4. Comparison of Alternatives

This section provides a comparison of the proposed Project and alternatives described in Chapter 2 and analyzed in Sections 3.2 through 3.17, specifically focusing on those alternatives where the re-routed portions or changes in construction methods (e.g., helicopter construction vs. ground-based construction) occur on federal lands, including National Forest System (NFS) and US Army Corps of Engineers (USACE) controlled lands. These alternatives include the No Project/Action Alternative (Alternative 1), SCE’s Proposed Project (Alternative 2), Maximum Helicopter Construction in the ANF Alternative (Alternative 6), and the 66-kV Subtransmission Alternative (Alternative 7). For all other alternatives, including the West Lancaster Alternative (Alternative 3), Chino Hills Route Alternatives (Alternative 4, Routes A-D), and the Partial Underground Alternative (Alternative 5), please refer to the CPUC’s Final EIR (October 2009) for detailed descriptions and comparisons.

The comparative analysis presented in this section focuses on the differences in impacts among the various alternatives, with particular emphasis given to the differences in significant effects. This section is intended to provide decision makers with information about the merits and disadvantages of the alternatives that will assist them in their consideration of SCE’s pending application for the proposed Project, and to assist the public in understanding the differences between the alternatives. Among the alternatives analyzed in this EIS, the NEPA Lead Agency, the USDA Forest Service, has identified a preferred alternative, which is presented in this section (40 CFR 1502.14). Pursuant to NEPA Regulations (40 CFR 1505.2(b)), the environmentally preferred alternative or alternatives must be identified in the Record of Decision (ROD) for the Project.

Section 4.1 provides a summary of the proposed Project and those alternatives where the re-routed portions or changes in construction methods occur on federal lands (i.e., Alternatives 1, 2, 6, and 7) as analyzed in this EIS. Section 4.2 provides a discussion highlighting the differences and similarities among the alternatives affecting federal lands by environmental issue/resource area, and presents a comparison matrix of environmental impacts and issues for these alternatives. Section 4.3 presents the NEPA Lead Agency preferred alternative.

4.1 Summary of Alternatives

To facilitate a clear understanding of the various alternatives that affect federal lands, this section provides a summary of the detailed descriptions for each alternative presented in Chapter 2, including the No Project/Action Alternative (Alternative 1), SCE’s Proposed Project (Alternative 2), Maximum Helicopter Construction in the ANF Alternative (Alternative 6), and the 66-kV Subtransmission Alternative (Alternative 7). The primary features of each of these alternatives are presented in a series of tables, one for each alternative. A summary matrix of the components of each of the alternatives affecting federal lands is provided in Table 4.1-4 at the end of this section to allow for ease of comparison. An overall map of the alternatives is presented in Figure 2.1-1 located at the end of Final EIS Chapter 2. More detailed route maps are presented in Figures 2.2-1a through 2.2-1y (located in the Final EIS Map & Figure Series Volume) for SCE’s proposed Project (Alternative 2). In addition, please refer to Figures 2.2-89a through 2.2-89i (Alternative 2), Figure 2.6-1 and Figures 2.6-2a through 2.6-2i (Alternative 6), and Figures 2.7-1 and 2.7-2 (Alternative 7) all located at the end of Final EIS Chapter 2.
4.1.1  No Project/Action Alternative

The No Project/Action Alternative is described in Section 2.1. The No Project/Action Alternative would result in the TRTP, as proposed, not being implemented. In the absence of the Project, SCE still would continue to operate and maintain the existing transmission structures, access, and spur roads for operations and maintenance purposes under a variety of agreements (with landowners and land managers) and permits/easements (Forest Service and USACE). For example, within the ANF, approximately 80 miles of roads are currently being used to access the existing structures along Segments 6 and 11, which the use and maintenance of is authorized through existing roads permits issued by the Forest Service. SCE would also be required to interconnect and integrate power generation facilities into its electric system, as required under Sections 210 and 212 of the Federal Power Act (16 U.S.C. § 824 [i] and [k]) and Sections 3.2 and 5.7 of the CAISO’s Tariff. Future generation projects, specifically within the Tehachapi Wind Resources Area (TWRA), cannot be interconnected to the SCE transmission system without new transmission infrastructure north of Antelope Substation to the TWRA and an increase in transmission capacity south of Antelope Substation. Transmission of power from the Antelope Valley area is currently constrained by the existing Antelope-Mesa 220-kV T/L, which would be overloaded by the addition of new wind generation resulting in system-wide power flow and reliability problems due to overloading of the existing system, such as curtailed generation, thermal overload, and blackouts. Therefore, without new transmission infrastructure (north of Antelope Substation) and upgrades to the existing system (south of Antelope Substation), SCE would not be able to interconnect new renewable generation facilities and therefore would not meet Renewables Portfolio Standard requirements and the power needs of southern California.

Under the No Project/Action Alternative, some currently unknown plan would need to be developed to provide the transmission upgrades necessary to interconnect renewable generation projects in the Tehachapi area and to also address the existing transmission problems south of Lugo Substation. Similarly, other yet unspecified transmission upgrades would presumably be proposed in the future to provide the needed capacity and additional reliability to serve growing electrical load in the Antelope Valley. To interconnect wind projects in the Tehachapi area, it is possible that other electrical utilities with transmission facilities in the area, such as LADWP, might purchase some of the power from Tehachapi wind developers and integrate it into their system. Another possibility is for the development of a private T/L, similar to the existing Sagebrush line, which could connect wind projects to the electrical grid. However, at this time, the Forest Service does not know what alternate transmission might be proposed in the future to accomplish the Project objectives if the Project is not implemented.

4.1.2  Alternative 2: SCE’s Proposed Project

SCE’s proposed Project would involve new and upgraded transmission infrastructure along approximately 173 miles of new and existing ROW from the TWRA in southern Kern County south through Los Angeles County and the ANF and east to the existing Mira Loma Substation in Ontario, San Bernardino County, California. The major components of SCE’s proposed Project have been separated into eight distinct segments. Segments 4 through 8, as well as Segments 10 and 11 of the TRTP are transmission facilities, while Segment 9 addresses the addition and upgrade of substation facilities. The major features of SCE’s proposed Project (Alternative 2), by segment, are provided in Table 4.1-1 (see Table 2.2-1 in Chapter 2 for a more complete summary).
Table 4.1-1. Features of Alternative 2 (SCE’s Proposed Project) Components

### Overall Project Construction
- Proposed construction duration of 67 months (estimated to begin in April 2010 and end in October 2015)
- Disturbance during construction of approximately 1,685 acres with a ±15% range of 1,432-1,937 acres, resulting in permanent land disturbance of approximately 365 acres with a ±15% range of 310-419 acres
- On NFS lands, disturbance from construction would be approximately 318 acres with a ±15% range of 271-366 acres, and permanent land disturbance would be approximately 124 acres with a ±15% range of 106-143 acres

### Segment 10: New Whirlwind – Windhub 500-kV T/L
- Initiates at the approved Whirlwind Substation (not part of Project) and ends at the new Whirlwind Substation
- Construct new approximately 16.8-mile single-circuit Whirlwind – Windhub 500-kV T/L
- All proposed permanent infrastructure to be located within new 330-foot-wide ROW (approx. 16.8 miles)
- Erect approximately 96 new single-circuit 500-kV LSTs

### Segment 4: Whirlwind 500/220 kV T/L Elements
- Initiates at the proposed Cottonwind Substation (not part of Project) and ends at the existing Antelope Substation
- Construct two new parallel 4.0-mile single-circuit 220-kV T/Ls (Cottonwind – Whirlwind 220-kV No. 1 & No. 2)
- Construct new approximately 15.6-mile single-circuit Vincent – Whirlwind 500-kV T/L
- All proposed permanent infrastructure to be located within new 200-foot-wide ROW (approx. 19.6 miles total)
- Erect approximately 165 new transmission structures

### Segment 5: Antelope – Vincent No. 2 500-kV T/L
- Initiates at the existing Antelope Substation and ends at the existing Vincent Substation
- Remove the existing Antelope – Vincent 220-kV T/L and the existing Antelope – Mesa 220-kV T/L
- Construct new approximately 17.4-mile single-circuit Antelope – Vincent No. 2 500-kV T/L
- Most of the proposed permanent infrastructure (with the exception of side board width requirements of the new cutovers) to be located in existing ROW (approx. 17.4 miles)
- Erect approximately 67 new single-circuit 500-kV LSTs

### Segment 11: New Mesa – Vincent (via Gould) 500/220-kV T/L
- Initiates at the existing Vincent Substation and ends at the existing Mesa Substation
- Remove approximately 4 miles of the existing Pardee – Vincent No. 1 220-kV T/L
- Remove approximately 15 miles of the existing Eagle Rock – Pardee 220-kV T/L
- Construct new approximately 18.7-mile 500-kV single-circuit T/L between Vincent and Gould Substations (initially energized at 220 kV)
- Re-route portions of two existing 220-kV lines into Vincent Substation using currently idle towers.
- String approximately 17.5 miles (approximately 3.3 miles are located on National Forest System [NFS] lands) of new 220-kV conductor on the vacant side of the existing double-circuit structures of the Eagle Rock-Mesa 220-kV T/L (10 existing structures are located on NFS lands)
- Most of the proposed infrastructure would be located within existing ROW; however, the ROW may need to be expanded by up to approximately 250 feet to the west along the approximately 16 miles north of Gould Substation to maintain safe clearances from the edge of the ROW due to wire swing of the new 500-kV T/L under wind loading conditions
- Erect a total of approximately 69 new transmission structures (60 on NFS lands along approx. 20.4 miles)
- Construction of 16 structures by helicopter (all on NFS lands), supported by 10 helicopter staging areas (7 on NFS lands)
- Approximately 37 miles (±15% range of 31 to 42 miles) of roads, of which approximately 30 miles (±15% range of 25 to 34 miles) would be on NFS lands, would be created (new), reconstructed, or require some amount of maintenance

