both heavy haul and medium duty trucks would be reasonably well distributed throughout the day.
- All water trucks will have to drive offsite at least 4 times a day each. These are considered short local trips to access an undefined local water source and would not access SR-14 but would utilize West Avenue G for local access.

Environmental Impact Analysis

Impact TRA-1: Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but
not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit. (Class II – Less than Significant with Mitigation)

As presented in Table C.13-4 (above), construction would generate a maximum of 614 total daily trips, of which 114 would be daily truck haul trips and 500 of which would be passenger vehicle worker commute trips. When these trips are added to the average daily traffic (ADT) volumes of SR-14 at West Avenue G, maximum daily construction traffic would only result in a 1.7% increase to the existing ADT. Furthermore, the addition of 114 truck trips (passenger car equivalent [PCE]) would only temporarily increase ADT truck volumes on SR-14 at West Avenue G by 0.1%. Based on these minor increases to ADT volumes, temporary construction-related trips are not considered to significantly decrease capacity levels over existing conditions on SR-14.

Table C.13-5 shows maximum daily construction trips added to existing traffic volumes of each segment of West Avenue G and the resulting LOS. As shown, the addition of maximum daily construction traffic to West Avenue G would not diminish the existing LOS, with all segments continuing to operate at LOS A.

While maximum daily construction trips associated with the proposed project would not cause a substantial increase in traffic in relation to the existing traffic load and capacity of the street system, Mitigation Measure TRA-1 is proposed to minimize trips during the morning and afternoon peak periods. With the implementation of this measure, proposed project construction traffic would result in less than significant impacts (Class II).

As previously discussed, operation and maintenance of the proposed project would generate a maximum of 14 daily trips (8 truck and 6 passenger vehicle). These trips would only occur twice per year, for 25 days each, during panel washing events. When maximum daily operational traffic is added to existing ADT of SR-14 presented in Table C.13-2, a negligible increase (0.04%) in daily traffic volumes would occur. Furthermore, based on the analysis provided Table C.13-5, the addition of 14 daily trips would not increase LOS over existing conditions of West Avenue G. Maximum operational traffic volumes would result in less than significant impacts (Class III) with respect to causing a substantial increase in traffic in relation to the existing traffic load and capacity of the street system.

<table>
<thead>
<tr>
<th>Roadway</th>
<th>Average Daily Traffic Volume</th>
<th>Capacity</th>
<th>V/C</th>
<th>LOS</th>
<th>Existing LOS</th>
</tr>
</thead>
<tbody>
<tr>
<td>West Avenue G (Year 2009)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SR-14 to 30th Street W.</td>
<td>2,614</td>
<td>16,000</td>
<td>0.163</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>30th Street W. to 50th Street W.</td>
<td>2,314</td>
<td>16,000</td>
<td>0.145</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>60th Street W. to 60th Street W.</td>
<td>1,914</td>
<td>16,000</td>
<td>0.120</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>60th Street W. to 70th Street W.</td>
<td>1,514</td>
<td>16,000</td>
<td>0.095</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>90th Street W. to 100th Street W.</td>
<td>714</td>
<td>16,000</td>
<td>0.045</td>
<td>A</td>
<td>A</td>
</tr>
</tbody>
</table>

**Mitigation Measures**

**MM TRA-1**  During construction, material deliveries and other truck trips should be scheduled outside of peak periods (7:00 to 9:00 a.m. and 4:00 to 6:00 p.m.) to the extent feasible.
Impact TRA-2: Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways. (Class III – Less than Significant)

SR-14 is identified in the 2010 Congestion Management Plan (CMP) and is identified as operating at LOS D or better during both the a.m. and p.m. peak periods (Metro, 2010). Within the CMP, LOS thresholds can be set no lower than LOS E, or the current level if worse than E (Metro, 2010). As discussed in Impact T-1, when maximum daily construction trips are added to the ADT of SR-14 (presented in Table C.13-2), these trips would only result in a temporary 1.7% increase to the existing ADT volumes of SR-14. Furthermore, the addition of 114 truck trips (PCE) would only temporarily increase truck traffic on SR-14 by 0.1%. Therefore, the addition of maximum daily construction-related trips would not decrease the LOS over existing conditions on SR-14 (LOS D or better). Less than significant impacts would occur (Class III).

As discussed in Impact T-1, the proposed project would only generate a maximum of 14 daily trips (8 truck and 6 passenger vehicle) during operation. When these trips are added to existing ADT of SR-14 presented in Table C.13-2, a negligible increase (0.04%) in daily traffic volumes would occur. Therefore, maximum operational-related daily trips are not considered to significantly decrease the LOS over existing conditions on SR-14. Less than significant impacts would occur (Class III).

Impact TRA-3: Result in a change in air traffic patterns, including either an increase in traffic levels or change in location that results in substantial safety risks. (Class III – Less than Significant)

The project site was compared to the military flight paths and airspace designations of the California Military Land Use Compatibility Analysis (CMLUCA) database to determine whether the project site is located within military special-use airspace or is located beneath a military designated low-level flight path (CMLUCA 2015). Based on the CMLUCA, the project site is not located within special-use military airspace or an area designated for low-level military flight paths and no action is required (CMLUCA 2015).

The runway at William J. Fox Airfield is located approximately 3.1 miles (16,368 feet) east of the nearest portion of the project site. Air traffic approaching this runway from the south and west would have solar panels facing them and directed upward. However, PV modules and arrays typically do not create significant glare. While some localized glare could occur, glare is not expected to significantly affect airspace safety, particularly because the project area contains a number of existing and operational solar installations similar in size and technology as the proposed project.

As discussed in Section C.13.2, according to the FAA Technical Guidance for Evaluating Selected Solar Technologies on Airports, it is the responsibility of local governments, solar developers, and other stakeholders in the vicinity of an airport to check with the airport sponsor and the FAA to ensure there are no potential safety or navigational problems with a proposed solar facility, especially if it is a large facility (FAA 2010). At this time, potential glare impacts related to air traffic patterns and airspace safety is considered less than significant (Class III).

Impact TRA-4: Substantially increase roadway hazards due to a design feature or incompatible uses. (Class III – Less than Significant)

The proposed project does not include any public roadway or access improvements. All construction and operational traffic would access the project site via a private driveway on West Avenue G between 90th Street West and 110th Street West. West Avenue G at the site entrance has a relatively straight horizontal alignment with good visibility looking in all directions. All new internal site roads would be private. During construction, all truck drivers would adhere to California Vehicle Code regulations pertaining to licensing, size, weight, and load of vehicles operated on highways; safe operation of vehicles; and the transport of
any hazardous materials. Therefore, the proposed project would not increase hazards due to design features or incompatible uses. Less than significant impacts would occur (Class III).

**Impact TRA-5: Result in inadequate emergency access. (Class II – Less than Significant with Mitigation)**

West Avenue G is not designated as an emergency evacuation route. Furthermore, construction of the solar installation and on-site infrastructure would not require any roadway or lane closures/disruptions either during construction or operation that could restrict or impede emergency access. No impact would occur. Although no impacts are expected, Section C.12 includes MM PSU-1 that requires coordination with emergency response providers during construction, major repairs, or decommissioning.

Depending on the route selected, construction of the gen-tie infrastructure may require temporary roadway or lane closures/disruptions that could restrict or impede emergency access. When reviewing the possible gen-tie and communication line routes, the Western and Eastern Routes have the greatest potential for roadway disruption. This is because 110th Street West, 90th Street West, and West Avenue J are established and regularly utilized roads. The other potential gen-tie route option (City Route) would follow existing dirt roads and would have a less than significant impact with respect to disrupting circulation. In the event the Western or Eastern Route is selected for gen-tie connection, Mitigation Measure TRA-2 would reduce potential circulation impacts to a less than significant level (Class II).

**Mitigation Measures**

**MM TRA-2** In the event the Western or Eastern Route is selected for gen-tie connection, prior to the issuance of grading or building permits by the City of Lancaster, the project applicant shall prepare and submit a Traffic Control Plan to the City of Lancaster for review and approval. The plan shall include detailed information on the following:

- Locations and duration of any public travel lane/roadway closures.
- Placement of temporary signing and traffic control measures as required.
- Ways to ensure access for emergency vehicles to the project site.
- Ways to maintain access to adjacent property.

**Impact TRA-6: Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities. (No Impact)**

As discussed in Section C.13.1, West Avenue G is not designated as containing any existing or planned transit routes. The City of Lancaster Master Plan of Trails and Bikeways has designated West Avenue G from SR-14 to the project site as a “proposed Class II Bike Lane” (City of Lancaster 2012). Along this route, the plan proposes to add 6-foot wide bike lanes with painted buffers (City of Lancaster 2012). However, the plan does not specify when this proposed improvement would occur (City of Lancaster 2012). The proposed project would not introduce any uses or features that could conflict with the construction and operation of these proposed bike lanes. Also, the proposed bike lanes are not expected to be in place prior to completion of project construction. Therefore, construction traffic is not expected to occur during or after construction/designation of the proposed Class II bike lanes on West Avenue G. Once operational, the project would only generate nominal traffic that is not expected to conflict with these proposed bike lanes. Therefore, no impacts would occur.
C.13.4 Cumulative Impact Analysis

Geographic Scope

For the purposes of the cumulative analysis of transportation impacts, only other projects that make a contribution to traffic along the same roadways utilized as the proposed project are considered (SR-14 and West Avenue G). Roadway segments where project-related trips would combine with cumulative projects could experience appreciable increases in traffic. Therefore, the study area for cumulative impacts includes other projects that might contribute traffic to the same street segments. Therefore, all projects identified in Table C.1-1 have been considered with respect to this cumulative traffic analysis as they could all utilized SR-14. However, it should be noted that when viewing the locations in Figure C.1-1, many would likely not utilize West Avenue G between SR-14 and 110th Street West.

Cumulative Effects of the Proposed Project

As discussed in Section C.13.3, project operations would result in negligible daily trips to study area roadways. Therefore, the cumulative impact analysis focuses on traffic volumes generated during construction of the proposed project in combination with those by cumulative projects identified in Table C.1-1 on study area roadway segments.

As shown in Table C.1-1, all cumulative projects are also solar generating facilities, with many designated as “operational.” Like the proposed project, these operational solar facilities likely contribute nominal daily traffic to the area. Most identified cumulative projects that have not already been constructed are smaller in scale than the proposed project; with only four being 100 megawatts or larger. Like the proposed project, these cumulative projects would generate vehicle trips during construction. However, the potential for cumulative traffic impacts would only occur if multiple projects were being constructed simultaneously and utilizing the same roadways.

Maximum daily construction traffic of the proposed project would only last periodically during the 12-month construction period and would not cause a direct substantial increase in traffic in relation to the existing traffic load and capacity of the street system. This impact would be reduced with the implementation of MM TRA-1. While the construction of a number of cumulative projects could overlap with construction of the proposed project, the proposed project’s cumulative contribution is considered less than significant with mitigation (Class II) because it would be temporary.

With regard to a cumulative increase to roadway safety, all future development that may generate traffic on study area roadway segments would be subject to Caltrans and other applicable regulations pertaining to vehicle weight and oversize vehicle trips. Therefore, the proposed project would have a less than significant cumulative impact (Class III). With the implementation of MM TRA-2 and MM PSU-1, the proposed project is also found to have a less than significant cumulative contribution to impacts relating to impeding emergency vehicle access (Class II). Because the proposed project would have no cumulative contribution to uses or traffic volumes that could conflict with the proposed Class II bike lane on West Avenue G (per the City of Lancaster Master Plan of Trails and Bikeways), no cumulative impact would occur.

C.13.5 Level of Significance After Mitigation

With the implementation of MM TRA-1, Impact TRA-1 would be less than significant (Class II). With the implementation of MM TRA-2, Impact TRA-5 would be less than significant (Class II). Impacts TRA-2, TRA-3, and TRA-4 were found to have less than significant impacts (Class III). Impact TRA-6 was found to have no impact.
D. Alternatives

This section describes the alternatives to the proposed project, the alternatives screening process, and the environmental effects of alternatives retained for analysis. The intent of this section is to document (1) the range of alternatives that have been selected and evaluated; (2) the approach used by the City in screening the feasibility of these alternatives according to guidelines established under the California Environmental Quality Act (CEQA); (3) the results of the alternatives screening; and (4) the environmental impacts of each alternative relative to the proposed project.

This section is organized as follows:

- Section D.1 summarizes CEQA requirements related to alternatives;
- Section D.2 describes the process used to define alternatives to the proposed project;
- Section D.3 describes the alternatives retained for analysis, including the No Project Alternative (CEQA Guidelines §15126.6(e)), and presents impact analysis by discipline for each of these alternatives;
- Section D.4 describes the alternatives that were considered, but eliminated from detailed evaluation; and
- Section D.5 presents the comparison of alternatives and identifies the Environmentally Superior Alternative (CEQA Guidelines §15126.6(d)).

D.1 CEQA Requirements for Alternatives

An important aspect of Environmental impact Report (EIR) preparation is the identification and assessment of reasonable alternatives that have the potential to avoid or minimize the impacts of a proposed project. The CEQA Guidelines require consideration of the No Project Alternative (Section 15126.6(e)) and selection of a reasonable range of alternatives (Section 15126.6(d)). The EIR must adequately assess these alternatives to allow for a comparative analysis for consideration by decision makers. The CEQA Guidelines (Section 15126.6(a)) state that:

An EIR shall describe a reasonable range of alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives.

The key applicable provisions of the CEQA Guidelines (Section 15126.6) pertaining to the analysis of alternatives are summarized as follows:

- The discussion of alternatives shall focus on alternatives to the project or its location which are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly.
- The “no project” alternative shall be evaluated along with its impact. The “no project” analysis shall discuss the existing conditions at the time the notice of preparation is published, as well as what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services.
- The range of alternatives required in an EIR is governed by a “rule of reason”; therefore, the EIR must evaluate only those alternatives necessary to permit a reasoned choice between the alternatives and
the proposed project. The alternatives shall be limited to ones that would avoid or substantially lessen any of the significant effects of the project.

- For alternative locations, only locations that would avoid or substantially lessen any of the significant effects of the project need be considered for inclusion in the EIR.

- An EIR need not consider an alternative whose effects cannot be reasonably ascertained and whose implementation is remote and speculative.

D.1.1 Consistency with Project Objectives

The CEQA Guidelines require the consideration of alternatives capable of eliminating or reducing significant environmental effects even though they may "impede to some degree the attainment of project objectives" (Section 15126.6(b)). The primary objective of the proposed project is to meet the increasing demand for electricity generated from renewable technology, and to assist in the effort to meet the Senate Bill 14 Renewable Energy Portfolio Standards (RPS).

Specifically, the project objectives are to:

- Develop a utility-scale solar energy generating facility and accompanying infrastructure that qualifies as an eligible renewable energy resource;

- Contribute to the diversification of State and local energy portfolios;

- Support the reduction of greenhouse gas emissions in California by providing renewable energy resources; and

- Create green jobs in California.

The applicant’s planned objectives are to minimize impacts to the environment and the local community by:

- Using disturbed land or land that has been previously degraded from prior use;

- Using existing electrical distribution facilities, rights-of-ways (ROWs), roads, and other existing infrastructure where possible to minimize the need for new electrical support facilities;

- Minimizing impacts to threatened or endangered species or their habitats, wetlands and waters of the United States, cultural resources, and sensitive land use;

- Minimizing water use; and

- Reducing greenhouse gas emissions.

D.1.2 Feasibility

The CEQA Guidelines (Section 15364) define feasibility as:

`. . . capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors.`

In addition, the CEQA Guidelines Section 15126.6(f)) states that in determining the range of alternatives to be evaluated in the EIR, the factors that may be taken into account when addressing the feasibility of alternatives are site suitability, economic viability, availability of infrastructure, general plan consistency, other regulatory limitations, jurisdictional boundaries, and proponent’s control over alternative sites. The feasibility of potential alternatives has been assessed taking the following factors into account:
**Legal Feasibility:** Does the alternative have the potential to avoid lands that have legal protections that may prohibit or substantially limit the feasibility of permitting the proposed project?

**Regulatory Feasibility:** Does the alternative have the potential to avoid lands that have regulatory restrictions that may substantially limit the feasibility of, or permitting of, the proposed project?

**Technical Feasibility:** Is the alternative feasible from a technological perspective, considering available technology? Are there any construction, operational, or maintenance constraints that cannot be overcome?

**Environmental Feasibility:** Would implementation of the alternative cause substantially greater environmental damage than the proposed project, thereby making the alternative clearly inferior from an environmental standpoint?

This screening analysis does not focus on relative economic factors or costs of the alternatives (as long as they are found to be economically feasible). CEQA Guidelines require consideration of alternatives capable of eliminating or reducing significant environmental effects even though they may “impede to some degree the attainment of project objectives or would be more costly” (CEQA Guidelines Section 15126.6[b]).

**D.1.3 Potential to Eliminate Significant Environmental Effects**

CEQA requires that to be fully considered in an EIR, an alternative must have the potential to “avoid or substantially lessen any of the significant effects of the project” (CEQA Guidelines Section 15126.6(a)). If an alternative was identified that clearly does not provide potential overall environmental advantage as compared to the proposed project, it was eliminated from further consideration unless the City determined that the alternative should be analyzed because it addresses a concern identified during the scoping process. At the screening stage, it is not possible to evaluate all of the impacts of the alternatives in comparison to the proposed project with absolute certainty, nor is it possible to quantify impacts. However, it is possible to identify elements of an alternative that are likely to be the sources of impact and to relate them, to the extent possible, to general conditions in the subject area. This EIR concludes that the proposed project’s impacts are reduced to less than significant levels in all impact areas with incorporation of the identified mitigation measures and only certain cumulative impacts remain significant and unavoidable.

**D.2 Alternatives Evaluation Process**

The range of alternatives considered in this analysis was identified through consideration of:

- Alternatives identified during the public and agency scoping process, and
- Alternatives identified by the EIR Team as a result of its independent review of the proposed project’s impacts.

Consistent with Section 15126.6(e) of the CEQA Guidelines, the alternatives analysis includes consideration of the No Project Alternative. The analysis of the No Project Alternative must discuss existing conditions as they occurred at the time that a project’s Notice of Preparation (NOP) was published (February 3, 2015 for the proposed project), as well as “what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services” (CEQA Guidelines Section 15126.6 [e][2]). The requirements also specify that “[i]f disapproval of the project under consideration would result in predictable actions by others, such as the proposal of some other project, this ‘no project’ consequence
should be discussed” (CEQA Guidelines Section 15126.6 [e][3][B]). Two “No Project Alternatives” were identified for the proposed project – one in which the site would be developed per the existing development agreement and entitlements, and one where no development would occur on the project site.

D.3 Alternatives Retained for Analysis

This section describes and evaluates the alternatives that meet the CEQA criteria defined in Section D.1 and thus have been retained for the EIR’s alternatives analysis. A description of those alternatives that did not meet CEQA’s criteria for further evaluation is provided in Section D.4, with an explanation as to why alternatives were eliminated from further consideration. The "Environmentally Superior Alternative" is addressed in Section D.5. No other alternatives meeting the CEQA criteria defined in Section D.1 have been identified.

In order to comply with CEQA’s requirements, each alternative that has been developed for this analysis has been evaluated in three ways:

- Does the alternative accomplish all or most of the basic objectives of the proposed project?
- Is the alternative potentially feasible (from environmental, legal, technological, and regulatory standpoints)?
- Does the alternative avoid or substantially lessen any significant effects of the proposed project (including consideration of whether the alternative itself could create significant effects potentially greater than those of the proposed project)?

D.3.1 Alternative 1 – Reduced Project Size, No GPA or Zone Change

Description

Alternative 1 would eliminate the two western parcels that are outside of the existing development agreement, and would eliminate the need for a zone change (ZC) and General Plan Amendment (GPA). The remaining 645-acre site would be developed as a solar generating facility with all other elements the same as described for the proposed project. Under Alternative 1, the solar generating facility would be reduced to a 90-megawatt (MW) project.

Alternative 1 would have the same panel configuration as the proposed project, but would reduce the size of the site by approximately 11 percent by removing the two western parcels. The duration and activities associated with Alternative 1 construction are anticipated to be similar to the proposed project. Because there would be a small change in its electrical generating output, this alternative's operation and maintenance is expected to be practically the same as for the proposed project.

This alternative is technologically feasible, as it represents only a change to the proposed project's solar panel array configuration and a reduced footprint, and no change to its technology or interconnection to the transmission grid.

Objectives

Alternative 1 would meet the basic project objectives:

- Develop a utility-scale solar energy generating facility and accompanying infrastructure that qualifies as an eligible renewable energy resource: Meets objective (same as proposed project).
Contribute to the diversification of State and local energy portfolios: Meets objective (same as proposed project).

Create green jobs in California: Meets objective (same as proposed project).

Meet the increasing demand for electricity generated from renewable technology, and to assist in the effort to meet the Senate Bill 14 RPS: Meets objective (slightly reduced from the proposed project).

Use disturbed land or land that has been previously degraded from prior use: Meets objective (same as proposed project).

Use existing electrical distribution facilities, ROWs, roads, and other existing infrastructure where possible to minimize the need for new electrical support facilities: Meets objective (same as proposed project).

Minimize impacts to threatened or endangered species or their habitats, wetlands and waters of the United States, cultural resources, and sensitive land use: Meets objective (same as proposed project).

Minimize water use: Meets objective (slightly reduced from the proposed project).

Reduce greenhouse gas emissions: Meets objective (slightly reduced from the proposed project).

Impact Analysis by Discipline

Aesthetics

Removal of the two western parcels under Alternative 1 would result in the proposed project being farther from viewers at key observation point (KOP) 1, and would slightly reduce the prominence of the project site. However, the western parcels under the proposed project are already set back from the public road, and would not substantially alter the existing landscape or view quality. The project site would continue to be slightly visible under Alternative 1, but would blend with the horizon line at KOP 1. Similarly, views of the solar panels from KOP 4 would be slightly reduced but not eliminated. Although visual impacts would be slightly reduced under Alternative 1, a reduced project size would not change the impact determinations as stated in Section C.2.

Agricultural Resources

Under Alternative 1, the impacts to agricultural resources would be the same as those described in Section C.3, except for the following differences. The reduction in project size by approximately 11 percent would lessen the impact associated with the conversion of agriculturally productive soils; however, the decrease in acreage associated with an 11 percent reduction of the proposed project would be minimal and would not substantially change the “Project Size” score for the Land Evaluation and Site Assessment (LESA) Model. In addition, the potential disruptions to surrounding land uses would result in a marginal decrease as a result of a smaller project. Therefore, the impact determinations for Alternative 1 would remain the same as stated in Section C.3.

Air Quality

Alternative 1 would slightly decrease the total air pollutant emissions during both construction and operation compared with the proposed project; however, the 11 percent reduction in the project size would not substantially alter the air quality impacts described in Section C.4 and the impact determinations would remain the same.
**Greenhouse Gas Emissions**

Alternative 1 would slightly decrease the GHG emissions during both construction and operation compared with the proposed project. However, Alternative 1 would slightly reduce the beneficial greenhouse gas emissions impact of the proposed project’s renewable energy source because it would reduce the project from a 100-MW facility to a 90-MW facility. Impact determinations would remain as stated in Section C.4.

**Biological Resources**

The 11 percent reduction in project size under Alternative 1 would result in a slightly reduced impact to biological resources. Alternative 1 would incrementally reduce habitat loss and the potential to directly and indirectly affect special-status species. The reduction in the number of solar panels would slightly reduce the collision risk for birds during operation. Overall, the reductions in impacts would be minor compared with the proposed project, and impact determinations would remain the same as stated in Section C.5.

**Cultural and Paleontological Resources**

Under Alternative 1, the project site would be reduced by approximately 11 percent. This reduction in ground disturbance would incrementally reduce the potential to encounter unanticipated cultural or paleontological resources. However, the overall reduction in impacts would be minor, and impact determinations for Alternative 1 would be the same as stated in Section C.6.

**Geology and Soils**

Construction of Alternative 1 would have similar geology and soils impacts as the proposed project, but the magnitude of the impacts would be slightly reduced due to the 11 percent reduction in the size of the project footprint. This reduction would not substantially alter any of the impacts described in Section C.7, and impact determinations for Alternative 1 would be the same as stated in Section C.7.

**Hazards and Hazardous Materials**

The 11 percent reduction in project size would slightly reduce the potential for hazardous materials spills during construction. The number of solar panels would be reduced as well, resulting in a slightly smaller impact related to the disposal or recycling of broken panels. However, the reduction in project size would not substantially alter any of the impacts described in Section C.8, and impact determinations for Alternative 1 would be the same as stated in Section C.8.

**Hydrology and Water Quality**

Impacts to hydrology and water quality would be slightly reduced under Alternative 1, as proportionally less water would be required for dust suppression, concrete mixing, sanitary uses, and other uses during construction, and fewer panels would require washing during operation. In addition, the smaller footprint would have a slightly reduced potential to alter existing drainage and result in flooding or water quality degradation from erosion, sedimentation, or accidental release of contaminants. However, the reduction in water use, and potential water quality and flooding impacts would be small, and impact determinations would remain the same as stated in Section C.9.
**Land Use, Population and Recreation**

Under Alternative 1, the impacts to land use, population and recreational resources would be the same as those described in Section C.10, except for the following differences. The reduction in project size by approximately 11 percent would marginally reduce the potential for disruptions to surrounding land uses during the construction, operation and decommissioning period. In addition, a smaller project would likely require a slightly smaller workforce during construction, which would reduce the potential for impacts to population levels. However, overall the reduced project size would not change the impact determinations as stated in Section C.10.

**Noise**

Under Alternative 1, noise impacts to residences located along 110th Street West would be slightly reduced as less on-site construction activities would be occurring on the western portion of the project site. Off-site construction traffic would be similar to the proposed project, although the number of truck trips delivering materials would be reduced which would in turn reduce either the duration of noise or the intensity of the noise along the travel routes. Operation and maintenance noise impacts would essentially be the same as the proposed project.

**Public Services, Utilities and Service Systems**

Impacts to public services, utilities, and service systems would be comparable to the proposed project under Alternative 1. The 11 percent reduction in project size would not appreciably change the impacts as described in Section C.12.

**Transportation and Traffic**

Under Alternative 1, off-site construction traffic would be similar to the proposed project, although the number of truck trips delivering materials would be slightly reduced. Operation and maintenance impacts would essentially be the same as the proposed project. Overall, impact determinations would remain the same as stated in Section C.13.