### Segment 6: Section of New Replacement Rio Hondo – Vincent No. 2 500-kV T/L (initially energized at 220 kV) and Section of New Mira Loma – Vincent 500-kV T/L
- Initiates at the existing Rio Hondo Substation and ends at the southern boundary of the ANF
- Remove approximately 5 miles of the existing Rio Hondo – Vincent No. 2 220-kV T/L between Vincent Substation and the “crossover” span (S6 MP 5.0)
- Construct new approximately 5-mile single-circuit Mira Loma – Vincent 500-kV T/L from the Vincent Substation to the “crossover” span (S6 MP 5.0)
- Remove approximately 26.9 miles of the existing Antelope – Mesa 220 kV T/L from Vincent Substation to the southern boundary of the ANF
- Construct new approximately 26.9-mile single-circuit Rio Hondo – Vincent No. 2 500-kV T/L (initially energized at 220 kV)
- Eliminate the existing crossing of the Rio Hondo – Vincent No. 2 220-kV T/L over the Antelope – Mesa 220-kV T/L
- All proposed permanent infrastructure to be located within existing ROW (approx. 32 miles)
- Erect a total of approximately 137 new transmission structures (105 on NFS lands along approx. 21.85 miles)
- Construction of 17 structures by helicopter (all on NFS lands), supported by 10 helicopter staging areas (9 on NFS lands and 1 on USACE controlled lands)
- Approximately 69 miles (±15% range of 59 to 79 miles) of roads, of which approximately 66 miles (±15% range of 56 to 76 miles)
### Table 4.1.1. Features of Alternative 2 (SCE’s Proposed Project) Components

<table>
<thead>
<tr>
<th>Table 4.1.1. Features of Alternative 2 (SCE’s Proposed Project) Components</th>
</tr>
</thead>
<tbody>
<tr>
<td>Segment 7: Section of New Replacement Rio Hondo – Vincent No. 2 500-kV T/L (initially energized at 220 kV) and Section of New Mira Loma – Vincent 500-kV T/L</td>
</tr>
<tr>
<td>• Initiates at the southern boundary of the ANF and ends at the existing Mesa Substation</td>
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<tr>
<td>• Remove approximately 15.8 miles of the existing Antelope – Mesa 220-kV T/L between the southern boundary of the ANF and the Mesa Substation</td>
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<tr>
<td>• Construct new approximately 15.8-mile 500-kV double-circuit T/L to include the Rio Hondo – Vincent No. 2 500-kV T/L (initially energized at 220 kV) and the new Mira Loma – Vincent 500-kV T/L</td>
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<tr>
<td>• Connect the new Rio Hondo – Vincent No. 2 500-kV T/L (initially energized at 220 kV) into the Rio Hondo Substation</td>
</tr>
<tr>
<td>• Relocate several existing 66-kV subtransmission lines between the Rio Hondo Substation and the Mesa Substation</td>
</tr>
<tr>
<td>• All proposed permanent infrastructure to be located within existing ROW (approx. 15.8 miles)</td>
</tr>
<tr>
<td>• Erect approximately 85 new transmission structures (20 on USACE controlled lands)</td>
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<tr>
<td>• Erect approximately 150 new double-circuit 66-kV subtransmission LWSPs and TSPs</td>
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<tr>
<td>Segment 8: Section of New Mira Loma – Vincent 500-kV T/L</td>
</tr>
<tr>
<td>• Initiates near the existing Mesa Substation and ends at the existing Mira Loma Substation</td>
</tr>
<tr>
<td>• Remove various 220-kV T/L structures between the existing Mesa Substation and the existing Mira Loma Substation</td>
</tr>
<tr>
<td>• Construct approximately 33 miles of new double-circuit 500-kV T/L to include approximately 33 miles of the new Mira Loma – Vincent 500-kV T/L (Segment 8A/8C)</td>
</tr>
<tr>
<td>• Construct approximately 6.8 miles of new double-circuit 220-kV T/L from the Chino Substation to the Mira Loma Substation (Segment 8B)</td>
</tr>
<tr>
<td>• Relocate several existing 66-kV subtransmission lines in the area of the Mesa and Chino Substations</td>
</tr>
<tr>
<td>• Most of the proposed infrastructure would be located within existing ROW, except for the following:</td>
</tr>
<tr>
<td>• Rose Hills Memorial Park ROW relocation (existing: 1.1-mile, 150-foot-wide; future: 1.4-mile, 240-foot-wide)</td>
</tr>
<tr>
<td>• Hacienda Heights ROW expansion (existing: 2.15-mile, 150 to 230-foot-wide; future: 250 to 330-foot-wide)</td>
</tr>
<tr>
<td>• Fullerton Road new ROW (existing: none; future: 0.4-mile, 100-foot-wide)</td>
</tr>
<tr>
<td>• Ontario (near Mira Loma Substation) ROW expansion (existing: 0.45-mile, 175-foot-wide; future: 325-foot-wide)</td>
</tr>
<tr>
<td>• Erect approximately 226 new transmission structures (12 on USACE controlled lands)</td>
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<tr>
<td>• Erect approximately 55 new double-circuit 66-kV subtransmission LWSPs and 6 TSP riser poles</td>
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<tr>
<td>Segment 9: Substation Facilities</td>
</tr>
<tr>
<td>• Construct new Whirlwind Substation</td>
</tr>
<tr>
<td>• Expand and upgrade existing Antelope and Vincent Substations to accommodate new 500-kV and 220-kV equipment</td>
</tr>
<tr>
<td>• Upgrade existing Mesa and Gould Substations to accommodate new 220-kV equipment</td>
</tr>
<tr>
<td>• Upgrade existing Mira Loma Substation to accommodate new 500-kV equipment</td>
</tr>
</tbody>
</table>

Please note that the information provided herein is based on SCE’s preliminary design for the TRTP and is subject to change during final engineering. For land disturbance numbers, a deviation factor of ±15 percent has been incorporated to provide a range allowing for the error associated with a project that has only gone through preliminary engineering. All mileages are approximate due to differences between engineering miles, which take into account topography, and map miles, which assume no variation in topography.

### 4.1.3 Alternative 6: Maximum Helicopter Construction in the ANF Alternative

Alternative 6 includes candidate helicopter staging/support areas that have been identified within the vicinity of Segments 6 and 11 to facilitate helicopter construction within the ANF. A total of 151 new 500-kV towers would be constructed by helicopter under this alternative, 96 within Segment 6 and 55 within Segment 11. As a result of helicopter construction, access and spur roads, which would be required as part of SCE’s proposed Project (Alternative 2), would not be created and/or upgraded for ground access to the helicopter constructed towers. However, ground-access to wire stringing sites (pulling/tensioner/splicing) would continue to be required for this alternative as equipment for these activities can only be brought in by truck. As a result of helicopter construction, approximately 53 miles (±15% range of 45 to 61 miles) of new and upgraded roads (reconstruction/maintenance), which would
be required as part of SCE’s proposed Project (Alternative 2), would not be created or upgraded for ground access to the helicopter constructed towers. Specifically on NFS lands, the reduction of new and upgraded roads would be approximately 52 miles (±15% range of 44 to 60 miles).

Details of those segments of Alternative 6 that differ from SCE’s proposed Project (Alternative 2) are provided in Table 4.1-2.

| Table 4.1-2. Features of Alternative 6 (Maximum Helicopter Construction in the ANF) Components |
|----------------------------------|--------------------------------------------------|
| Overall Project Construction     | Construction of Alternative 6 would be identical to the proposed Project (67 months), with the exception of Segments 6 and 11, where the need for substantial helicopter construction may result in a longer construction schedule due to the limited availability of specialized helicopters and personnel. The schedule for helicopter construction would be finalized as part of final engineering. |
|                                  | Disturbance during construction of approximately 1,554 acres with a ±15% range of 1,341-1,815 acres, resulting in permanent land disturbance of approximately 296 acres with a ±15% range of 253-343 acres. |
|                                  | On NFS lands, disturbance from construction would be approximately 198 acres with a ±15% range of 168-227 acres, and permanent land disturbance would be approximately 58 acres with a ±15% range of 49-66 acres. |
| Segment 11: New Mesa – Vincent (via Gould) 500/220-kV T/L | Initiates at the existing Vincent Substation and ends at the existing Mesa Substation |
|                                  | Remove approximately 4 miles of the existing Pardee – Vincent No. 1 220-kV T/L |
|                                  | Remove approximately 15 miles of the existing Eagle Rock – Pardee 220-kV T/L |
|                                  | Construct new approximately 18.7-mile 500-kV single-circuit T/L between Vincent and Gould Substations (initially energized at 220 kV) |
|                                  | String approximately 17.5 miles (approximately 3.3 miles are located on NFS lands) of new 220-kV conductor on the vacant side of the existing double-circuit structures of the Eagle Rock-Mesa 220-kV T/L (9 existing structures are located on NFS lands) |
|                                  | Most of the proposed infrastructure would be located within existing ROW; however, the ROW may need to be expanded by up to approximately 250 feet to the west along approximately the 16 miles north of Gould Substation to maintain safe clearances from the edge of the ROW due to wire swing of the new 500-kV T/L under wind loading conditions. |
|                                  | Erect a total of approximately 69 new transmission structures (60 on NFS lands along approx. 20.4 miles) |
|                                  | Construction of 55 structures by helicopter (all on NFS lands), supported by 4 helicopter staging areas (3 on NFS lands) |
|                                  | Approximately 20.7 miles (±15% range of 18 to 24 miles) of roads, of which approximately 14 miles (±15% range of 12 to 16 miles) would be on NFS lands, would be created (new), reconstructed, or require some amount of maintenance. |