**Conclusion – Alternative 1**

While the intent of this alternative is to reduce potential impacts by reducing the size of the proposed project, it does not result in a change in any impact determinations because the reduction in impacts would be minor. Other options were considered to reduce the size of the proposed project. Increased buffers would provide some relief from noise but other impacts such as biological resources, which has cumulative effects with other projects proposed in the area, would not be reduced unless substantial buffers were established. This alternative continues to be a feasible alternative because it removes the requirement for a GPA and ZC, which are discretionary actions, and incrementally (although not significantly) reduces the magnitude of impacts to most issue areas by approximately 11 percent.

In addition, the applicant has purchase power agreements in place for the full 100 MWs included in the proposed project. If Alternative 1 is selected, the applicant would need to develop a second project in the Antelope Valley in order to produce the full contracted amount of energy. The need for another location to supplement the energy under a reduced project alternative could result in greater environmental impacts than what would occur from implementation of the full 100 MWs at the project site under the proposed project.
D.3.2 Alternative 2 – No Project, Build under Development Agreement and Existing Entitlements

Description

During the proposed project’s scoping process, a commenter suggested “an indefinite moratorium on all solar projects” in the region. Alternative 2, which is also a CEQA “No Project Alternative,” addresses that concern. Under Alternative 2, the project site would not be developed as a solar generation facility. The 645 acres covered by Development Agreement No. 89-01 and existing entitlements, would be built out as the Del Sur Ranch master planned community. This development would be a phased residential and commercial development including 2,466 single-family dwelling units, fire station, school facilities, a park, a lake with a 21-acre surface area, and associated recreational facilities. The lake would have a maximum depth of 8 feet or more, and would have an estimated water volume of 143 acre-feet. Water for filling and maintaining the lake would be supplied from onsite wells and the lake would also collect some stormwater runoff from the community development. The full build-out of the Del Sur Ranch community would occur over a period of 10 years (City of Lancaster 1993).

Objectives

Alternative 2 would not meet most of the basic project objectives:

- Develop a utility-scale solar energy generating facility and accompanying infrastructure that qualifies as an eligible renewable energy resource: **Does not meet objective (residential/commercial development instead of renewable energy development).**
- Contribute to the diversification of State and local energy portfolios: **Does not meet objective (residential/commercial development instead of renewable energy development).**
- Create green jobs in California: **Does not meet objective (residential/commercial development instead of renewable energy development).**
- Meet the increasing demand for electricity generated from renewable technology, and to assist in the effort to meet the Senate Bill 14 RPS: **Does not meet objective (residential/commercial development instead of renewable energy development).**
- Use disturbed land or land that has been previously degraded from prior use: **Meets objective (same as proposed project).**
- Use existing electrical distribution facilities, ROWs, roads, and other existing infrastructure where possible to minimize the need for new electrical support facilities: **Does not meet objective (would require new infrastructure to serve the development).**
- Minimize impacts to threatened or endangered species or their habitats, wetlands and waters of the United States, cultural resources, and sensitive land use: **Does not meet objective (much greater intensity of land use than proposed project).**
- Minimize water use: **Does not meet objective (greatly increased over the proposed project).**
- Reduce greenhouse gas emissions: **Does not meet objective (would increase emissions and would not offset increases with renewable energy production).**
Impact Analysis by Discipline

Aesthetics

Construction of Alternative 2 would permanently alter the nature and appearance of the project site. Views of the project site would be replaced by 2,466 single-family dwelling units, a fire station, school facilities, a park, a lake with a 21-acre surface area, and associated recreational facilities. While several of these features, including the lake and open space areas, are considered visually appealing, the overall development would significantly alter existing form, color, and texture of the landscape and rural visual quality. Alternative 2 would significantly alter existing foreground and middleground views from KOPs 1-4, changing them from a rural feel to an occupied urbanized environment. Significant roadway traffic would also alter the visual quality of the project site and surrounding area. However, background views of adjacent rolling hills and mountains would remain unobstructed. Visual impacts during construction are considered less than significant (Class III).

Overall visual contrast of Alternative 2 would be significantly greater when compared to the proposed project. This is emphasized by the lack of residential development proximate to the project site under existing conditions and the potential to introduce uses, such as commercial development, that are not currently part of the immediate area surrounding the project site. The significant change of overall aesthetic feel when compared to the existing rural environment of the project site’s vicinity would likely be unmitigable, and aesthetic impacts would be significant and unavoidable (Class I). The development of Alternative 2 would also result in a significant and unavoidable impact (Class I) resulting from a new permanent sources of nighttime light.

Agricultural Resources

Under Alternative 2, the impacts to agricultural resources would result in the same conversion of agricultural soils as described under the proposed project. The reduction in project size from 725 acres under the proposed project to 645 acres under Alternative 2 would lessen the significant and unavoidable impact associated with the conversion of agriculturally productive soils; however, this decrease in acreage would not change the “Project Size” score for the LESA Model. In addition, the proposed project’s solar panels would not preclude agricultural uses on the site after decommissioning. Alternative 2 would convert the project site to residential and commercial uses and impacts to agricultural resources would be permanent. Consequently, this impact would be significant and unavoidable (Class I) under Alternative 2.

After the construction phase of Alternative 2, the residential and commercial development would result in increased human activity in the project area in comparison to the existing conditions or the conditions during operation of the proposed project. Disruptions may include increased traffic or the potential for hazardous spills, which could result in disruptions to adjacent agricultural activities. However, these impacts would be require the same mitigation measures as discussed under the proposed project, and the impact determination would be the same.

Air Quality

Alternative 2 would increase the total air pollutant emissions during both construction and operation. Depending on the schedule of the development, the construction could have significant and unavoidable emissions impacts for PM$_{10}$ and NOx due to the much larger scale of construction required for this alternative’s large residential and commercial development in comparison to the proposed project. An
estimated 34,967 daily trips would occur under Alternative 2, and it is likely that the air emissions would exceed daily Antelope Valley Air Quality Management District (AVAQMD) significance thresholds.

*Greenhouse Gas Emissions*

Alternative 2 would increase overall GHG emissions during both construction and operation. The construction emissions magnitude, amortized over the project life, would be a small fraction of the operations emissions, which would include indirect GHG emissions associated with electricity and water use as well as direct GHG emissions from natural gas use within the residential and commercial development and the ongoing traffic related to the development. More importantly this alternative does not have the benefit of a large renewable energy source that would reduce GHG emissions from the electricity sector. However, emissions would likely still be below the AVAQMD GHG emissions significance threshold and it is assumed this alternative would be required to be constructed in a manner that would conform with GHG emissions reductions plans, policies, and requirements.

*Biological Resources*

Alternative 2 would impact the same type of habitat as described for the proposed project; the total acreage impacts are slightly less than the proposed project (645 acres vs. 725 acres respectively). Although the construction associated with the generation-tie lines and communication lines would not be needed, the residential and commercial development would require construction of sewer, water, and power line connections to the project site. Alternative 2’s smaller footprint would result in a reduction in the loss of foraging and special status species habitat by approximately 80 acres; under the proposed project these impacts can be mitigated to a level of less than significant.

In comparing the end use of both the proposed project and Alternative 2, both would result in increased collisions for avian species compared to baseline conditions. While the proposed project’s solar panels would present a collision risk to birds; the buildings, windows, and other structures and features associated with the residential and commercial development under Alternative 2 would also present a collision risk. Alternative 2 would likely allow for the persistence of disturbance tolerant birds within the development; however, this alternative would also introduce a variety of domesticated animals that would prey on native wildlife species and likely expand into adjacent natural areas. Alternative 2 would not allow for pockets of native habitat to persist, whereas the proposed project would continue to have native habitat between solar arrays and related facilities, although it is unknown what type and how much native habitat would remain in these areas during operation of the proposed project.

*Cultural and Paleontological Resources*

Under Alternative 2 there would be a similar impact to cultural resources as the proposed project. However, there would be an increased possibility of uncovering potentially significant paleontological resources since excavations would be 8 feet deep or more. With the application of the proposed mitigation measures, impacts to paleontological resources would be less than significant. In addition, under this alternative the generation-tie and communication line routes would not be needed. Therefore, any potential impacts to cultural resources that could occur with the construction of these lines would not be impacted under Alternative 2.

*Geology and Soils*

Construction of Alternative 2 would have similar geology and soils impacts as the proposed project. Although impacts related to potential risk of loss, injury, or death due to seismically induced ground shaking would be reduced to less than significant by compliance with State, County, and City building
codes, there is an increased risk for this impact to occur due to the presence of numerous residences and many people within the project area. There is also an increased, but still less than significant, potential for soil erosion due to construction. Alternative 2 would include significantly more ground disturbance for construction of buildings and roads, however as with the proposed project, implementation of the National Pollutant Discharge Elimination System required Storm Water Pollution Prevention Plan (SWPPP) and associated best management practices would reduce this impact to less than significant. Impacts related to unsuitable soils would be similar with design and implementation of corrosion protection for buried metal components.

**Hazards and Hazardous Materials**

Construction of Alternative 2 would have similar impacts as the proposed project related to leaks and spills of hazardous materials (fuels, oils, lubricants, paints, solvents), but a much greater potential for leaks and spills during the project life due to the presence of a large number of homes and commercial development. The potential use of CdTe solar modules for the proposed project would likely exceed the voluntary use of such panels by individual residential, commercial, fire station and school properties of Del Sur Ranch, resulting in a greater impact related to the disposal or recycling of broken panels for the proposed project. Alternative 2 would have the same potential as the proposed project to encounter previously unknown soil contamination (fuels, oil, pesticides and herbicides) and former underground storage tanks during site grading and construction.

**Hydrology and Water Quality**

Alternative 2 would substantially increase adverse impacts to groundwater supply compared to the proposed project. The proposed project would require approximately 196 acre-feet (af) of water during the 12-month construction period, and approximately 4.8 af of water during each year of operation over the approximately 35-year expected lifetime of the project. Alternative 2 would require approximately 3,745 af annually for landscaping and residential use. This water demand (compared to both baseline conditions and water demand for the proposed project) would substantially increase the severity of the impact to groundwater supply compared to the proposed project. This impact would be significant and unavoidable (Class I) in this alternative, and no mitigation is available to reduce the severity of this impact.

Construction and operation of Alternative 2 would substantially alter the existing drainage pattern of the project site, place structures within a floodplain, and substantially increase the amount of new impervious surfaces compared to both baseline conditions and the proposed project. The entire site would be graded to accommodate the construction of 2,466 single-family dwelling units, commercial uses, a fire station, school facilities, a park, a lake with a 21-acre surface area, and associated recreational facilities. If the project site is improperly designed, these alterations to the existing drainage pattern, the placement of structures within a floodplain, and the amount of new impervious surfaces could result in flooding on- or off-site. The severity of this impact would be reduced through implementation of mitigation measures to maintain existing drainage patterns where feasible and to control runoff on the project site through development and implementation of a project-specific SWPPP. Also, compliance with existing regulations regarding development within a floodplain would reduce the potential impact related to flooding and diversion of flood waters. The impacts described above would be more severe compared to the proposed project, but would be less than significant with implementation of recommended mitigation.

Construction and operation of Alternative 2 could degrade water quality through erosion and sedimentation and through the accidental release of hazardous materials. Grading and site development would loosen and disturb soil that could subsequently wash into nearby waterbodies during a storm event, resulting in increased turbidity and sedimentation. The accidental release of hazardous materials
during construction of this alternative could potentially result in water quality degradation within the Antelope Valley Watershed or the Antelope Valley Groundwater Basin. Potentially hazardous materials may include diesel fuel, gasoline, lubricant oils, hydraulic fluid, antifreeze, transmission fluid, lubricant grease, and other fluids required for the operation of construction vehicles and equipment. If these materials were leaked or spilled, they could degrade receiving waters. During operation of this alternative, common household materials, such as paint, solvents, herbicides, pesticides, and cleaning supplies, could be spilled and subsequently degrade receiving waters. These impacts could be reduced through implementation of mitigation measures to control erosion and sedimentation both on- and off-site (including development of a project-specific SWPPP), and measures to respond to and control accidental releases of hazardous materials.

**Land Use, Population, and Recreation**

Under Alternative 2, the types of land use impacts would be similar to those described under the proposed project but would occur over a longer duration (both construction and operation phases). However, completion of construction would result in increased human activity in the project area in comparison to the conditions during the operation period of the proposed project. Disruptions to surrounding land uses would increase in comparison to the proposed project as they would include increased traffic and noise, increased night lighting and other visual impacts, and decreased air quality. Additional mitigation measures for these impacts would be required, although the significance determination would be significant and unavoidable (Class I).

The development of Alternative 2 would directly result in a permanent increase in the local population. This impact would be substantially greater than in the proposed project.

**Noise**

Under Alternative 2, construction, operation, and maintenance noise would increase compared to the proposed project. The levels of construction noise would be similar to the proposed project, although potentially slightly less as impact pile driving would not likely occur; however, the intensity and duration (10 years compared to 12 months) would be expected to be greater. Noise associated with operation and maintenance (O&M) would also be greater for residential and commercial uses, as there would be daily traffic commuting in and out of the development, which would impact the noise levels along the local roadway network. Additionally, on-site noise-producing activities, such as home and yard maintenance, and noise from domestic animals (e.g., dogs barking) would contribute to ongoing operational noise. As such, Alternative 2 would result in greater construction and O&M noise compared to the proposed project.

**Public Services, Utilities, and Service Systems**

Under Alternative 2, a master planned community with 2,466 single-family dwelling units, commercial uses, a fire station, school facilities, a park, a lake with a 21-acre surface area, and associated recreational facilities would be constructed, and would significantly increase the demand for public services. Alternative 2 would have a greater impact on public services and utilities than the proposed project.

**Transportation and Traffic**

Construction. The maximum daily vehicle trips generated during construction of Alternative 2 is unknown. However, it could be equal to or greater than those generated by the proposed project, depending on how construction of the residential units is phased. Like the proposed project, trips generated during construction would be temporary. The inclusion of mitigation similar to measure TRA-1 (as proposed for
the project) restricting trips during peak periods would help reduce roadway congestion impacts. However, it should be noted that the construction period associated with Alternative 2 would be greater than the proposed project.

**Operation.** Alternative 2 is expected to generate a total of 34,967 average daily trips, with a morning peak hour volume of 2,595 and an afternoon peak hour volume of 3,288 (City of Lancaster, 1989). Table D-1 shows a summary of predicted average daily traffic generated by operation of Alternative 2 on proposed project study area roadways.

<table>
<thead>
<tr>
<th>Roadway Segment</th>
<th>Average Daily Traffic Trips</th>
</tr>
</thead>
<tbody>
<tr>
<td>West Avenue G between SR-14 and 90th Street West</td>
<td>17,275</td>
</tr>
<tr>
<td>SR-14 Southbound at West Avenue G</td>
<td>4,892</td>
</tr>
<tr>
<td>SR-14 Northbound at West Avenue G</td>
<td>6,197</td>
</tr>
<tr>
<td>SR-14 Southbound at West Avenue H</td>
<td>1,529</td>
</tr>
<tr>
<td>SR-14 Southbound at West Avenue I</td>
<td>1,223</td>
</tr>
<tr>
<td>SR-14 Northbound at West Avenue I</td>
<td>306</td>
</tr>
</tbody>
</table>

Source: City of Lancaster, 1989

As shown, Alternative 2 could have a significant impact on West Avenue G and could result in substantial new traffic volumes on SR-14. These trips would be significant when compared to the proposed project, which would only generate a maximum of 14 trips per day on these study area roadways during operation.

It is assumed that the design of Alternative 2 roadways and access features would comply with City of Lancaster standards. Therefore, less than significant impacts would be expected with respect to creating roadway hazards due to a design features or incompatible uses, impeding emergency access, providing necessary parking, and complying with plans and policies pertaining to alternative transportation facilities and routes. Finally, Alternative 2 would not include any features that could impact airspace navigation or aviation safety. No impacts would occur with respect to aviation from Alternative 2.

**Conclusion – Alternative 2**

Alternative 2 presents a likely development scenario for the 645-acre area under the approved development agreement and existing entitlements for a planned residential community. In comparison to the proposed project, Alternative 2 would significantly and permanently increase the population in the project area, which would have a greater impact on traffic, noise, air quality, public services, roadways, water use, and other environmental issue areas.

**D.3.3 Alternative 3 – No Project, No Build**

**Description**

Under Alternative 3, No Project, No Build; the solar generating facility and gen-tie and communication line would not be built. The baseline environmental conditions for the No Project Alternative are the same as for the proposed project, as provided in Section C (Environmental Setting, Analysis, and Mitigation Measures). These baseline conditions would continue to occur into the future, undisturbed, in the absence of project-related construction activities.
The objectives of the proposed project would remain unfulfilled under Alternative 3, and would not contribute to achieving California’s renewable generation goals. There are two foreseeable outcomes that could occur under the No Project Alternative:

1. **Development of other solar projects in the Antelope Valley.** Given the transmission capacity available to serve generation in the Antelope Valley, it is possible that another solar project(s) would be proposed on the site (solar development is an allowable use under the existing development agreement), or elsewhere in the region. If this occurs, the impacts would likely be similar to those of the proposed project, or potentially greater depending on the size (in terms of generating capacity and associated acreage) of the facility or facilities proposed, as well as the facilities’ locations and proximity to sensitive resources.

2. **Development of solar projects in other parts of California.** If the City determines that development of the proposed project is not appropriate in the City of Lancaster, renewable generation development could occur in other parts of the County or State.

### Objectives

Alternative 3 would not meet most of the basic project objectives:

- Develop a utility-scale solar energy generating facility and accompanying infrastructure that qualifies as an eligible renewable energy resource: **Does not meet objective.**
- Contribute to the diversification of State and local energy portfolios: **Does not meet objective.**
- Create green jobs in California: **Does not meet objective.**
- Meet the increasing demand for electricity generated from renewable technology, and to assist in the effort to meet the Senate Bill 14 RPS: **Does not meet objective.**
- Use disturbed land or land that has been previously degraded from prior use: **Does not meet objective.**
- Use existing electrical distribution facilities, ROWs, roads, and other existing infrastructure where possible to minimize the need for new electrical support facilities: **Does not meet objective.**
- Minimize impacts to threatened or endangered species or their habitats, wetlands and waters of the United States, cultural resources, and sensitive land use: **Meets objective (greater than proposed project because there would be no development).**
- Minimize water use: **Meets objective (greater than proposed project because there would be no development).**
- Reduce greenhouse gas emissions: **Does not meet objective (would not offset emissions with renewable energy production).**

### Impact Analysis by Discipline

**Aesthetics**

Under Alternative 3, existing views of the project site would remain unchanged and continue to occur into the future unless other development occurred within the project site. No features would be constructed that could result in visual change/contrast or that would introduce a source of nighttime light or glare. Therefore, no aesthetic impacts would occur.
Agricultural Resources
Under Alternative 3, existing agricultural lands would not be converted to a nonagricultural use, and the grazing activities (unauthorized on the project site) could continue to occur. Therefore, no impacts to agricultural resources would occur.

Air Quality
This alternative would not change current air quality emissions related to the project site. Therefore, there would be no air quality impacts related to this alternative.

Greenhouse Gas Emissions
This alternative would not change current greenhouse gas emissions related to the project site. Therefore, there would be no direct greenhouse gas emissions impacts related to this alternative. However, if the 100 MW of solar energy that is to be built on this site is not built elsewhere then this alternative would remove the beneficial greenhouse gas emissions impact of the proposed project’s renewable energy source.

Biological Resources
Implementation of Alternative 3 allows for existing biological resources to remain at current baseline conditions for an unknown period of time and the on-site habitats would not be disturbed. Because the habitats would not be disturbed, it is assumed that all existing plant and wildlife species would persist. Therefore, no impacts to biological resources would occur under Alternative 3.

Cultural and Paleontological Resources
Under Alternative 3, the project site would remain unchanged with no development. Without construction of the solar facility and generation-tie lines and communication line, this alternative would not impact cultural and paleontological resources, which have been identified near the project site.

Geology and Soils
Under Alternative 3 the proposed project would not be implemented and, therefore, the geology and soils impacts related to seismically induced ground shaking, soil erosion, and corrosive soils would not occur.

Hazards and Hazardous Materials
Under Alternative 3, the proposed project would not be implemented and, therefore, the potential for leaks and spills of hazardous materials would not occur.

Hydrology and Water Quality
Under Alternative 3, the proposed project would not be implemented and, therefore, no additional water use would occur at the site, and no new sources of potential water quality degradation would be introduced. Existing drainage patterns of the project site would remain the same, and therefore no potential for flooding would be introduced.

Land Use, Population, and Recreation
Under Alternative 3, the existing land use (undeveloped) would continue and there would be no disruptions to adjacent land uses. The population level would remain the same, and there would be no
potential for disruptions to nearby recreational resources. Therefore, under this alternative there would be no impacts to land use, population, or recreational resources.

**Noise**

Under Alternative 3, the proposed project would not be implemented and, therefore, impacts related to noise would not occur.

**Public Services, Utilities and Service Systems**

Under Alternative 3, the proposed project would not be implemented and, therefore, no impacts to public services, utilities, or service systems would occur.

**Transportation and Traffic**

Under Alternative 3, the project site would remain unchanged into the future and no features would be constructed that could result in temporary or permanent increases to traffic volumes or changes to the local roadway system. Therefore, this no-build alternative would have no traffic impacts.

**Conclusion – Alternative 3**

Alternative 3 would avoid impacts for all issue areas. This alternative would not include development and the project site would remain vacant, which would not change the site conditions and current activities. In comparison to the proposed project, this alternative would have no impacts to biological resources, traffic, noise, air quality, public services, roadways, water use, and other environmental issue areas. However, if the proposed project is not constructed then there is the potential for other solar facilities to be proposed in the future on this project site, which would be consistent with the surrounding land uses.

**D.4 Alternatives Considered but Eliminated from Further Consideration**

This section describes and evaluates the alternatives that did not meet the CEQA criteria defined in Section D.1. The following list outlines the four types of alternatives that are addressed in this section, with an explanation as to why each alternative was eliminated.

- Alternative Sites
- Distributed Solar PV
- Energy Storage Technologies
- Conservation and Energy Demand Reduction

**D.4.1 Alternative Sites**

No alternative offsite locations have been identified at this time. There would be no significant impacts from development of the proposed project that could be mitigated by developing the proposed project at a different location, and therefore, an offsite alternative would not meet CEQA requirements for alternatives, as described in Section D.1.3. Further, although the applicant does have control over other properties in the Antelope Valley, each of these properties is being developed with solar facilities and therefore the lands would not be available as an alternative location for the proposed project.
D.4.2 Distributed Solar PV

There is no single accepted definition of “distributed” solar technology. The 2011 Integrated Energy Policy Report (IEPR) defines distributed generation resources as: “(1) fuels and technologies accepted as renewable for purposes of the Renewable Portfolio Standard (RPS); (2) sized up to 20 MW; and (3) located within the low-voltage distribution grid or supplying power directly to a consumer” (CEC 2012a). Distributed photovoltaic (PV) technology is considered below.

A distributed solar alternative would consist of PV panels that would be installed on residential, commercial, or industrial building rooftops, or in other disturbed areas such as parking lots or disturbed areas adjacent to existing structures, such as electrical substations. The City of Lancaster requires housing developers to install solar on every new home built. In addition, the school districts, Lancaster City Hall and other City facilities, and other buildings within the City utilize carport-mounted solar panels to offset the majority of the electrical consumption at these facilities. Because the City actively supports and encourages solar panels on homes, businesses, and other facilities, distributed power generation is already well developed in the area.

Governor Brown’s Clean Energy Jobs Plan also identifies the goal to install 20,000 MW of new renewable capacity by 2020, including 12,000 MW of local electricity generation from small generation sources such as distributed PV generation (CEC 2011). In 2011, Governor Brown convened a conference with representatives of agencies, businesses, and organizations that would be involved in or affected by the 12,000 MW goal during which a series of expert-led panels identified the most critical barriers to achieving this goal and solutions to these barriers. Barriers included inadequate grid planning, integration and reliability concerns on existing power lines and equipment that were designed to transport energy in the opposite direction, financing and procurement, the interconnection process, and permitting (Russell and Weissman 2012).

The State is actively working to overcome barriers to the development of distributed renewable energy generation. In a 2011 report on renewable Energy Development in California, the California Energy Commission discussed barriers to the development of distributed generation, as well as potential solutions to overcome those barriers (CEC 2011). The Energy Commission followed up in its 2012 Renewable Energy Action Plan, included as part of the 2012 IEPR Update, with a number of specific recommendations for actions that are necessary to develop and integrate distributed generation in California (CEC 2012b). The Energy Commission is working with a variety of stakeholders, including the California Public Utilities Commission, the California Independent System Operator, community and environmental justice groups, and federal agency partners, to implement the recommendations in the Renewable Energy Action Plan and accelerate the development of distributed renewable energy generation in California.

Distributed solar PV is assumed to already be located on existing structures or disturbed areas so little to no new ground disturbance would be required and there would be few associated environmental impacts, including to cultural and biological resources. However, larger distributed solar projects (up to 20 MW) could have similar impacts to agriculture, dust, and other resources associated with grading. Until specific sites are identified, it is difficult to determine whether and to what extent the environmental impacts of the proposed project would or would not occur with the Distributed Solar Photovoltaic Alternative.

Notwithstanding the State’s efforts to promote distributed renewable energy generation, current research indicates that development of both distributed generation and utility-scale renewable energy will be needed to meet California’s RPS and climate change goals, along with other energy resources and energy efficiency technologies (NREL 2010; Linvill et al 2011; California Office of the Governor 2012;
For a variety of reasons (e.g., upper limits on integrating distributed generation into the electric grid, cost, lack of electricity storage in most systems, and continued dependency of buildings on grid-supplied power), distributed energy generation alone cannot meet the goals for renewable energy development. Ultimately, both utility-scale and distributed generation renewable energy development will need to be deployed at increased levels, and the highest penetration of solar power overall will require a combination of both types (NREL 2010). As a result, this technology is eliminated from detailed analysis as an alternative to the proposed project.

D.4.3 Energy Storage Technologies

Energy storage devices store energy during periods of low demand and discharge this energy during periods of high demand. In October 2013, the California Public Utilities Commission (CPUC) established an energy storage target of 1,325 MW for Pacific Gas & Electric, Southern California Edison, and San Diego Gas & Electric. As stated by the CPUC, the benefits of storage include optimizing the grid by reducing the peak load, contributing to reliability of the grid, or deferring transmission and distribution upgrade investments; aiding in the integration of renewable energy; and aiding to reduce the greenhouse gas emissions to 80 percent below 1990 levels by 2050 per California’s goals (CPUC 2014).