| Segment 6: Section of New Replacement Rio Hondo – Vincent No. 2 500-kV T/L (initially energized at 220 kV) and Section of New Mira Loma – Vincent 500-kV T/L | Initiates at the existing Vincent Substation and ends at the southern boundary of the ANF |
|                                  | Remove approximately 5 miles of the existing Rio Hondo – Vincent No. 2 220-kV T/L between Vincent Substation and the “crossover” span (S6 MP 5.0) |
|                                  | Construct new approximately 5-mile single-circuit Mira Loma – Vincent 500-kV T/L from the Vincent Substation to the “crossover” span (S6 MP 5.0) |
|                                  | Remove approximately 26.9 miles of the existing Antelope – Mesa 220 kV T/L from Vincent Substation to the southern boundary of the ANF |
|                                  | Construct new approximately 26.9-mile single-circuit Rio Hondo – Vincent No. 2 500-kV T/L (initially energized at 220 kV) |
|                                  | Eliminate the existing crossing of the Rio Hondo – Vincent No. 2 220-kV T/L over the Antelope – Mesa 220-kV T/L |
|                                  | All proposed permanent infrastructure to be located within existing ROW (approx. 32 miles) |
|                                  | Erect a total of approximately 136 new transmission structures (105 on NFS lands along approx. 21.85 miles) |
|                                  | Construction of up to 96 structures by helicopter (all on NFS lands), supported by 9 helicopter staging areas (9 on NFS lands) |
|                                  | Approximately 35 miles (±15% range of 29 to 40 miles) of roads, of which approximately 32 miles (±15% range of 27 to 37 miles) would be on NFS lands, would be created (new), reconstructed, or require some amount of maintenance |

4.1.4 Alternative 7: 66-kV Subtransmission Alternative

This alternative is comprised of four 66-kV subtransmission line elements, including the following: (1) Duck Farm 66-kV Underground, which includes undergrounding the existing 66-kV subtransmission line on Segment 7 through the River Commons at the Duck Farm (Duck Farm Project) between Valley Boulevard (S7 MP 8.9) and S7 MP 9.9 to minimize the Project’s effects to passive recreation
opportunities in the planned Duck Farm Project area; (2) Whittier Narrows 66-kV Underground Re-Route, which includes re-routing and undergrounding the existing 66-kV subtransmission line around the Whittier Narrows Recreation Area along Segment 7 (S7 MP 11.4 to 12.025) to reduce impacts to least Bell’s vireos; (3) Re-routing the existing 66-kV subtransmission line through the Whittier Narrows Recreation Area in Segment 7 (S7 MP 12.0 to 13.6) immediately north of the existing 220-kV ROW to reduce the number of structures required (20-foot expanded ROW required); and (4) Whittier Narrows 66-kV Overhead Re-Route, which includes re-routing the existing 66-kV subtransmission line around the Whittier Narrows Recreation Area along Segment 8A between the San Gabriel Junction (S8A MP 2.2) and S8A MP 3.8 (2 routing options are provided in this area) to reduce impacts to least Bell’s vireos.

Details of those segments of Alternative 7 that differ from SCE’s proposed Project (Alternative 2) are provided in Table 4.1-3.

<table>
<thead>
<tr>
<th>Table 4.1-3. Features of Alternative 7 (66-kV Subtransmission) Components</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Overall Project Construction</strong></td>
</tr>
<tr>
<td>• Identical to Alternative 2 (SCE’s Proposed Project). Proposed construction duration of 67 months (estimated to begin in April 2010 and end in October 2015)</td>
</tr>
<tr>
<td>• Disturbance during construction of approximately 1,685 acres with a ±15% range of 1,432-1,937 acres, resulting in permanent land disturbance of approximately 365 acres with a ±15% range of 310-419 acres. Some additional temporary disturbance associated with underground construction of 66-kV subtransmission lines through the Duck Farm and along Segment 7 to re-route the 66-kV line around the Whittier Narrows Recreation area. New access and spur roads may result in additional permanent land disturbance compared to the proposed Project (Alternative 2) in the area of the new approximately 1,600 foot ROW for the San Gabriel River crossing within Segment 8A associated with the Whittier Narrows 66-kV Overhead Re-Route (Option 1) or within the expanded ROW between Durfee Avenue and the San Gabriel River (Option 2).</td>
</tr>
<tr>
<td><strong>Segment 7: Section of New Replacement Rio Hondo – Vincent No. 2 500-kV T/L (initially energized at 220 kV) and Section of New Mira Loma – Vincent 500-kV T/L</strong></td>
</tr>
<tr>
<td>• Initiates at the southern boundary of the ANF and ends at the existing Mesa Substation</td>
</tr>
<tr>
<td>• Remove approximately 15.8 miles of the existing Antelope – Mesa 220-kV T/L between the southern boundary of the ANF and the Mesa Substation</td>
</tr>
<tr>
<td>• Construct new approximately 15.8-mile 500-kV double-circuit T/L to include the Rio Hondo – Vincent No. 2 500-kV T/L (initially energized at 220 kV) and the new Mira Loma – Vincent 500-kV T/L</td>
</tr>
<tr>
<td>• Connect the new Rio Hondo – Vincent No. 2 500-kV T/L (initially energized at 220 kV) into the Rio Hondo Substation</td>
</tr>
<tr>
<td>• Relocate several existing 66-kV subtransmission lines between the Rio Hondo Substation and the Mesa Substation. Unlike Alternative 2 (SCE’s Proposed Project), this alternative would include two short segments of 66-kV underground and a segment of re-routed overhead 66-kV lines, as follows:</td>
</tr>
<tr>
<td>✓ (1) an approximately 6,000-foot underground segment of 66-kV subtransmission line from S7 MP 8.9 to 9.9 through the Duck Farm Project; and</td>
</tr>
<tr>
<td>✓ (2) an approximately 3,300-foot re-route of 66-kV subtransmission line, which would be placed underground, beginning at approx. S7 MP 11.4 and proceed north along Peck Road, then west along Durfee Road, rejoining the 220-kV ROW (proposed Project ROW) at approx. S7 MP 12.025.</td>
</tr>
<tr>
<td>✓ (3) relocation of the existing Rio Hondo – Amador – Jose – Mesa 66-kV subtransmission line to the north side of the existing 220-kV ROW beginning at Durfee Avenue (~S7 MP 12.0) through Legg Lake Park and the Whittier Narrows Recreation Area to just east of San Gabriel Boulevard (~S7 MP 13.6).</td>
</tr>
<tr>
<td>✓ (4) relocation of the existing 66-kV subtransmission line around the Whittier Narrows Recreation Area in Segment 8A between the San Gabriel Junction (S8A MP 2.2) and S8A MP 3.8.</td>
</tr>
<tr>
<td>• All proposed permanent 500-kV infrastructure to be located within existing ROW (approx. 15.8 miles); New and expanded ROW required for 66-kV re-routes.</td>
</tr>
<tr>
<td>• Erect approximately 85 new transmission structures (20 on USACE controlled lands),</td>
</tr>
<tr>
<td>• Erect approximately 128 new double-circuit 66-kV subtransmission LWSPs and TSPs (22 fewer than Alt 2)</td>
</tr>
<tr>
<td><strong>Segment 8: Section of New Mira Loma – Vincent 500-kV T/L</strong></td>
</tr>
<tr>
<td>• Initiates near the existing Mesa Substation and ends at the existing Mira Loma Substation</td>
</tr>
<tr>
<td>• Remove various 220-kV T/L structures between the existing Mesa Substation and the existing Mira Loma Substation</td>
</tr>
<tr>
<td>• Construct approximately 33 miles of new double-circuit 500-kV T/L to include approximately 33 miles of the new Mira Loma – Vincent 500-kV T/L (Segment 8A/8C)</td>
</tr>
<tr>
<td>• Construct approximately 6.8 miles of new double-circuit 220-kV T/L from the Chino Substation to the Mira Loma Substation (Segment 8B)</td>
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</tbody>
</table>
### Table 4.1-3. Features of Alternative 7 (66-kV Subtransmission) Components

- Relocate several existing 66-kV subtransmission lines in the area of the Mesa and Chino Substations. Unlike Alternative 2 (SCE’s Proposed Project), this alternative would re-route a short segment of 66-kV overhead out of Whittier Narrows Recreation Area. Option 1 begins near the San Gabriel Junction (S8A MP 2.2) and continues southeast along San Gabriel Boulevard and then Siphon Road to rejoin the 220-kV ROW (proposed Project ROW) at approx. S8A MP 3.8. For Option 2, the 66-kV lines would be re-routed beginning near the San Gabriel Junction (S8A MP 2.2) and continue southeast along San Gabriel Boulevard, then northeast along Durfee Avenue re-entering the existing 220-kV ROW near S8A MP 3.2. A 20-foot expansion of the existing ROW would be required between S8A MP 3.2 and 3.8 to accommodate the new 66-kV lines to allow for one-for-one placement of the new 66-kV TSPs alongside the new double-circuit 500-kV structures.

- Most of the proposed infrastructure would be located within existing ROW, except for the following:
  - San Gabriel River Crossing [Option 1] (66-kV) new ROW (existing: none; future: 0.2-mile, 1,600-foot, 60-foot-wide);
  - Rose Hills Memorial Park ROW relocation (existing: 1.1-mile, 150-foot-wide; future: 1.4-mile, 240-foot-wide);
  - Hacienda Heights ROW expansion (existing: 2.15-mile, 150 to 230-foot-wide; future: 250 to 330-foot-wide);
  - Fullerton Road new ROW (existing: none; future: 0.4-mile, 100-foot-wide);
  - Ontario (near Mira Loma Substation) ROW expansion (existing: 0.45-mile, 175-foot-wide; future: 325-foot-wide).

- Erect approximately 226 new transmission structures (12 on USACE controlled lands)
- Erect approximately 45 new double-circuit 66-kV subtransmission LWSPs (10 fewer than Alt 2 or Alt 6).

### Table 4.1-4. Summary Comparison of Components of the Proposed Project and Alternatives Affecting Federal Lands

<table>
<thead>
<tr>
<th>Overall Project Construction</th>
<th>Alternative 2 (SCE’s Proposed Project)</th>
<th>Alternative 6 (Max Helicopter in ANF)</th>
<th>Alternative 7 (66-kV Subtransmission)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total length of 500-kV and 220-kV T/L ROW (miles) [Note: Includes upgrades in existing, expanded and new ROW. Lengths of parallel lines are not counted twice.]</td>
<td>172.5</td>
<td>172.5</td>
<td>172.5</td>
</tr>
<tr>
<td>Total number of new transmission structures (not including 66-kV sub-T/Ls)</td>
<td>845</td>
<td>845</td>
<td>845</td>
</tr>
<tr>
<td>Total disturbance during construction (acres)</td>
<td>1,685** (±15%: 1,432 to 1,937)</td>
<td>1,554 (±15%: 1,321 to 1,787)</td>
<td>1,685** (±15%: 1,432 to 1,937)</td>
</tr>
<tr>
<td>NFS lands (acres)</td>
<td>318 (±15%: 271 to 366)</td>
<td>198 (±15%: 168 to 227)</td>
<td>318 (±15%: 271 to 366)</td>
</tr>
<tr>
<td>Total permanent disturbance (acres)</td>
<td>365** (±15%: 310 to 419)</td>
<td>296 (±15%: 252 to 341)</td>
<td>365** (±15%: 310 to 419)</td>
</tr>
<tr>
<td>NFS lands (acres)</td>
<td>124 (±15%: 108 to 143)</td>
<td>58 (±15%: 49 to 66)</td>
<td>124 (±15%: 106 to 143)</td>
</tr>
<tr>
<td>Total distance of expanded/new ROW</td>
<td>56.8 miles</td>
<td>56.8 miles</td>
<td>57.0 miles</td>
</tr>
<tr>
<td>Duration of Construction</td>
<td>67 months***</td>
<td>67 months</td>
<td>67 months</td>
</tr>
<tr>
<td>Helicopter Round Trips (Min / Max)</td>
<td>6,633 / 9,339</td>
<td>31,919 / 44,723</td>
<td>6,633 / 9,339</td>
</tr>
<tr>
<td>Segment 11: New Mesa – Vincent (via Gould) 500/220-kV T/L</td>
<td>36.2 miles</td>
<td>36.2 miles</td>
<td>36.2 miles</td>
</tr>
<tr>
<td>New 220-kV conductor on existing towers</td>
<td>17.5 miles</td>
<td>17.5 miles</td>
<td>17.5 miles</td>
</tr>
<tr>
<td>1 s-c 500-kV T/L</td>
<td>18.7 miles</td>
<td>18.7 miles</td>
<td>18.7 miles</td>
</tr>
<tr>
<td>Distance of expanded ROW</td>
<td>16.0 miles</td>
<td>16.0 miles</td>
<td>16.0 miles</td>
</tr>
<tr>
<td>Distance of ROW on NFS lands</td>
<td>20.4 miles</td>
<td>20.4 miles</td>
<td>20.4 miles</td>
</tr>
<tr>
<td>Existing T/Ls to be removed</td>
<td>Pardee-Vincent No.1 220-kV Eagle Rock-Pardee 220-kV</td>
<td>Pardee-Vincent No.1 220-kV Eagle Rock-Pardee 220-kV</td>
<td>Pardee-Vincent No.1 220-kV Eagle Rock-Pardee 220-kV</td>
</tr>
</tbody>
</table>

Final EIS 4-7 September 2010
Table 4.1-4. Summary Comparison of Components of the Proposed Project and Alternatives Affecting Federal Lands

<table>
<thead>
<tr>
<th></th>
<th>Alternative 2 (SCE’s Proposed Project)</th>
<th>Alternative 6 (Max Helicopter in ANF)</th>
<th>Alternative 7 (66-kV Subtransmission)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. new transmission structures (total)</td>
<td>69 (s-c 500 kV LSTs d-c, one-sided 500 kV LSTs s-c 500-kV TSPs)</td>
<td>69 (s-c 500 kV LSTs d-c, one-sided 500 kV LSTs s-c 500-kV TSPs)</td>
<td>69 (s-c 500 kV LSTs d-c, one-sided 500 kV LSTs s-c 500-kV TSPs)</td>
</tr>
<tr>
<td>No. on NFS lands¹</td>
<td>60 (s-c 500-kV LSTs d-c, one-sided 500 kV LSTs)</td>
<td>60 (s-c 500-kV LSTs d-c, one-sided 500 kV LSTs)</td>
<td>60 (s-c 500-kV LSTs d-c, one-sided 500 kV LSTs)</td>
</tr>
<tr>
<td>No. new transmission structures constructed by helicopter (all NFS lands)</td>
<td>16</td>
<td>55</td>
<td>16</td>
</tr>
<tr>
<td>No. of helicopter staging areas (total)</td>
<td>10</td>
<td>4</td>
<td>10</td>
</tr>
<tr>
<td>Helicopter Round Trips (Min / Max)</td>
<td>3,271 / 4,617</td>
<td>11,596 / 16,258</td>
<td>3,271 / 4,617</td>
</tr>
<tr>
<td>New Roads on NFS lands</td>
<td>1.41 miles</td>
<td>0.06 miles</td>
<td>1.41 miles</td>
</tr>
<tr>
<td>Reconstructed Roads on NFS lands</td>
<td>18.6 miles</td>
<td>6.72 miles</td>
<td>18.6 miles</td>
</tr>
<tr>
<td>Maintenance Roads on NFS lands</td>
<td>1.07 miles</td>
<td>16.36 miles</td>
<td>1.07 miles</td>
</tr>
<tr>
<td>Private/Non-NFS Roads requiring upgrade</td>
<td>7.01 miles</td>
<td>6.76 miles</td>
<td>7.01 miles</td>
</tr>
<tr>
<td>Total new/upgraded roads</td>
<td>36.9 miles (±15%: 31 to 42)</td>
<td>19.2 miles (±15%: 16 to 22)</td>
<td>36.9 miles (±15%: 31 to 42)</td>
</tr>
<tr>
<td>Total new/upgraded roads on NFS lands</td>
<td>29.9 miles (±15%: 25 to 34)</td>
<td>12.5 miles (±15%: 11 to 14)</td>
<td>29.9 miles (±15%: 25 to 34)</td>
</tr>
</tbody>
</table>

Segment 6: Section of New Replacement Rio Hondo – Vincent No. 2 500-kV T/L (initially energized at 220 kV) and Section of New Mira Loma – Vincent 500-kV T/L

| Distance of existing ROW [s-c 500-kV T/L] | 26.9 miles | 26.9 miles | 26.9 miles |
| Distance of NFS lands                    | 21.85 miles | 21.85 miles | 21.85 miles |
| Existing T/Ls to be removed              | Rio Hondo-Vincent No. 2 220-kV; Antelope-Mesa 220-kV | Rio Hondo-Vincent No. 2 220-kV; Antelope-Mesa 220-kV | Rio Hondo-Vincent No. 2 220-kV; Antelope-Mesa 220-kV |
| No. new transmission structures (total)  | 136 (s-c 500 kV LSTs d-c 500-kV LSTs s-c 500-kV TSPs) | 136 (s-c 500 kV LSTs d-c 500-kV LSTs s-c 500-kV TSPs) | 136 (s-c 500 kV LSTs d-c 500-kV LSTs s-c 500-kV TSPs) |
| No. on NFS lands                         | 105 (99 s-c 500-kV LSTs 6 s-c 500-kV TSPs) | 105 (99 s-c 500-kV LSTs 6 s-c 500-kV TSPs) | 105 (99 s-c 500-kV LSTs 6 s-c 500-kV TSPs) |
| No. new transmission structures constructed by helicopter (all NFS lands) | 17 | 96 | 17 |
| No. of helicopter staging areas (total)  | 10 | 9 | 10 |
| No. on NFS lands                         | 9 | 9 | 9 |
| No. on USACE controlled lands            | 1 | 0 | 1 |
| Helicopter Round Trips (Min / Max)       | 3,362 / 4,722 | 20,323 / 28,465 | 3,362 / 4,722 |
| New Roads on NFS lands                   | 3.61 miles | 0.19 miles | 3.61 miles |
| Reconstructed Roads on NFS lands         | 20.9 miles | 3.47 miles | 20.9 miles |
| Maintenance Roads on NFS lands           | 41.2 miles | 27.3 miles | 41.2 miles |
| Private/Non-NFS Roads requiring upgrade  | 2.99 miles | 2.41 miles | 2.99 miles |