There are many types of energy storage products ranging from multiple types of battery storage to compressed air or pumped-storage hydropower. Batteries provide an uninterrupted supply of electricity and can also increase power quality and reliability. Lead-acid batteries are currently the standard battery type used in energy storage applications, but many other types of batteries are near commercial readiness that would be better suited for renewable energy load and distribution requirements (CEC 2015).

Compressed air energy storage uses pressurized air as an energy storage medium. An electric motor-driven compressor pressurizes the storage reservoir using energy during off-peak or low-use times and then the air is released from the reservoir through a turbine during on-peak or high-use hours to produce energy (CEC 2015). Ideal locations for large compressed air energy storage reservoirs are empty aquifers, abandoned conventional hard rock mines, and abandoned hydraulically mined salt caverns (CEC 2015).

Pumped-storage includes storing energy by pumping water from a lower elevation reservoir to a higher elevation reservoir using pumps that run during off-peak times. During high electricity demand times, the stored water is released through turbines that produce electricity.

Compressed air energy storage and pumped storage would not be feasible on or near the project site, and the applicant does not own or have access to appropriate lands to develop these technologies. In addition, these technologies would be likely to have substantially greater environmental impacts than the proposed project.

Battery technology may be feasible on the project site, although interconnection to the grid would need detailed study to determine feasibility. Energy storage would not meet the project objective to meet the increasing demand for electricity generated from renewable technology, and to assist in the effort to meet the Senate Bill 14 RPS, although it could enhance the use of renewable energy by minimizing the need for curtailment and allowing greater ability to match grid demand with renewable energy production.

D.4.4 Conservation and Energy Demand Reduction

Conservation and demand reduction consist of a variety of approaches for the reduction of electricity use, including energy efficiency and conservation, building and appliance standards, and load management and fuel substitution. In 2005, the Energy Commission and CPUC’s Energy Action Plan II declared cost effective energy efficiency as the resource of first choice for meeting California’s energy needs. The Energy
Commission noted that energy efficiency has helped flatten the State’s per capita electricity use and saved consumers more than $56 billion since 1978 (CPUC 2011). The investor-owned utilities’ 2006-2008 efficiency portfolio marks the single-largest energy efficiency campaign in US history, with a $2 billion investment by California’s energy ratepayers (CPUC 2011). However, with population growth, increasing demand for energy, and the need to reduce greenhouse gases, there is a greater need for energy efficiency. Additionally, the City of Lancaster General Plan includes goals and sustainability principles that highlight the efficient use of resources including energy consumption (City of Lancaster 2009).

The CPUC, with support from the Governor’s Office, the Energy Commission, and the California Air Resources Board, among others, adopted the California Long-Term Energy Efficiency Strategy Plan for 2009 to 2020 in September 2008 and updated it in 2011 (CPUC 2011). The plan is a framework for all sectors in California including industry, agriculture, large and small businesses, and households. Major goals of the plan include:

- All new residential construction will be zero net energy by 2020;
- All new commercial construction will be zero net energy by 2030;
- Heating, ventilation, and air conditioning will be transformed to ensure that its energy performance is optimal for California’s climate; and
- All eligible low-income customers will be given the opportunity to participate in the Low Income Energy Efficiency program by 2020.

This alternative is not technically feasible as a replacement for the proposed project, because California utilities are required to achieve aggressive energy efficiency goals laid out by the CPUC in 2004 (D.04-09-060), with the aim of exceeding the maximum achievable potential energy savings defined at that time. Additional energy efficiency beyond that occurring in the baseline condition may be technically possible, but it is speculative to assume such a level of energy efficiency is achievable. With population growth and increasing demand for energy, conservation and demand-management alone is not sufficient to address all of California’s energy needs. Additionally, as stated in the California Energy Commission 2009 Integrated Energy Policy Report, California’s renewable energy goals are based on a percentage of retail sales of electricity, and reducing overall electricity demands means fewer retail sales and therefore less renewable energy that must be generated. Furthermore, it states that conservation and demand-side management means fewer renewable plants will need to be built. However, conservation and demand-side management would not itself provide the renewable energy required to meet the California renewable energy goals. Therefore, it would not meet project objectives pertaining to the renewable energy goals and renewable technologies, like solar PV generation.

**D.5 Comparison of Alternatives**

Section D.3 describes and evaluates the three alternatives to the proposed project. Table D-2 presents a comparison of the potential significant impacts of the proposed project in comparison with the alternatives. CEQA Guidelines Section 15126.6(d) requires the following for alternatives analysis and comparison:

> The EIR shall include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the Proposed Project. A matrix displaying the major characteristics and significant environmental effects of each alternative may be used to summarize the comparison. If an alternative would cause one or more significant effects in addition to those that would be caused by the project as proposed, the significant effects of the alternative shall be discussed, but in less detail than the significant effects of the project as proposed. (CEQA Guidelines Section 15126.6(d))
If the environmentally superior alternative is the No Project Alternative, CEQA requires the identification of an environmentally superior alternative among the other alternatives (CEQA Guidelines Section 15126.6[e][2]).

Based on the analysis presented in this section and on the impact analysis for the proposed project presented in Section C of this EIR, Alternative 3 No Project No Build is the environmentally superior alternative from an environmental standpoint. As noted above, CEQA requires that if the no project alternative is selected that another alternative must be identified from among the other alternatives. The other alternative that would reduce impacts is Alternative 1 Reduced Project, No GPA or Zone Change. This alternative would slightly reduce impacts associated with the project because of its reduced size (reduction of 80 acres) and it would not require a GPA or ZC. However, the applicant has power purchase agreements in place that require the development of the full project site to meet energy production requirements specified within the power purchase agreements. Selecting Alternative 1 would require the applicant to make up the difference in energy by developing a second project in the Antelope Valley in order to produce the full contracted amount of energy. The additional project at another location would still be required to interconnect to the main solar facility and would result in increased environmental impacts cost compared to the implementation of the full 100 MW proposed project.
Table D-2. Comparison of Alternatives

<table>
<thead>
<tr>
<th>Environmental Resource</th>
<th>Impact Severity Compared to Proposed Project</th>
<th>Alternative 1</th>
<th>Alternative 2</th>
<th>Alternative 3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Proposed Project</td>
<td>Alternative 1</td>
<td>Alternative 2</td>
<td>Alternative 3</td>
</tr>
<tr>
<td>Aesthetics</td>
<td>Less than significant (Class III)</td>
<td>Same as proposed project</td>
<td>Greater than proposed project</td>
<td>Less than proposed project</td>
</tr>
<tr>
<td>Agricultural Resources</td>
<td>Less than significant (Class III)</td>
<td>Same as proposed project</td>
<td>Greater than proposed project</td>
<td>Less than proposed project</td>
</tr>
<tr>
<td>Air Quality and Greenhouse Gases</td>
<td>Less than significant with mitigation (Class II)</td>
<td>Less than proposed project</td>
<td>Substantially greater than proposed project</td>
<td>Less than proposed project</td>
</tr>
<tr>
<td>Biological Resources</td>
<td>Less than significant with mitigation (Class II)</td>
<td>Slightly less than proposed project due to reduced footprint</td>
<td>Greater than the proposed project, as the construction intensity and duration (10 years compared to 12 months) would be greater.</td>
<td>Less than proposed project</td>
</tr>
<tr>
<td>Cultural and Paleontological Resources</td>
<td>Less than significant with mitigation (Class II)</td>
<td>Slightly less than proposed project due to reduced footprint</td>
<td>Same as proposed project</td>
<td>Less than proposed project</td>
</tr>
<tr>
<td>Geology and Soils</td>
<td>Less than significant with mitigation (Class II)</td>
<td>Slightly less than proposed project due to reduced footprint</td>
<td>Same as proposed project</td>
<td>Less than proposed project</td>
</tr>
<tr>
<td>Hazards and Hazardous Materials</td>
<td>Less than significant with mitigation (Class II)</td>
<td>Slightly less than proposed project due to reduced footprint</td>
<td>Substantially greater than proposed project due to greater variety and amount of hazardous materials used during construction and operation</td>
<td>Less than proposed project</td>
</tr>
<tr>
<td>Hydrology and Water Quality</td>
<td>Less than significant with mitigation (Class II)</td>
<td>Slightly less than proposed project due to reduced footprint</td>
<td>Substantially greater than proposed project due to greater water use during construction and operation</td>
<td>Less than proposed project</td>
</tr>
<tr>
<td>Land Use, Population, and Recreation</td>
<td>Less than significant with mitigation (Class II)</td>
<td>Slightly less than proposed project</td>
<td>Substantially greater than proposed project due to different land uses and permanent increase in population</td>
<td>Less than proposed project</td>
</tr>
</tbody>
</table>
### Table D-2. Comparison of Alternatives

<table>
<thead>
<tr>
<th>Environmental Resource</th>
<th>Impact Severity Compared to Proposed Project</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Proposed Project</td>
</tr>
<tr>
<td>Noise</td>
<td>Less than significant with mitigation (Class II)</td>
</tr>
<tr>
<td></td>
<td>Similar to proposed project, but slightly less impact on residences located along 110th Street W and West Avenue G due to less on-site construction activities occurring on the western portion of the SGF site and less construction traffic due to the smaller project size.</td>
</tr>
<tr>
<td></td>
<td>Greater than the proposed project, as the construction intensity and duration (10 years compared to 12 months) would be greater.</td>
</tr>
<tr>
<td></td>
<td>Less than proposed project</td>
</tr>
<tr>
<td>Public Services, Utilities, and Service Systems</td>
<td>Less than significant with mitigation (Class II)</td>
</tr>
<tr>
<td></td>
<td>Same as proposed project</td>
</tr>
<tr>
<td></td>
<td>Substantially greater than proposed project due to different land uses and permanent increase in population</td>
</tr>
<tr>
<td></td>
<td>Less than proposed project</td>
</tr>
<tr>
<td>Transportation and Traffic</td>
<td>Less than significant with mitigation (Class II)</td>
</tr>
<tr>
<td></td>
<td>Similar to proposed project, but slightly less impact because of less construction traffic due to the smaller project size.</td>
</tr>
<tr>
<td></td>
<td>Greater than the proposed project, as the construction intensity and duration (10 years compared to 12 months) would be greater and the development would generate much more traffic once constructed.</td>
</tr>
<tr>
<td></td>
<td>Less than proposed project</td>
</tr>
</tbody>
</table>
E. Other CEQA Considerations

This section presents several topics required by CEQA, including environmental effects found not to be significant (E.1), growth-inducing effects (E.2), significant irreversible environmental changes (E.3), significant effects that cannot be avoided (E.4), and energy conservation (E.5).

E.1 Environmental Effects Found not to be Significant

Section 15128 of the CEQA Guidelines states that an EIR shall contain a statement briefly indicating the reasons that various possible significant effects of a project were determined not to be significant and therefore were not discussed in detail in the EIR. These are the environmental effects found not to be significant based on the site or project characteristics, and as documented in the Notice of Preparation (see Appendix 1). Table E.1 includes the impacts that are not anticipated to occur, the issue area, and the justification.

<table>
<thead>
<tr>
<th>Topic</th>
<th>Reasoning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture and Forestry Resources</td>
<td></td>
</tr>
<tr>
<td>II.c) Conflict with existing zoning for, or cause rezoning of, forest land, timberland, or timberland zoned Timberland Production?</td>
<td>The project site is not zoned as forest land, timberland, or timberland production and does not meet the requirements of a timberland zone as defined by Public Resources Code Section 4526. Therefore, the proposed project would not conflict with existing zoning for, or cause rezoning of, forest land, timberland, or timberland zoned Timberland Production.</td>
</tr>
<tr>
<td>II.d) Result in the loss of forest land or conversion of forest land to non-forest use?</td>
<td>There are no forests located within the City of Lancaster and the project site consists of former agricultural lands or undeveloped desert. Therefore, the proposed project would not result in the loss of forest land or conversion of forest land to non-forest use.</td>
</tr>
<tr>
<td>Air Quality</td>
<td></td>
</tr>
<tr>
<td>III.e) Create objectionable odors affecting a substantial number of people?</td>
<td>Construction activities of the proposed project would result in equipment exhaust odors that may be considered objectionable by some; however, there are few sensitive receptors located in the immediate vicinity of the project site and construction activities would be temporary. Therefore, the proposed project would not create objectionable odors affecting a substantial number of people.</td>
</tr>
<tr>
<td>Biological Resources</td>
<td></td>
</tr>
<tr>
<td>IV.f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State Habitat Conservation Plan?</td>
<td>There are no adopted Habitat Conservation Plans, Natural Community Conservation Plans or other approved local, regional, or State Habitat Conservation Plans that are applicable to the project site. Therefore, the proposed project would not conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State Habitat Conservation Plan.</td>
</tr>
<tr>
<td>Geology and Soils</td>
<td></td>
</tr>
<tr>
<td>VI.e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for disposal of waste water?</td>
<td>The proposed project would not generate waste water that would need to be disposed of in a septic or sewer system. During construction and operation of the proposed project, portable restroom facilities would be provided for workers. Therefore, no potential impacts with respect to waste water disposal systems would occur.</td>
</tr>
</tbody>
</table>
### Table E-1: Effects Found Not to Be Significant