¹ There are a total of 69 structures on NFS lands in Segment 11; where 60 structures are new 500-kV structures and 9 are existing double-circuit structures of the Eagle Rock-Mesa 220-kV T/L where new 220-kV conductor would be strung on the vacant side of these structures.
### Table 4.1-4. Summary Comparison of Components of the Proposed Project and Alternatives Affecting Federal Lands

<table>
<thead>
<tr>
<th>Segment 7: Section of New Replacement Rio Hondo – Vincent No. 2 500-kV T/L (initially energized at 220 kV) and Section of New Mira Loma – Vincent 500-kV T/L</th>
<th>Alternative 2 (SCE’s Proposed Project)</th>
<th>Alternative 6 (Max Helicopter in ANF)</th>
<th>Alternative 7 (66-kV Subtransmission)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total new/upgraded roads</td>
<td>68.7 miles (±15%: 58 to 79)</td>
<td>33.4 miles (±15%: 28 to 38)</td>
<td>68.7 miles (±15%: 58 to 79)</td>
</tr>
<tr>
<td>Total new/upgraded roads on NFS lands</td>
<td>65.7 miles (±15%: 56 to 76)</td>
<td>31.0 miles (±15%: 26 to 36)</td>
<td>65.7 miles (±15%: 56 to 76)</td>
</tr>
<tr>
<td>Distance of existing ROW [d-c 500-kV T/L]</td>
<td>15.8 miles</td>
<td>15.8 miles</td>
<td>15.8 miles</td>
</tr>
<tr>
<td>Distance on USACE controlled lands</td>
<td>4.2 miles</td>
<td>4.2 miles</td>
<td>4.2 miles</td>
</tr>
<tr>
<td>Existing T/L to be removed</td>
<td>Antelope-Mesa 220-kV</td>
<td>Antelope-Mesa 220-kV</td>
<td>Antelope-Mesa 220-kV</td>
</tr>
<tr>
<td>No. new transmission structures</td>
<td>85</td>
<td>85</td>
<td>85</td>
</tr>
<tr>
<td>No. on USACE controlled lands</td>
<td>20</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>No. new subtransmission structures</td>
<td>150</td>
<td>150</td>
<td>128</td>
</tr>
</tbody>
</table>

| Segment 8: Section of New Mira Loma – Vincent 500-kV T/L |
|---|---|---|
| Distance of ROW [existing and expanded/new] | 33.0 miles | 33.0 miles | 33.0 miles |
| Segment 8A/8C [d-c 500-kV T/L] | 6.8 miles | 6.8 miles | 6.8 miles |
| Distance on USACE controlled lands | 2.2 miles | 2.2 miles | 2.2 miles |
| Distance of expanded/new ROW | 4.4 miles | 4.4 miles | 4.6 miles |
| Distance of underground 500-kV T/L | None | None | None |
| Existing T/Ls to be removed | Various 220-kV T/L structures | Various 220-kV T/L structures | Various 220-kV T/L structures |
| No. new transmission structures | 226 | 226 | 226 |
| No. on USACE controlled lands | 12 | 12 | 12 |
| No. new subtransmission structures | 55 | 55 | 45 |
| Components within CHSP | None | None | None |

| Segment 9: Substation Facilities |
|---|---|---|
| New Whirlwind Substation | Total temporary disturbance | 96.8 acres | 96.8 acres | 96.8 acres |
| | Total acres to be restored | None | None | None |
| | Total permanent disturbance | 96.8 acres | 96.8 acres | 96.8 acres |
### Table 4.1-4. Summary Comparison of Components of the Proposed Project and Alternatives Affecting Federal Lands

<table>
<thead>
<tr>
<th>Substation Modifications</th>
<th>Alternative 2 (SCE’s Proposed Project)</th>
<th>Alternative 6 (Max Helicopter in ANF)</th>
<th>Alternative 7 (66-kV Subtransmission)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Expand/upgrade for new 500-kV &amp; 220-kV equipment</td>
<td>Expand/upgrade for new 500-kV &amp; 220-kV equipment</td>
<td>Expand/upgrade for new 500-kV &amp; 220-kV equipment</td>
</tr>
<tr>
<td>Antelope Substation</td>
<td>Expand/upgrade for new 500-kV &amp; 220-kV equipment</td>
<td>Expand/upgrade for new 500-kV &amp; 220-kV equipment</td>
<td>Expand/upgrade for new 500-kV &amp; 220-kV equipment</td>
</tr>
<tr>
<td>Vincent Substation</td>
<td>Upgrade to accommodate new 220-kV equipment</td>
<td>Upgrade to accommodate new 220-kV equipment</td>
<td>Upgrade to accommodate new 220-kV equipment</td>
</tr>
<tr>
<td>Mesa Substation</td>
<td>Upgrade to accommodate new 220-kV equipment</td>
<td>Upgrade to accommodate new 220-kV equipment</td>
<td>Upgrade to accommodate new 220-kV equipment</td>
</tr>
<tr>
<td>Gould Substation</td>
<td>Upgrade to accommodate new 500-kV equipment</td>
<td>Upgrade to accommodate new 500-kV equipment</td>
<td>Upgrade to accommodate new 500-kV equipment</td>
</tr>
<tr>
<td>Mira Loma Substation</td>
<td>Upgrade to accommodate new 500-kV equipment</td>
<td>Upgrade to accommodate new 500-kV equipment</td>
<td>Upgrade to accommodate new 500-kV equipment</td>
</tr>
</tbody>
</table>

Note: s-c: single-circuit; d-c: double-circuit

Information provided here is based on SCE’s preliminary design for the TRTP and is subject to change during final engineering. For land disturbance numbers, a deviation factor of ±15 percent has been incorporated to provide a range allowing for the error associated with a project that has only gone through preliminary engineering.

** Alternative 7 would have some additional temporary disturbance associated with underground construction of the 66-kV subtransmission lines in Segment 7 through the Duck Farm Project area and due to the overhead re-routing of the 66-kV line in the Whittier Narrows Recreation area in Segments 7 and 8A. New access and spur roads may result in additional permanent land disturbance compared to the proposed Project in the area of the new approximately 1,600 foot ROW for the San Gabriel River crossing within Segment 8A associated with the Whittier Narrows Overhead Re-Route (Option 1) or within the expanded ROW between Durfee Avenue and the San Gabriel River (Option 2).

*** Project construction is scheduled to occur from April 2010 to October 2015 (67 months). Construction of Alternative 6 would be identical to Alternative 2, with the exception of Segments 6 and 11, where substantially more helicopter construction may result in a longer construction schedule due to the limited availability of specialized helicopters and personnel. The schedule for helicopter construction would be finalized as part of final design and pre-construction planning.

### 4.2 Comparison of Alternatives

For comparison purposes, Table 4.2-1, below, presents a summary matrix, by environmental issue/resource area, of the environmental issues and impacts associated with those alternatives where the re-routed portions or changes in construction methods occur on federal lands (i.e., Alternatives 1, 2, 6, and 7), as described in Chapter 3 (Affected Environmental and Environmental Consequences). An additional comparison matrix, by environmental issue/resource area, specifically focusing on impacts to National Forest System (NFS) lands (i.e., Alternatives 2 and 6) is provided in Table 4.2-1a. Tables 4.2-1 and 4.2-1a show only those environmental issue/resource areas where analysis shows a clear difference between alternatives. Environmental issue/resources areas that do not substantially vary by alternative are not shown. For complete issue summaries, see each individual issue/resource area section in Chapter 3.

To further compare the environmental impacts of the Project amongst the alternatives affecting federal lands, a discussion of the noteworthy differences between the alternatives for each environmental issue/resource area is provided in Sections 4.2.1 through 4.2.16 below. Following this discussion (immediately after Section 4.2.16), is Table 4.2-2, which provides a summary of the alternative comparisons, again, focusing on the alternative affecting federal lands and those issue/resource areas where analysis shows a clear difference between alternatives.

This analysis is provided, in part, to support the determination of the NEPA preferred alternative (see Section 4.3). The No Project/Action Alternative has not been included in the discussion below because the intent of the comparative analysis is to highlight differences among “action” alternatives.
### Table 4.2-1. Summary Comparison of Environmental Issues for Alternatives Affecting Federal Lands

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>AIR QUALITY</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Construction emissions could exceed the SCAQMD, AVAQMD, and/or EKAPCD regional emission thresholds.</td>
<td>The impacts of new power plants and new T/Ls could add air pollutants contributing to existing nonattainment conditions or violations of ambient air quality standards, if they occur in areas of substantial existing pollution.</td>
<td>SCAQMD – NOx, VOC, CO, PM10, and PM2.5 thresholds exceeded. AVAQMD – NOx, VOC, CO, and PM10 thresholds exceeded. EKAPCD – PM10 threshold exceeded.</td>
<td>Would exceed SCAQMD thresholds for NOx to a greater extent than Alt 2.</td>
<td>Same as Alternative 2.</td>
</tr>
<tr>
<td>Project conformance with Federal General Conformity Rules.</td>
<td>New transmission lines on federal lands are anticipated to exceed thresholds and require a General Conformity analysis.</td>
<td>Project would not exceed SoCAB thresholds that were in effect when the final Conformity Determination for the approved alternative was approved. General Conformity would be required under current non-attainment status, which changed to “Extreme” for the South Coast in June 2010.</td>
<td>General Conformity analysis required. SoCAB NOx threshold is exceeded. Emission offset mitigation required to demonstrate conformity.</td>
<td>Same as Alternative 2.</td>
</tr>
<tr>
<td>Emissions could contribute to climate change.</td>
<td>Same as Alt 2; however, the difference in net greenhouse gas (GHG) emissions is unknown.</td>
<td>Indirect impacts of enabling renewable energy use are beneficial and greater than the direct emissions from construction and operation of the Project.</td>
<td>Same long-term benefit as Alt 2 with temporary impacts of GHG emissions from construction substantially higher than Alt 2 due to increase in helicopter use.</td>
<td>Same as Alternative 2.</td>
</tr>
<tr>
<td><strong>BIOLOGICAL RESOURCES</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Loss or degradation of vegetation communities</td>
<td>Potential projects would likely traverse the same geographic regions as either the proposed Project or Alts 2, 6, and 7, and would introduce similar types of impacts</td>
<td>Approx. 1,622 acres of vegetation communities will be degraded, of which 352 acres will be permanent.</td>
<td>Approx. 1,526 acres of vegetation communities will be degraded, of which 282 acres will be permanent.</td>
<td>Approx. 1,622 acres of vegetation communities will be degraded, of which 352 acres will be permanent. (Note: Alt 7 would have additional temporary disturbance associated with underground construction of 66-kV lines in Segment 7, re-routing the 66-kV line around the Whittier Narrows Recreation area in Segments 7 and 8A. New access and spur roads may be required for the new ROW for the San Gabriel River crossing within Segment 8A [Option 1] or due to widening of the ROW by 20-feet south of Durfee Ave. [Option 2].)</td>
</tr>
<tr>
<td>Loss or degradation of riparian communities</td>
<td>Same as above.</td>
<td>Approx. 11.59 acres of riparian communities will be degraded or impacted.</td>
<td>Approx. 13.55 acres of riparian communities will be degraded or impacted. Although the use of access roads would be reduced the requirement for additional helicopter landing areas increases temporary loss to riparian habitat.</td>
<td>Unknown acreage of riparian communities will be degraded or impacted as final engineering has not been conducted. Potentially less than Alt 2.</td>
</tr>
</tbody>
</table>
### Table 4.2-1. Summary Comparison of Environmental Issues for Alternatives Affecting Federal Lands

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Riparian Conservation Areas (RCAs) subject to Project disturbance</td>
<td>Same as above.</td>
<td>Vehicle access, road grading, and culvert placement would affect 274 RCAs, of which 76 would be negatively impacted.</td>
<td>Vehicle access, road grading, and culvert placement would affect 68 RCAs, of which 51 would be negatively impacted.</td>
<td>Same as Alternative 2.</td>
</tr>
<tr>
<td>Potential to spread noxious weeds</td>
<td>Same as above.</td>
<td>Construction would result in potential spread of noxious weeds. Approx. 230.4 miles of access and spur roads would be constructed and improved and approx. 1,622 acres of ground-disturbing activities would result as part of construction.</td>
<td>Reduced number of spur roads and potential decrease in road traffic may reduce the likelihood for spread of noxious weeds. Approx. 177.3 miles of access and spur roads would be constructed and improved and approx. 1,526 acres of ground-disturbing activities would result as part of construction.</td>
<td>Potentially less land disturbance would occur in open space and riparian habitat, decreasing the likelihood for spread of noxious weeds. Approx. 230.4 miles of access and spur roads would be constructed and improved and approx. 1,622 acres of ground-disturbing activities would result as part of construction.</td>
</tr>
<tr>
<td>Disturbance to common wildlife, nesting birds and raptors</td>
<td>Same as above.</td>
<td>Construction would result in disturbance to wildlife and nesting birds. Noise would occur from approx. 361,703 onroad vehicle trips as part of construction of this Project. Up to approx. 9,339 helicopter trips would occur as part of construction on the ANF. Approx. 230.4 miles of new and upgraded road and 1,622 acres of ground-disturbing activities would result in habitat disturbance.</td>
<td>A reduction in land disturbance would occur resulting in less disturbance to wildlife on NFS lands; however, helicopter use would increase disturbance to wildlife and nesting birds due to noise, rotor wash, etc. Noise would occur from approx. 361,697 onroad vehicle trips as part of construction of this Project. Up to approx. 44,723 helicopter trips would occur as part of construction on the ANF. Approx. 177.3 miles of new and upgraded road and 1,526 acres of ground-disturbing activities would result in habitat disturbance.</td>
<td>Potentially less land disturbance in natural areas would decrease disturbance to wildlife and nesting birds. Noise would occur from approx. 362,961 onroad vehicle trips as part of construction of this Project. Up to approx. 9,339 helicopter trips would occur as part of construction on the ANF. Approx. 230.4 miles of new and upgraded road and 1,622 acres of ground-disturbing activities would result in habitat disturbance.</td>
</tr>
<tr>
<td>Disturbance to threatened/endangered plants</td>
<td>Same as above.</td>
<td>Although not observed, construction may affect listed plant species if present. Approx. 1,622 acres of land disturbance (352 acres permanent)</td>
<td>Reduced potential to affect listed plant species due to decreased land disturbance. Approx. 1,526 acres of land disturbance (296 acres permanent).</td>
<td>Potentially less land disturbance in natural areas would decrease potential impacts to listed plants (Segment 8A Option 1 slightly increases potential effects to listed plants, if present). Approx. 1,622 acres of land disturbance (352 acres permanent).</td>
</tr>
<tr>
<td>Disturbance to threatened/endangered and wildlife</td>
<td>Same as above.</td>
<td>• Santa Ana sucker – effects associated with use of Cogswell Road along the West Fork San Gabriel River. • Arroyo toad – effects from ground disturbance due to 230.4 miles of new and upgraded road construction would</td>
<td>• Santa Ana sucker – Decrease in effects as Cogswell Road along the West Fork San Gabriel River would not be used. • Arroyo toad – new and upgraded road construction would be reduced</td>
<td>Would slightly decrease impacts to listed species such as least Bell’s vireo. • Santa Ana sucker – same as Alternative 2 • Arroyo toad – same as Alternative 2 • California red-legged frog – same as</td>
</tr>
<tr>
<td>---------------------</td>
<td>----------------------------------</td>
<td>----------------------------------------</td>
<td>--------------------------------------------------</td>
<td>---------------------------------------</td>
</tr>
</tbody>
</table>
|                     | result in impacts to approximately 9 acres of modeled habitat; increase in post-fire sediment over baseline would range from 0.25 percent at Alder Creek above Big Tujunga to 1.37 percent at the North fork of Mill Creek.  
• California red-legged frog – avoid known occupied habitat. Potential effects from ground disturbance due to 230.4 miles of new and upgraded road construction; increase in post-fire sediment over baseline would range from 0.25 percent at Butterfield Canyon and the West Fork San Gabriel River to 3.94 percent at Aliso Canyon.  
• Mountain yellow-legged frog – effects from ground disturbance due to 230.4 miles of new and upgraded road construction; increase in post-fire sediment over baseline would range from 0.25 percent at Butterfield Canyon and the West Fork San Gabriel River to 3.94 percent at Aliso Canyon.  
• Desert tortoise – ground disturbance to approximately 150 acres of Joshua tree woodland and Mojave creosote bush scrub habitat  
• California condor – Construction would result in disturbance resulting from noise from approx. 9,339 helicopter trips would occur as part of construction on the ANF. Approx. 230.4 miles of new and upgraded road and 1,622 acres of ground-disturbing activities would result in potential foraging habitat disturbance and exposure to microtrash.  
• Coastal California gnatcatcher – Disturbance due to approx. 1,622 acres of ground-disturbing activities would result in potential habitat disturbance.  
• Least Bell’s vireo – Disturbance resulting from noise would occur from approx. 361,703 onroad vehicle trips as part of to approximately 177.3 miles. Reduced impacts due to reduction in road usage and subsequent decrease in road kill. One acre increase in temporary effects to modeled habitat; slightly reduced effects in post-fire sediment over baseline that would range from 0.21 percent at Alder Creek above Big Tujunga to 1.20 percent at the North fork of Mill Creek.  
• California red-legged frog – avoids known populations. Slight decrease in effects from ground disturbance due to reduced road use and road constriction (177.3 miles of new and upgraded roads); slight decrease in post-fire sediment over baseline, ranging from 0.24 percent at Butterfield Canyon and the West Fork San Gabriel River to 2.90 percent at Aliso Canyon.  
• Mountain yellow-legged frog – slight decrease in effects from ground disturbance due to 177.3 miles of new and upgraded road construction; slight decrease in post-fire sediment over baseline ranging from 0.24 percent at Butterfield Canyon and the West Fork San Gabriel River to 2.90 percent at Aliso Canyon.  
• Desert tortoise – same as Alternative 2  
• California condor – Increase in noise-related disturbance resulting from approx. 44,723 helicopter trips on the ANF. However, decrease to potential foraging habitat of approx. 177.3 miles of new and upgraded road and 1526 acres of ground disturbing activities and exposure to microtrash.  
• Least Bell’s vireo – Potentially less land disturbance, including effects to riparian habitat and coastal sage scrub in the vicinity of the Whittier Narrows  
• Southwestern willow flycatcher - Potentially less land disturbance, including effects to riparian habitat and coastal sage scrub in the vicinity of the Whittier Narrows | Alternative 2  
• Mountain yellow-legged frog – same as Alternative 2  
• Desert tortoise – same as Alternative 2  
• California condor – same as Alternative 2  
• Coastal California gnatcatcher – same as Alternative 2  
• Least Bell’s vireo – Potentially less land disturbance, including effects to riparian habitat and coastal sage scrub in the vicinity of the Whittier Narrows  
• Southwestern willow flycatcher - Potentially less land disturbance, including effects to riparian habitat and coastal sage scrub in the vicinity of the Whittier Narrows |
### Table 4.2-1: Summary Comparison of Environmental Issues for Alternatives Affecting Federal Lands