<table>
<thead>
<tr>
<th>Topic</th>
<th>Reasoning</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hazards and Hazardous Materials</strong></td>
<td></td>
</tr>
<tr>
<td>VIII.e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area? Or VIII.f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?</td>
<td>The proposed project is not located within two miles of a public or private airport, or airstrip. The nearest airport is the William J Fox Airfield, located approximately four miles east of the project site. Therefore, no potential impacts associated with aviation safety hazards at the project site would occur.</td>
</tr>
<tr>
<td><strong>Hydrology and Water Quality</strong></td>
<td></td>
</tr>
<tr>
<td>IX.g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?</td>
<td>The proposed project does not involve the construction of any habitable structures, including housing. Therefore, the proposed project would not place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map.</td>
</tr>
<tr>
<td><strong>Land Use and Planning</strong></td>
<td></td>
</tr>
<tr>
<td>X.c) Conflict with any applicable habitat conservation plan or natural community conservation plan?</td>
<td>There are no habitat conservation plans or natural community conservation plans that are applicable to the project site. Therefore, the proposed project would not conflict with any applicable habitat conservation plan or natural community conservation plan.</td>
</tr>
<tr>
<td><strong>Mineral Resources</strong></td>
<td></td>
</tr>
<tr>
<td>XI.a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the State? Or XI.b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?</td>
<td>The project site does not contain any known mineral deposits or active mineral extraction operations. The City of Lancaster, and the project site, are not considered likely to have large, valuable mineral and aggregate deposits according to the City of Lancaster 2030 General Plan Master Environmental Assessment (April 2009). Furthermore, the proposed solar facility would be decommissioned at the end of its operational life, thereby allowing future access to any onsite minerals should they be determined to be onsite. Therefore, the proposed project would not result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the State or in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan.</td>
</tr>
<tr>
<td><strong>Noise</strong></td>
<td></td>
</tr>
<tr>
<td>XII.e) For a project located within an airport land use plan, or where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing to working in the project area to excessive noise levels? Or XII.f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?</td>
<td>The project site is not located within two miles of an airport, or within the vicinity of a private airstrip. The nearest airport is the William J Fox Airfield, located approximately four miles east of the proposed project site. Therefore, no potential impacts associated with aviation noise at the project site would occur.</td>
</tr>
<tr>
<td><strong>Population and Housing</strong></td>
<td></td>
</tr>
<tr>
<td>XIII.b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere? Or XIII.c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?</td>
<td>The project site does not contain any residential uses and no residential uses are included as part of the proposed project. Therefore, the proposed project would not have the potential to displace people or housing and would not require the construction of replacement housing elsewhere.</td>
</tr>
</tbody>
</table>
E.2 Growth-Inducing Effects

Section 15126.2(d) of the State CEQA Guidelines provides the following guidance on growth-inducing impacts: a project is identified as growth inducing if it “could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment.”

Potential growth inducing components of the proposed project addressed in this section relate to employment and population growth, increased power generation and regional population growth, and increased transmission capacity that serves renewable power development.

Employment and Population Growth

Construction Workforce. A maximum construction workforce of 250 workers per day would be required, and this work would occur over approximately 12 months. Workers are expected to be hired from within the City of Lancaster, City of Palmdale, and the Antelope Valley to the extent practicable. Some of the workers originating outside the study area would temporarily relocate to accommodations within the City of Lancaster or Palmdale for the duration of construction activities. Demand for temporary accommodations during construction is expected to be low and would be accommodated by existing lodging facilities in the region. There would not be growth in employment and housing in the area from new restaurants, mobile home parks, convenience stores, and/or other services that would serve the workers during project construction, as existing facilities in the region would be adequate to accommodate the construction workforce.

The City of Lancaster has a labor force of 64,500 workers (CA EDD, 2015). A maximum of 250 workers hired from within the City would represent approximately 0.04 percent of the total labor force, although the construction workers are also expected to come from the surrounding areas as well. As a temporary component, the construction phase would not trigger additional population growth in the area.

Operational Workforce. No more than one full-time staff would be employed during operation of the proposed project. It is anticipated that adequate housing would be available without exceeding the demands of the City of Lancaster’s existing housing supply. Therefore, project operation would not result in new growth in the area relating to the potential population increase.

Increased Power Generation

While the proposed project would contribute to energy supply, which indirectly supports population growth, the development of the proposed project is responding to the State’s need for renewable energy to meet its Renewable Portfolio Standards. Unlike a gas-fired power plant, the proposed project is not being developed as a source of baseload power in response to growth in demand for electricity. The power generated would be added to the State’s electricity grid, with the intent that it would allow an overall reduction in use of fossil fueled power plants and their greenhouse gas emissions.

The proposed project would supply energy to accommodate and support existing demand and projected growth, but it would not foster any new growth, because (1) the additional energy would be used to ease the burdens of meeting existing energy demands within and beyond the area of the project; (2) the energy would be used to support already-projected growth; or (3) the factors affecting growth are so diverse that any potential connection between additional energy production and growth would necessarily be too speculative and tenuous to merit extensive analysis.
E.3 Significant Irreversible Environmental Changes

Section 15126.2(c) of the State CEQA Guidelines defines an irreversible impact as an impact that uses nonrenewable resources during the initial and continued phases of the project. Irretrievable commitments of resources should be evaluated to assure that such consumption is justified.

Irreversible impacts can also result from permanent loss of habitat, damage caused by environmental accidents associated with project construction, or operational resource use. Furthermore, construction of the proposed project would necessitate some use and long-term conversion of agricultural land and vegetation and habitat removal. As discussed in Section C.5 (Biological Resources), implementation of the proposed project would result in approximately 721 acres of long-term impacts to vegetative communities. Assuming implementation of the mitigation measures recommended in this EIR, long-term loss of habitat would be confined to the project site and generation-tie lines and communication line route.

Construction of the proposed project would commit nonrenewable resources during construction. This includes use of fossil fuels, construction materials, and new equipment that cannot be recycled at the end of the project’s useful lifetime, and energy required for the production of materials. During project operation, oil, gas, and other nonrenewable resources would be consumed. Therefore, an irreversible commitment of relatively small amounts of nonrenewable resources would occur as a result of long-term project operation. The anticipated equipment, vehicles, and materials required for construction of the proposed project are detailed in Section B.

Construction and operation of the proposed project would require the use of a limited amount of hazardous materials such as fuel, lubricants and cleaning solvents. Additionally, during project construction and operation preexisting soil contamination could be encountered. All hazardous materials would be stored, handled, and used in accordance with applicable federal, State, and local regulations. The applicant would be required to develop and comply with an Emergency Response Plan and a Storm Water Pollution Prevention Plan as well as best management practices. Appropriate implementation of these plans and practices, as well as mitigation measures recommended in Section C.8 and City policies and permits, would reduce the potential for environmental accidents associated with the proposed project to less than significant levels. The proposed project is not expected to result in environmental accidents that would cause irreversible damage.

The purpose of the proposed project is to help California meet its renewable energy goals, which have been developed to reduce the effects of global climate change and greenhouse gas emissions. Therefore, the proposed project would develop a renewable source of power, helping to offset the use of nonrenewable resources and contribute to an overall reduction of nonrenewable resources currently used to generate electricity. Resources that would be consumed as a result of project implementation include water, electricity, and fossil fuels during construction and operations; however, the amount and rate of consumption of these resources would not result in significant environmental impacts or the unnecessary, inefficient, or wasteful use of resources. Compliance with all applicable building codes, as well as City policies and the mitigation measures identified in this EIR would ensure that all natural resources are conserved to the maximum extent possible.
E.4 Significant Effects that Can Not be Avoided

E.4.1 Significant Direct Effects of the Proposed Project

Section 15126.2(b) of the State CEQA Guidelines requires that the EIR describe any significant impacts, including those that can be mitigated but not reduced to less than significant levels. Potential environmental effects of the proposed project and mitigation measures are discussed in detail in Section C of this EIR. All project impacts would be mitigated to less than significant levels, and there would be no significant and unavoidable impacts for the proposed project.

E.4.2 Significant Cumulative Effects

According to Section 15355 of the State CEQA Guidelines, the term “cumulative impacts” refers to two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts.” Individual effects that may contribute to a cumulative impact may be from a single project or a number of separate projects. Individually, the impacts of a project may be relatively minor, but when considered along with impacts of other closely related or nearby projects, including newly proposed projects, the effects could be cumulatively considerable.

This EIR has considered the potential cumulative effects of the proposed project in Section C. Impacts of the proposed project, when combined with impacts from past, present, and probable future projects would be considered cumulatively significant for the following issue areas:

**Air Quality**

The proposed project would contribute to a cumulatively considerable impact to air quality when combined with impacts from past, present, and reasonable future projects. As discussed in Section C.4.4, the geographic extent for the cumulative air quality analysis includes projects within one mile of the project site. Two projects, which have not been constructed, are within this one-mile radius. Assuming the two cumulative projects and the proposed project are constructed on similar timeframes, the \( PM_{10} \) emissions from these projects would have the potential to cumulatively exceed the AVAQMD emissions significance thresholds. The proposed project would contribute a large fraction of these \( PM_{10} \) cumulative emissions because combined the two cumulative projects are smaller than the proposed project. Therefore, during construction the proposed project’s air quality impacts would be cumulatively considerable, and when combined with other projects would result in a significant and unavoidable (temporary) cumulative impact from \( PM_{10} \) emissions (Class I).

**Biological Resources**

The proposed project would contribute to a cumulatively considerable impact to special-status species when combined with impacts from past, present, and reasonable future projects. The proposed project and the other solar projects would result in the loss or modification of thousands of acres of vegetation known to support special-status plants and wildlife including Swainson’s hawk, American badger, burrowing owl, and desert kit fox. Development of these projects would limit the use of the land for foraging, breeding, or wintering for many species of resident and migratory birds. Because so much of the remaining habitat for the special-status species in the proposed project area has been lost or degraded already, relatively minor changes within remaining habitat, particularly when considered cumulatively, would have significant impacts. The City has a program in place to offset the cumulative loss of habitat from development; this program requires the payment of biological impact fees that the City uses to acquire conservation lands. The proposed project and all other developments in the City that would impact undeveloped land are subject to the fee. In addition, the proposed project
is smaller than many of the other solar projects in the cumulative scenario. Nonetheless, because of the large scale of the potential cumulative loss of habitat in the region, the proposed project’s incremental contribution to habitat loss and resulting effects to special-status species would be cumulatively considerable (Class I).

E.5 Energy Conservation

In order to assure that energy implications are considered in project decisions, CEQA requires that EIRs include a discussion of the potential energy impacts of proposed projects, with particular emphasis on avoiding or reducing inefficient, wasteful and unnecessary consumption of energy (see Public Resources Code section 21100(b)(3)). According to Appendix F of the State CEQA Guidelines, the goal of conserving energy implies the wise and efficient use of energy including: (1) decreasing overall per capita energy consumption; (2) decreasing reliance on natural gas and oil; and (3) increasing reliance on renewable energy sources.

The proposed project would help achieve this goal because it would develop a renewable source of power, helping to offset the use of nonrenewable resources and contribute to an overall reduction of nonrenewable resources currently used to generate electricity. In addition, Section C.4 (Air Quality and Greenhouse Gases) describes effects on climate change/greenhouse gas emissions that would be caused by implementation of the proposed project, including a discussion on the effects of the project on energy resources.

Resources that would be consumed as a result of project implementation include water, electricity, and fossil fuels during construction and operation. Additionally, construction would require the manufacture of new materials, some of which would not be recyclable at the end of the proposed project’s lifetime, and the energy required for the production of these materials would also result in an irretrievable commitment of natural resources. The anticipated equipment, vehicles, and materials required for construction of the proposed project are detailed in Section B.6. However, the amount and rate of consumption of these resources would not result in significant environmental impacts or the unnecessary, inefficient, or wasteful use of resources. Compliance with all applicable building codes, as well as City policies and the mitigation measures identified in this EIR would ensure that all natural resources are conserved to the maximum extent possible.

No increases in inefficiencies or unnecessary energy consumption are expected to occur as a direct or indirect consequence of the proposed project. No mitigation measures above those already present in this EIR would be necessary.
F. References

General (Introduction, Project Description, Other CEQA Considerations)


Section C.1 Introduction to Environmental Analysis


Section C.2 Aesthetics


Section C.3 Agricultural Resources


Section C.4  
Air Quality and Greenhouse Gases


REFERENCES


Section C.5 Biological Resources


_____ . 1994 Field Guide to Lake and Streambed Alterations Section 1600-1607.

CDFW (California Department of Fish and Wildlife). 2015a. RAREFIND database ed.3.1.1. Electronic database managed by the Natural Diversity Data Base, Wildlife Data and Habitat Analysis Branch, California Department of Fish and Wildlife. Sacramento, CA.


**Section C.6 Cultural Resources**


Holm, L. 2010. Site Update for P-19-186876. Pacific Legacy, Inc. Lancaster, CA. Site Record on file at the South Central Coastal Information Center, California State University, Fullerton.


McLeod. 2015. Natural History Museum of Los Angeles County Department of Invertebrate Paleontology. Discussion with Samuel McLeod and online search of the Natural History Museum of Los Angeles County Invertebrate Paleontology database. March 10 and 13, 2015.