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<tbody>
<tr>
<td>Disturbance to Forest Service Sensitive plants</td>
<td>Same as above</td>
<td>Potential impacts to Forest Service Sensitive plant species observed and potentially occurring in the Project area. Approx. 1,622 acres of land disturbance (352 acres permanent)</td>
<td>Reduced potential to affect Forest Service Sensitive plant species along access roads. Approx. 1,526 acres of land disturbance (296 acres permanent).</td>
<td>Same as Alternative 2</td>
</tr>
<tr>
<td>Disturbance to Forest Service Sensitive wildlife</td>
<td>Same as above</td>
<td>Vehicle traffic and ground disturbance has the potential to affect Forest Service Sensitive wildlife including nesting birds, reptiles, amphibians, fish, and mammals.</td>
<td>Decreased use of access roads reduces road kill and grading effects to Forest Service Sensitive wildlife although helicopter noise would affect nesting birds.</td>
<td>Same as Alternative 2</td>
</tr>
<tr>
<td>Transmission line strikes and electrocutions</td>
<td>Potential for transmission line strikes and electrocutions of birds.</td>
<td>Increased potential for transmission line strikes and electrocutions of birds from construction of new transmission lines.</td>
<td>Same as Alternative 2.</td>
<td>Greater length of 66-kV line in open space (Segment 8A Option 1) would result in slightly higher potential for line strikes and electrocution; however, underground portions would reduce potential for line strikes and electrocution.</td>
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### Table 4.2-1. Summary Comparison of Environmental Issues for Alternatives Affecting Federal Lands

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<tbody>
<tr>
<td>Interference with wildlife movement</td>
<td>Potential projects would likely traverse the same geographic regions as either the proposed Project or Alts 6 and 7, and subsequently introduce similar types of impacts</td>
<td>Construction activities and use of access roads will result in temporary interference with wildlife movement. Post development transmission line structures are not considered substantial barrier to movement.</td>
<td>Although some access roads will not be extensively uses vehicle and helicopter traffic may interfere with wildlife movement during construction. Post-development impacts to movement would be the same as Alternative 2.</td>
<td>Same as Alternative 2.</td>
</tr>
<tr>
<td>CULTURAL RESOURCES</td>
<td>Number of identified resources in the APE.</td>
<td>149 (72 prehistoric/71 historical/6 both)</td>
<td>148 (70 prehistoric/73 historical/5 both)</td>
<td>163 (72 prehistoric/85 historical/6 both)</td>
</tr>
<tr>
<td></td>
<td>Number of known resources added compared to Alternative 2.</td>
<td>None</td>
<td>Not applicable.</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>Potential for unanticipated discoveries during construction.</td>
<td>Yes</td>
<td>Yes, but less than Alt 2, due to a reduction in ground disturbance from associated road construction.</td>
<td>Yes, but greater than Alt 2.</td>
</tr>
<tr>
<td>ENVIRONMENTAL CONTAMINATION AND HAZARDS</td>
<td>Soil contamination, including flammable or toxic gases, during construction</td>
<td>Construction of new T/Ls of comparable length and new, upgraded, or expanded substations in lieu of Project would have the same impacts.</td>
<td>Construct 845 new transmission structures across 172.5 miles (Total does not include 66-kV structures). Includes 20 helicopter staging areas along Segments 6 and 11 supporting 6,633 (min.) to 9,339 (max.) helicopter round trips.</td>
<td>Same as Alt 2, however Alt 6 results in an incrementally increased potential for soil contamination resulting from spills and leaks due to the greater use of helicopters and increased fueling and maintenance in the field. Includes 13 helicopter staging areas along Segments 6 and 11 supporting 31,919 (min.) to 44,723 (max.) helicopter round trips.</td>
</tr>
<tr>
<td></td>
<td>Mobilization of contaminants currently existing in the soil.</td>
<td>Construction of new T/Ls in urban areas with historic and recent commercial/industrial land uses in lieu of the Project would have the same impacts.</td>
<td>227 known contaminated sites within 0.25-miles of ROW. Use of helicopter staging area HAY 10X increases the potential to mobilize pre-existing and/or fire-related contamination.</td>
<td>Underground construction of 0.6 miles of 66kV subtransmission line in commercial land use areas has incrementally increased potential to encounter preexisting contaminated soil.</td>
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### Table 4.2-1. Summary Comparison of Environmental Issues for Alternatives Affecting Federal Lands

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<tbody>
<tr>
<td>Unanticipated preexisting soil and/or groundwater contamination could be encountered during excavation or grading</td>
<td>Construction of new T/Ls in urban areas with historic and recent commercial/industrial land uses in lieu of the Project would have the same impacts.</td>
<td>New T/Ls traverse 48.5 miles of urban area with commercial/industrial land use where there would be increased potential for human influence for contamination.</td>
<td>Same as Alt 2, although slightly decreased due to less ground disturbance than for Alt 2.</td>
<td>Same as Alternative 2.</td>
</tr>
<tr>
<td>GEOLOGY, SOILS, AND PALEONTOLOGY</td>
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<tr>
<td>Erosion could be triggered or accelerated due to construction activities.</td>
<td>Construction of new T/Ls in areas with comparable soils in lieu of the Project would have the same impacts.</td>
<td>Soil erosion could occur due to grading and excavation at new and modified access and spur roads, storage yards, 845 tower locations (165 on NFS lands, 32 on USACE controlled lands), 20 helicopter staging areas (16 on NFS lands, 1 on USACE controlled lands), one new substation, and expansion at five existing substations.</td>
<td>Helicopter construction for most towers in the ANF results in less road grading compared to Alt 2. The overall ground disturbance during construction would be reduced by approx. 131 acres compared to Alt 2, resulting in a decreased potential to trigger or accelerate erosion.</td>
<td>Construction of underground 66-kV re-routes and installation of new poles for the overhead 66-kv routes would require additional excavation and trenching, resulting in slightly more soil disturbance and incrementally increased potential to trigger or accelerate erosion.</td>
</tr>
<tr>
<td>Excavation and grading during construction activities could cause slope instability or trigger landslides.</td>
<td>New T/Ls in hillside areas may or may not encounter areas of landslides and unstable slopes.</td>
<td>Slope failures could be triggered by construction related excavation and grading of access and spur roads, helicopter staging areas, and new towers through approx. 77 miles of hillside and mountain areas with known landslides and unstable slopes.</td>
<td>Reduced construction and grading of access and spur roads in steep mountainous terrain (approx. 52 miles less roads on NFS lands than Alt 2) resulting in decreased potential to trigger landslides or slope instability during construction.</td>
<td>Same as Alternative 2.</td>
</tr>
<tr>
<td>Project structures could be damaged by surface fault rupture at crossings of active faults exposing people or structures to hazards.</td>
<td>Construction of new T/Ls may or may not cross active faults with surface rupture potential.</td>
<td>New T/Ls cross or parallel 10 active faults and one potentially active fault.</td>
<td>Same as Alternative 2.</td>
<td>Incrementally increased due to proposed construction of two of the 66-kv re-routes for this alternative – the Segment 7 and Segment 8A (both Options 1 and 2) Whittier Narrows 66-kV Overhead re-routes, across the southward projection of the East Montebello Hills fault. Otherwise the same as Alt 2.</td>
</tr>
<tr>
<td>Grading and excavation could destroy paleontologic resources.</td>
<td>Construction of comparably-sized substations and length of T/L would have the same impacts as the Project.</td>
<td>Ground disturbance due to construction of new transmission structures and access and spur roads across approx. 66.4 miles of geologic units with moderate to high paleontologic sensitivity.</td>
<td>Same as Alternative 2.</td>
<td>Slightly increased due to the greater ground disturbance required for trenching and excavation for re-routes in units with moderate paleontologic sensitivity.</td>
</tr>
<tr>
<td>HYDROLOGY AND WATER QUALITY</td>
<td></td>
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<tr>
<td>Number of named streams crossed by new and/or improved access and/or spur roads in the ANF</td>
<td>It is anticipated that many named streams would be crossed by various actions in lieu of the Project, but the exact number is unknown.</td>
<td>13</td>
<td>5</td>
<td>Same as Alternative 2.</td>
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### Table 4.2-1. Summary Comparison of Environmental Issues for Alternatives Affecting Federal Lands