Section C.7 Geology and Soils


_____ 1999. Fault Rupture Hazard Zones in California, CGS Special Publication #42.


Zeiser Geotechnical Inc. 1988. Geotechnical Review for EIR Preparation, Tentative Tract 46250, City of Lancaster, Los Angeles County, California, Appendix D in Final Environmental Impact Report, Del Sur Ranch, prepared for the City of Lancaster by The Keith Companies.

Section C.8 Hazards and Hazardous Materials


Section C.9 Hydrology and Water Quality


Reca, A. L. 2015. Email memo from Adrienne Lewis Reca to Jim Howell and Garret Bean regarding water agreement for Ave G and 95 street west. May 12.


Section C.10  Land Use, Population, and Recreation


Section C.11  Noise


Section C.12 Public Services and Utilities


_____ 2015b. APWA Environmental Writeup.


Section C.13  Transportation and Traffic


Section D Alternatives


G. Glossary, Acronyms, and Abbreviations

G.1 Terminology

100-Year Flood – A stream flow caused by a discharge that is exceeded, on the average, only once in 100 years. A 100-year flood has a 1 percent chance of occurrence in any given year.

A-Weighting – A frequency measure of noise, which simulates human perception.

Acre-foot – A unit of measure for water demand and supply. The volume of 1 acre-foot would cover 1 acre to a depth of 1 foot and is equal to 325,851 gallons.

Air Quality Standard – The specified average concentration of an air pollutant in ambient air during a specified time period, at or above which level the public health may be at risk; equivalent to AAQS.

Ambient Air – Any unconfined portion of the atmosphere; the outside air.

Ambient Noise Level – Noise from all sources, near and far. ANL constitutes the normal or existing level of environmental noise at a given location.

Baseline – A set of existing conditions against which change is to be described and measured.

Cadmium Telluride (CdTe). Cadmium telluride is a stable compound of cadmium (Cd) and tellurium (Te). Cadmium, a human carcinogen produced as a byproduct of zinc refining, is compounded with tellurium, a byproduct of copper refining, to form the stable compound CdTe.


Community Noise Equivalent Level (CNEL). the averaging of noise levels on a measurement scale of decibels that increases the actual noise measurement, to account for an increased sensitivity to noise during late evening, nighttime, and morning hours.

Cultural Resource – Places or objects important for scientific, historical, and religious reasons to cultures, communities, and individuals.

Cumulative impacts are two or more individual impacts that, when considered together, are considerable or that compound or increase other environmental impacts. The following statements also apply when considering cumulative impacts:

— The individual impacts may be changes resulting from a single project or separate projects.

— The cumulative impact from several projects is the change in the environment that results from the incremental impact of the project when added to other reasonably foreseeable projects.

dBA – The A-weighted decibel scale representing the relative insensitivity of the human ear to low-pitched sounds; decibels (dB) are logarithmic units that compare the wide range of sound intensities to which the human ear is sensitive.

Emission – Unwanted substances released by human activity into air or water.

Emission Limit – A regulatory standard that restricts the discharge of an air pollutant into atmosphere.

Environment means the physical conditions that exist in the area and that would be affected by a proposed project, including land, air, water, minerals, flora, fauna, ambient noise, and objects of historical or aesthetic significance. The area involved is where significant direct or indirect impacts would occur as a result of the project. The environment includes both natural and artificial conditions.

Fugitive Dust – Airborne soil particles.

Generation – The production of electricity from other forms of energy such as combustion, falling water or thermal transfer.

Gen-Tie or Generation-Tie – Transmission line connecting a generator to the electric grid.

Horsepower (hp) – A unit of power equivalent to 33,000 foot-pounds per minute or 745.7 watts of electricity.

Impacts analyzed under CEQA must be related to a physical change. Impacts are:

— Direct or primary impacts that would be caused by the Proposed Project and would occur at the same time and place; or

— Indirect or secondary impacts that would be caused by the Proposed Project and would be later in time or farther removed in distance but would still be reasonably foreseeable. Indirect or secondary impacts may include growth-inducing impacts and other effects related to induced changes in the pattern of land use; population density or growth rate; and related effects on air and water and other natural systems, including ecosystems.

Inventory, Emission – A list of daily or annual emissions, listed by pollution source category (e.g., trains, refineries, agriculture, etc.).

Invertebrate – Animals that lack a spinal column.

Inverter – Inverters take the direct current (DC) output of the panels and convert it to alternating current (AC) for delivery to the transmission grid.

KOP – Key Observation Point; one or a series of points on a travel route or at a use area where the view of the proposed project would be most revealing.

Ldn – The average ambient noise level in dBA over a 24-hour day-night period.

Leq – Energy-equivalent sound level; average level of sound determined over a specific period of time.

Lead Agency – The agency responsible for preparation of the CEQA document. For the proposed Del Sur Solar Project, the City of Lancaster is the Lead Agency under CEQA.

Less than significant impact - An impact that is adverse but that does not exceed the defined thresholds of significance. Less than significant impacts do not require mitigation.

Level of Service (LOS) - A measure of roadway congestion, ranging from A (free-flowing) to F (highly congested).

Liquefaction – The process of making or becoming liquid (soils).

Megawatt (MW) - A measure of electric power equal to 1,000 kilowatts or 1,000,000 watts.

Mitigation consists of measures that avoid or substantially reduce the proposed project’s significant environmental impacts by:
— Avoiding the impact altogether by not taking a certain action or parts of an action;
— Minimizing impacts by limiting the degree or magnitude of the action and its implementation;
— Rectifying the impact by repairing, rehabilitating, or restoring the affected environment;
— Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; or
— Compensating for the impact by replacing or providing substitute resources or environments.

**Nitrogen Oxides** – A gaseous mixture of nitric oxide (NO) and nitrogen dioxide (NO₂) and symbolically represented as NO₃).

**NO** – Nitric oxide. A molecule of one nitrogen and one oxygen atom. Results usually from combustion of organic substances containing nitrogen and from recombination of nitrogen decomposed in air during high temperature combustion.

**NO₂** – Nitrogen dioxide. A molecule of one nitrogen and two oxygen atoms. Results usually from further oxidation of nitric oxide (NO) in the atmosphere. Ozone accelerates the conversion.

**Ozone** – A molecule of three oxygen atoms — O₃. A colorless gas formed by a complex series of chemical and photochemical reaction of reactive organic gases, principally hydrocarbons, with the oxides of nitrogen, which is harmful to the public health, the biota, and some materials.

**Oxides of Nitrogen NOx**. Poisonous and highly reactive gases produced when fuel is burned at high temperatures, causing nitrogen in the air to combine with oxygen.

**Particulate Matter (particulates)** – Very fine sized solid matter or droplets, typically averaging one micron or smaller in diameter. Also called “aerosol.”

**ppm** – Parts per million, a measure of the amount of one substance found in a second, which is the carrier.

**Photovoltaic (PV)** - Direct conversion of light into electricity.

**Photovoltaic (PV) Panel** – Often used interchangeably with PV module, but more accurately used to refer to a physically connected collection of modules (module- smallest assembly of solar cells intended to generate direct current power under unconcentrated sunlight).

**Project** means the whole of an action that has the potential for resulting in a physical change in the environment, directly or ultimately.

**Ruderal** – Growing where the natural vegetation cover has been disturbed.

**Sensitive Receptor** – Land uses adjacent to or within proximity to the proposed project that could be impacted by construction, operation, and maintenance activities.

**Significant impact on the environment** means a substantial, or potentially substantial, adverse change in any of the physical conditions in the area affected by the proposed project, including land, air, water, minerals, flora, fauna, ambient noise, and objects of historical or aesthetic significance. An economic or social change by itself is not considered a significant impact on the environment. A social or economic change related to a physical change may be considered in determining whether the physical change is significant.
**Significant and unavoidable impact.** An impact that exceeds the defined thresholds of significance and cannot be eliminated or reduced to a less than significant level through the implementation of mitigation measures.

**SIP** – State Implementation Plan (see Air Quality); a document required periodically from each county by EPA that indicates the progress and the planning of the Antelope Valley Air Quality Management District for improving the quality of its air.

**SOx** – Sulfur oxide. The group of compounds formed during combustion or thereafter in the atmosphere of sulfur compounds in the fuel, each having various levels of oxidation, ranging from two oxygen atoms for each sulfur atom to four oxygen atoms.

**Sulfates** – Compounds in air or water that contain four oxygen atoms for each sulfur atom. See SOx.

**Sulfur dioxide (SO₂)** – A corrosive and poisonous gas produced from the complete combustion of sulfur in fuels.

**Sulfur Oxides** – A gaseous mixture of sulfur dioxide (SO₂) and sulfur trioxide (SO₃) and symbolically represented as SOx. Can include particulate species such as sulfate compounds (-SO₄).

**Terrestrial** – Related to or living on land. Terrestrial biology deals with upland areas as opposed to shorelines or coastal habitats.

**View Distance** – The following identifies the differences in length between view distances:
- Foreground View: 0–1 mile.
- Middleground View: 1–3 miles.
- Background View: >3 miles.

**Viewshed** – The landscape that can be directly seen under favorable atmospheric conditions, from a particular point/area or along a transportation corridor.

**Visual Contrast** – Opposition or unlikeness of different forms, lines, colors, or textures in a landscape. Generally, increased visual contrast within foreground distances would be more noticeable to viewers than increased visual contrast within background distances.

**Visual Quality** – The relative value of a landscape from a visual perception point of view.

**Visual Sensitivity** – Consideration of people's uses of various environments and their concerns for maintenance of scenic quality and open-space values; examples of areas of high visual sensitivity would be areas visible from scenic highways, wilderness areas, parks, recreational water bodies, etc.

**Volume to Capacity ratio (V/C)** - A measure of the capacity of a roadway. When V/C is 100 percent, no more traffic can be accommodated.

**Watershed** – The area contained within a drainage divide above a specified point on a stream.

**Wetland** – Lands transitional between obviously upland and aquatic environments. Wetlands are generally highly productive environments with abundant fish, wildlife, aesthetic, and natural resource values. For this reason, coupled with the alarming rate of their destruction, they are considered valuable resources, and several regulations and laws have been implemented to protect them.
### G.2 Acronyms and Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>AAQS</td>
<td>Ambient Air Quality Standard</td>
</tr>
<tr>
<td>AB</td>
<td>Assembly Bill (e.g., AB 32)</td>
</tr>
<tr>
<td>AC</td>
<td>Alternating current</td>
</tr>
<tr>
<td>A.D.</td>
<td>anno Domini (“In the year of the Lord”)</td>
</tr>
<tr>
<td>ADT</td>
<td>Average Daily Traffic</td>
</tr>
<tr>
<td>af</td>
<td>acre feet (see acre-foot)</td>
</tr>
<tr>
<td>AFB</td>
<td>Air Force Base</td>
</tr>
<tr>
<td>afy</td>
<td>acre-feet/year</td>
</tr>
<tr>
<td>ANL</td>
<td>Ambient Noise Level</td>
</tr>
<tr>
<td>APCO</td>
<td>Air Pollution Control Officer</td>
</tr>
<tr>
<td>API</td>
<td>Area of Potential Impact</td>
</tr>
<tr>
<td>APN</td>
<td>Assessor Parcel Number</td>
</tr>
<tr>
<td>AQMP</td>
<td>Air Quality Management Plan</td>
</tr>
<tr>
<td>ARB</td>
<td>(California) Air Resources Board</td>
</tr>
<tr>
<td>AVAQMD</td>
<td>Antelope Valley Air Quality Management District</td>
</tr>
<tr>
<td>AVEK</td>
<td>Antelope Valley – East Kern Water Agency</td>
</tr>
<tr>
<td>AVUHSD</td>
<td>Antelope Valley Union High School District</td>
</tr>
<tr>
<td>B.C.</td>
<td>before Christ</td>
</tr>
<tr>
<td>bgs</td>
<td>below ground surface</td>
</tr>
<tr>
<td>bhp</td>
<td>brake horsepower</td>
</tr>
<tr>
<td>BMP</td>
<td>Best Management Practice</td>
</tr>
<tr>
<td>C-</td>
<td>Commercial (City land use designation)</td>
</tr>
<tr>
<td>Ca.</td>
<td>- circa</td>
</tr>
<tr>
<td>CAA</td>
<td>Clean Air Act (1970)</td>
</tr>
<tr>
<td>CAAQS</td>
<td>California Ambient Air Quality Standard</td>
</tr>
<tr>
<td>Cal-ARP</td>
<td>California Accidental Release Prevention Program</td>
</tr>
<tr>
<td>Cal EPA</td>
<td>California Environmental Protection Agency</td>
</tr>
<tr>
<td>CAL OSHA</td>
<td>California Occupational Safety and Health Administration</td>
</tr>
<tr>
<td>Caltrans</td>
<td>California Department of Transportation</td>
</tr>
<tr>
<td>CAPCOA</td>
<td>California Air Pollution Control Officers Association</td>
</tr>
<tr>
<td>CARB</td>
<td>California Air Resources Board, sometimes abbreviated as ARB</td>
</tr>
<tr>
<td>CA/T</td>
<td>Central Artery Tunnel (Project)</td>
</tr>
<tr>
<td>CBC</td>
<td>California Building Code</td>
</tr>
<tr>
<td>CCAA</td>
<td>California Clean Air Act</td>
</tr>
<tr>
<td>CCCC</td>
<td>California Climate Change Center</td>
</tr>
<tr>
<td>CCR</td>
<td>California Code of Regulations</td>
</tr>
<tr>
<td>CDC</td>
<td>Center for Disease Control and Prevention</td>
</tr>
<tr>
<td>CDFW</td>
<td>California Department of Fish and Wildlife</td>
</tr>
<tr>
<td>CdTe</td>
<td>Cadmium Telluride</td>
</tr>
<tr>
<td>CFF</td>
<td>Call firefighters (on-call station; no full-time staff)</td>
</tr>
<tr>
<td>CFR</td>
<td>U.S. Code of Federal Regulations</td>
</tr>
<tr>
<td>CGS</td>
<td>California Geology Survey</td>
</tr>
<tr>
<td>CH4</td>
<td>Methane</td>
</tr>
<tr>
<td>Class I</td>
<td>Significant impact; cannot be mitigated to a level that is not significant</td>
</tr>
</tbody>
</table>
Class II – Significant impact; can be mitigated to a level that is not significant

Class III – Adverse impact, but not significant.

Class IV – Beneficial impact

CMLUCA – California Military Land Use Compatibility Analysis

CMM – Construction Mitigation Manager

CMP – Congestion Management Program

CNDDB – California Natural Diversity Database

CNEL – Community Noise Equivalent Level

CNPS – California Native Plant Society

CO – Carbon Monoxide

CO₂ – Carbon Dioxide

CO₂e – Equivalent CO₂ emission rate

CPD – Commercial Planned Development (City zoning designation)

CPUC – California Public Utilities Commission

CRHR – California Register of Historical Resources.

CRNR – California Regulatory Notice Register

CRTP – Cultural Resources Treatment Plan

CSSC – California Species of Special Concern

CUP – Conditional Use Permit

CUPA – Certified Unified Program Agency

CVC – California Vehicle Code

CWA – Clean Water Act

CWC – California Water Code

dB or dBA – see Decibel

DC – Direct current

DCP – Dust Control Plan

DOC – (California) Department of Conservation

DOE – US Department of Energy

DOORS – Diesel Off-Road Online Reporting System

DPM – Diesel particulate matter

DPR – Department of Parks and Recreation

DRECP – Desert Renewable Energy Conservation Plan

DTSC – (California) Department of Toxic Substance Control

DWR – (California) Department of Water Resources

EDGAR – Emission Database for Global Atmospheric Research

EIR – Environmental Impact Report

EMF – Electric and Magnetic Fields

EPA – U.S. Environmental Protection Agency

ESA – Endangered Species Act

ESA – Environmentally Sensitive Area

ETo – evapotranspiration

EUSD – Eastside Union School District

°F - Fahrenheit

FAA – Federal Aviation Administration

FEMA – Federal Emergency Management Agency

FHWA – Federal Highway Administration

FIRM – Flood Insurance Rate Map

FMMP – Farmland Monitoring and Mapping Program

FPPA – Farmland Protection Policy Act

g – gravity

GCC – Global Climate Change

GHG – Greenhouse gas

GIS – Geographic Information System

GO – General Order
GPA – General Plan Amendment
GPS – Global positioning system
GSU – generator step-up (transformer)
GWP – Global Warming Potential
HA – hydrologic area
HAPs – Hazardous air pollutants
HFC - hydrofluorocarbons
HHMD – Health Hazardous Materials Division
HR – hydrologic region
HU – hydrologic unit
HUC – hydrologic unit code
IBC – International Building Code
ICC – International Code Council
ICU – Intersection capacity utilization
IPCC – Intergovernmental Panel on Climate Change
IWMB – Integrated Waste Management Board
KOP – key observation point
kV – Kilovolt (one thousand volts)
LACC – Los Angeles County Code
LASD – Los Angeles Sheriff’s Department
LCC – Land Capability Classifications
LCID – Littlerock Creek Irrigation District
Ldn – average noise level over 24-hour day-night period
LE – Land Evaluation
Leq – equivalent noise level over a given time period
LESA – Land Evaluation and Site Assessment
Lmax – Maximum Leq
Lmin – Minimum Leq
LOS – Level of Service (a measure of roadway congestion)
LRWQCB – Lahontan Regional Water Quality Control Board
LSD – Lancaster School District
LWRP – Lancaster Water Reclamation Plant
M – Moment Magnitude
MBTA – Migratory Bird Treaty Act
MCL – maximum concentration level
MDAB - Mojave Desert Air Basin
MET – meteorological (data collection station)
mgd – Million gallons per day
Micron – One millionth of a meter
Milligauss (mG) – Measurement of magnetic field strength
mm – Millimeter
MM – Mitigation Measure
mph – miles per hour
MW – Megawatt; (measure of electric power)
Mwh – megawatt hour
NAAQS – National Ambient Air Quality Standards; see AAQS.
NACE – National Association of Civil Engineers
NAD – North American Datum
NAHC – Native American Heritage Commission
NASA – National Aeronautics and Space Administration
NFIP – National Flood Insurance Program
N2O – nitrous oxide
NOAA – National Oceanic and Atmospheric Administration
NOP – Notice of Preparation (of environmental document).

NOx – Oxides of nitrogen

NPDES – National Pollutant Discharge Elimination System.

NRCS – Natural Resource Conservation Service

NRHP – National Register of Historical Places

NU – Nonurban Residential (City land use designation)

O – Open Space (City land use designation)

O3 – See Ozone

O&M – Operations & Maintenance

OHV – off highway vehicle

OHWM – ordinary high water mark

OPH – Office of Historic Preservation

OPR – Office of Planning and Research (State of California)

OSHA – Occupational Safety and Health Act

OSHA – Occupational Safety and Health Administration

P – Public Use (City land use designation)

PCE – Passenger car equivalent

PERP – portable equipment registration program

PFC – Perfluorocarbons

PGA – Peak ground acceleration

pH – A measure of acidity or alkalinity

Pk – Park (City zoning designation)

PLP – polarized light pollution

PM – Particulate Matter

PM2.5 – PM 2.5 microns or less in size

PM10 – PM less than 10 microns in size (can be inhaled into lungs at this size)

ppm – Parts per million, a measure of the amount of one substance found in a second, which is the carrier

PRC – Public Resources Code

PV – photovoltaic

PWD – Palmdale Water District

QSD – Qualified SWPPP Developer

R-7000 – single family residential, minimum lot size 7,000 square feet

R-10,000 – single family residential, minimum lot size 10,000 square feet

R- 15,000 – single family residential, minimum lot size 15,000 square feet

RCNM – Roadway Construction Noise Model

ROW – Right-of-way

RPR – Rare Plant Rank

RPS – Renewable Portfolio Standard

RR-1 – rural residential, minimum lot size 1 acre

RR-2.5 – rural residential, minimum lot size 2.5 acres

RTP – Regional Transportation Plan

RWQCB – Regional Water Quality Control Board

S – School (City zoning designation)

SA – Site Assessment

SB – Senate Bill

SCADA – Supervisory Control and Data Acquisition

SCAG – Southern California Association of Governments

SCE – Southern California Edison

SCS – Sustainable Communities Strategy

SEA – Significant Ecological Area

SENL – single event noise level
Del Sur Solar Project

G. GLOSSARY, ACRONYMS, AND ABBREVIATIONS

SF₆ - Sulfur hexafluoride
SGF – solar generating facility
SIP – State Implementation Plan (air quality)
SO₂ – Sulfur dioxide
SR – State Route
SSC – Species of Special Concern
SVOC – semi volatile organic compound
SWP – State Water Project
SWPPP – Stormwater Pollution Prevention Plan
SWRCB – State Water Resources Control Board
TACs – Toxic Air Contaminants
TIS – Traffic Impact Study
T/L – Transmission line.
TMDL – total maximum daily load
ug/kg – micrograms per kilogram
ug/m³ – micrograms per cubic meter
UR – Urban Residential (City land use designation)
US – United States
USA – Underground Service Alert.
USACE – US Army Corps of Engineers
USC – United States Code
USDA – United States Department of Agriculture.
USEPA – United States Environmental Protection Agency.
USFWS – U.S. Fish and Wildlife Service.
UST – underground storage tank
V/C – Volume to Capacity ratio (capacity of a roadway).

VDECS – Verified Diesel Emission Control Strategies
VOC – Volatile organic compounds.
vpd – Vehicles per day.
WABSRA – Western Antelope Blue Sky Ranch “A”
WCP – Weed Control Plan
WEEP – Worker Environmental Education Program
WMP – West Mojave Plan
WSA – Water Supply Assessments
WUSD – Westside Union School District
ZC – zone change
H. Preparers of the EIR

A consultant team of 23 key technical and administrative personnel headed by Aspen Environmental Group prepared this document under the direction of the City of Lancaster (City). Jocelyn Swain (City Project Manager and Associate Planner – Environmental Services), Brian Ludicke (Planning Director) and other City departments and representatives provided comment and input into the Del Sur Solar Project EIR. Garret Bean (Director of Permitting) and Nancy Hsu (Permitting Project Manager), both of sPower, provided project description information to support the analysis presented in this document. The consultant team and organizations consulted are listed below.

Consultant Team

<table>
<thead>
<tr>
<th>Personnel</th>
<th>Education</th>
<th>Role/Issue Area</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Aspen Environmental Group</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sandra Alarcón-Lopez</td>
<td>MA, Urban Planning, BA, Speech and Hearing Science</td>
<td>Project Manager</td>
</tr>
<tr>
<td>Jennifer Lancaster</td>
<td>MS, Biology, BS, Biology</td>
<td>Deputy Project Manager</td>
</tr>
<tr>
<td>David Bailey</td>
<td>MA, GIS Science, BA, Geography</td>
<td>GIS</td>
</tr>
<tr>
<td>Lisa Blewitt</td>
<td>BS, Chemical Engineering</td>
<td>Noise</td>
</tr>
<tr>
<td>Emily Chitiea</td>
<td>BA, English</td>
<td>Document Format</td>
</tr>
<tr>
<td>Scott Debauche, CEP</td>
<td>BS, Urban &amp; Regional Planning</td>
<td>Aesthetics; Transportation and Traffic</td>
</tr>
<tr>
<td>Susanne Huerta, AICP</td>
<td>Master of Urban Planning, BA, Geography</td>
<td>Land Use, Population, and Recreation; Agricultural Resources</td>
</tr>
<tr>
<td>Chris Huntley</td>
<td>BA, Biology</td>
<td>Biological Resources</td>
</tr>
<tr>
<td>Matthew Long</td>
<td>MSc, GIS/Water Resources Specialization, MPP, Natural Resource Management Concentration, BA, Comparative Literature</td>
<td>Hydrology and Water Quality</td>
</tr>
<tr>
<td>Patrick Meddaugh</td>
<td>BS, Environmental Science and Management</td>
<td>Project Assistant</td>
</tr>
<tr>
<td>Rosa S. Monson</td>
<td>BS, Landscape Architecture</td>
<td>Graphics</td>
</tr>
<tr>
<td>Tracy Popiel</td>
<td>MA, Geography, BS, Biology</td>
<td>GIS</td>
</tr>
<tr>
<td>Margaret Schaap</td>
<td>BS, Biology</td>
<td>Biological Resources</td>
</tr>
<tr>
<td>Kati Simpson</td>
<td>BA, Geography, AA, Liberal Arts and Sciences</td>
<td>Graphics</td>
</tr>
<tr>
<td>Jared Varonin, CFP</td>
<td>BS, Ecology and Systematic Biology</td>
<td>Biological Resources</td>
</tr>
<tr>
<td>William Walters, PE</td>
<td>BS, Chemical Engineering</td>
<td>Air Quality and Greenhouse Gas</td>
</tr>
<tr>
<td>Justin Wood</td>
<td>MS, Biology, BS, Biology</td>
<td>Biological Resources</td>
</tr>
<tr>
<td>Stanley Yeh</td>
<td>MPA, Environmental Policy, BS, Environmental Studies (Earth Sciences)</td>
<td>Public Services, Utilities and Service Systems; Other CEQA Considerations</td>
</tr>
<tr>
<td>3DScape</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Timothy Zack</td>
<td>BA, Architecture</td>
<td>Visual Simulations</td>
</tr>
</tbody>
</table>

June 2015  H-1  Draft EIR
Organizations Consulted

The consultant team reviewed agency websites for data and regulatory information in preparation of this EIR. The agency websites are listed in their respective technical chapter in Section F References. A list of the agency websites that were consulted are presented below.

- City of Lancaster
- Los Angeles County Department of Regional Planning
- Los Angeles County Public Health
- Los Angeles County Sanitation District
- Lahontan Regional Water Quality Control Board
- Antelope Valley Air Quality Management District
- Governor’s Office of Planning and Research
- California Department of Conservation
- California Air Resources Board
- California Department of Fish and Wildlife
- California Environmental Protection Agency
- California Energy Commission
- California Natural Resources Agency
- Department of Toxic Substances Control
- California Department of Transportation
- Department of Water Resources
- Center for Disease Control and Prevention
- Natural Resource Conservation Service
- Federal Aviation Administration
- US Environmental Protection Agency

In addition to the websites that were consulted, the consultant team contacted the following agencies directly to obtain information for the cultural and paleontological resources section.

- Natural History Museum of Los Angeles County, Los Angeles, CA; Samuel McLeod
- Native American Heritage Commission, Sacramento, CA; Katy Sanchez