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<tr>
<td>Number of unnamed streams crossed by new and/or improved access and/or spur roads in the ANF</td>
<td>It is anticipated that many named streams would be crossed by various actions in lieu of the Project, but the exact number is unknown.</td>
<td>123</td>
<td>62</td>
<td>Same as Alternative 2.</td>
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<tr>
<td><strong>LAND USE</strong></td>
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<tr>
<td>Residential land uses would be temporarily or permanently disrupted, displaced or precluded.</td>
<td>Potential projects would likely traverse the same geographic regions as either the proposed Project or Alts 6 and 7, and subsequently introduce similar types of impacts.</td>
<td>No residential land uses would be temporarily or permanently displaced. Residential land uses would be temporarily disturbed or disrupted by construction. For O&amp;M, temporary disturbance to residential land uses in the ANF would not substantially increase from current conditions.</td>
<td>Temporary disruptions and disturbances to residential land uses in the affected area (private lands within and adjacent to NFS lands) would be more intense and of longer duration compared to Alt 2; however, short- and long-term total land disturbances within the ANF would be reduced. Outside of the ANF, temporary impacts to residential land uses would be the same as Alt 2.</td>
<td>Same as Alternative 2.</td>
</tr>
<tr>
<td>Non-residential land uses would be temporarily or permanently disrupted, displaced or precluded.</td>
<td>Potential projects would likely traverse the same geographic regions as either the proposed Project or Alts 6 and 7, and subsequently introduce similar types of impacts.</td>
<td>Non-residential land uses would be temporarily disrupted, displaced or precluded by construction, particularly in the South Region (Segments 7, 11, and 8). No non-residential land uses would be permanently displaced or precluded by O&amp;M.</td>
<td>Increase in the duration of temporary disruptions to non-residential land uses within the ANF. Additional coordination required with the FAA and L.A. County Sheriff’s Dept. related to the use of helicopters in the ANF. Permanent disruptions within the ANF would be the same as Alt 2. Outside of the ANF, temporary and permanent impacts to non-residential land uses would be the same as Alt 2.</td>
<td>Same as Alt 2 except along Peck Road and Durfee Avenue and through the Duck Farm Project area, where construction-related activities would be intensified.</td>
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<tr>
<td><strong>NOISE</strong></td>
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<tr>
<td>Construction noise would substantially disturb sensitive receptors.</td>
<td>Because unspecified transmission upgrades would be required, it is assumed these activities would generate construction noise similar to the proposed Project.</td>
<td>Sensitive noise receptors within close proximity to construction activities would be disturbed by substantial construction noise (i.e. result in an ambient noise increase of at least 5 dBA).</td>
<td>Construction of additional helicopter staging areas and the increased use of helicopters would substantially increase construction noise. Small increase in the number of sensitive receptors that would be subjected to construction noise in and around the ANF.</td>
<td>Slightly increased construction noise would occur in the areas where subtransmission lines would be re-routed or installed underground.</td>
</tr>
<tr>
<td>Permanent noise levels along the ROW would increase due to corona noise from operation of the transmission lines and substations.</td>
<td>Substantial noise effects would occur for any noise sensitive uses near possible new substations and new transmission facilities, which could result in operational noise, including corona noise.</td>
<td>Corona noise modeled for the proposed Project indicates that corona noise would substantially increase (i.e. more than 5 dBA above existing ambient noise) along Segments 4, 5, 6, 7, 8, 10, and 11, with fewer sensitive noise receptors present along Segments 10, 6 and 11 (in the ANF).</td>
<td>Same as Alternative 2.</td>
<td>Same as Alt 2; however, would avoid some amount of operational corona from 66-kV subtransmission lines along the two underground segments.</td>
</tr>
<tr>
<td><strong>TRAFFIC AND TRANSPORTATION</strong></td>
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<tr>
<td>Construction traffic would result in closure of roads to through traffic, reduction of travel lanes, congestion on area roadways, and/or temporarily interfere with emergency response.</td>
<td>Impacts of potential future projects would most likely be similar to those of the proposed Project or alternatives.</td>
<td>Potentially affects 420 roadways plus 12 additional road closures related to helicopter staging areas.</td>
<td>Would potentially affect 420 roadways plus 8 additional road closures related to helicopter staging areas.</td>
<td>Requires longer duration of temporary closures along 4 more roadway segments than Alt 2.</td>
</tr>
<tr>
<td>Construction activities could temporarily interfere with the use of pedestrian/bicycle paths.</td>
<td>Impacts of potential future projects would most likely be similar to those of the proposed Project or alternatives.</td>
<td>Would potentially affect several pedestrian and bicycle paths along the Project route.</td>
<td>Same as Alternative 2.</td>
<td>Would affect sidewalks along 5 more roadway segments than Alt 2.</td>
</tr>
<tr>
<td><strong>VISUAL RESOURCES</strong></td>
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<tr>
<td>Temporary visual contrast resulting from construction activities and equipment</td>
<td>In the short term, existing visual conditions and landscapes would not be impacted. However there will continue to be a need for T/L project(s) to be implemented somewhere. The visual impacts of future T/L project(s) are not known.</td>
<td>Project construction activities including road improvements, heavy equipment use, and helicopter staging areas would be visible from sensitive receptor locations as strong visual contrasts.</td>
<td>Greater than Alt 2 due to helicopter visibility. Within the ANF, less access and spur road improvement would occur and associated visual contrast would be less; however, helicopter use would be more intense (construction of 151 towers via helicopter vs. 33 for Alt 2) and temporary visual contrast would be greater than Alt 2 due to helicopter re-route in South Area.</td>
<td>Slightly greater than Alt 2 due to 66-kV re-route in South Area. Temporary visual contrast of equipment for underground construction would be greater in and near Whittier Narrows and the Duck Farm (South Area).</td>
</tr>
</tbody>
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1 The Visual Resources comparison for Alternative 6 assumes that no additional mitigation beyond Applicant Proposed Measures applies to Alternative 2.
## 4. Comparison of Alternatives

### Tehachapi Renewable Transmission Project

#### Table 4.2-1. Summary Comparison of Environmental Issues for Alternatives Affecting Federal Lands

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<tbody>
<tr>
<td>Visual contrast due to introducing T/L structure(s) where none currently exist</td>
<td>In the short term, existing visual conditions and landscapes would not be impacted. However there will continue to be a need for T/L project(s) to be implemented somewhere. The visual impact for future project(s) is not known.</td>
<td>Construction in new ROW (S10, S4, S8A) would modify existing landscape character from “natural” (S4, S10) and “urban park” (S8A) to “industrial” in these areas. New T/L towers would be the tallest structures in the landscape, creating skyline interference to landscape views.</td>
<td>Same as Alternative 2.</td>
<td>Slightly greater than Alt 2 due to re-routed subtransmission lines. A new 66-kV subtransmission line would be introduced along San Gabriel Boulevard and Durfee Road, which are currently characterized as urban landscape character.</td>
</tr>
<tr>
<td>Visual contrast due to increasing T/L structure size and/or type where T/L structures currently exist</td>
<td>In the short term, existing visual conditions and landscapes would not be impacted. However there will continue to be a need for T/L project(s) to be implemented somewhere. The visual impacts of future T/L project(s) are not known.</td>
<td>Single-circuit and double-circuit 500-kV T/L structures would be larger and taller than existing 220-kV structures and would result in the following visual contrasts: increased prominence and industrial character; structure skylining; increased backdrop landscape obstruction; lower scenic integrity conditions in the ANF; Project-specific Forest Plan amendment would be required for Forest Standard S10 (SIOs) but to a lesser degree.</td>
<td>Less than Alt 2 due to decreased visual prominence because of the use of colored galvanizing treatments. Fewer access and spur roads would decrease visual attention of new LSTs. Similar Project-specific Forest Plan amendment would be required for Forest Standard S10 (SIOs).</td>
<td>Less than Alt 2 due to underlying 66-kV. The underground installation of subtransmission lines through Whittier Narrows and the Duck Farm would decrease adverse visual effects.</td>
</tr>
<tr>
<td>Visual contrast due to clearing and grading activities</td>
<td>In the short term, existing visual conditions and landscapes would not be impacted. However there will continue to be a need for T/L project(s) to be implemented somewhere. The visual impacts of future project(s) are not known.</td>
<td>Roads (access / spur) in the ANF would be improved, resulting in substantial adverse visual effects including strong soil color contrasts. Visual effects from spur road improvement would not occur for the 33 structures that would be constructed via helicopter. Twenty (20) helicopter staging areas (10 along Segments 6 and 11 each) would be cleared / graded in the ANF and would result in visual scarring and contrast similar to roads.</td>
<td>Less than Alt 2 due to fewer access road and spur road improvements. Fewer access/spur roads would be constructed due to more structures being constructed via helicopter (151 vs. 33 for Alt 2); adverse visual effects of spur roads would not occur for the 151 helicopter-constructed towers. Other roads such as West Fork National Scenic Bikeway would not be impacted or result in visual contrast. Thirteen (13) helicopter staging areas would result in fewer cleared/graded areas in the ANF compared to Alt 2.</td>
<td>Same as Alternative 2. Additionally, vegetative clearing and earthwork associated with the underground portions of Alt 7 and pulling/splicing locations for the new overhead line would temporarily affect existing landscape character and visual quality in the vicinity of Whittier Narrows and the Duck Farm.</td>
</tr>
<tr>
<td>Long-term loss or degradation of scenic viewshed(s)</td>
<td>In the short term, existing visual conditions and landscapes would not be impacted. However there will continue to be a need for T/L project(s) to be implemented somewhere. The visual impacts of future project(s) are not known.</td>
<td>The Project would traverse and/or be visible from multiple designated or eligible scenic highways and trails, thereby directly degrading and contributing to the long-term loss of scenic quality of the viewsheds.</td>
<td>Less than Alt 2 due to decreased road construction in the ANF. Fewer access and spur roads would be built or improved in the ANF. Helicopter staging area #6 would be visible at background distances from the PCT along Santa Clara Divide; however, no helicopter staging areas would be visible from the Angeles Crest Scenic Byway I-210, West Fork National Scenic Bikeway Trail, or State Route 39.</td>
<td>Same as Alternative 2.</td>
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### 4. COMPARISON OF ALTERNATIVES

**Tehachapi Renewable Transmission Project**

#### Table 4.2-1. Summary Comparison of Environmental Issues for Alternatives Affecting Federal Lands

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<tr>
<td>Non-compliance with established visual resource plans or landscape conservation plans</td>
<td>In the short term, existing visual conditions and landscapes would not be impacted. However, there will continue to be a need for T/L project(s) to be implemented somewhere. The visual impacts of future project(s) are not known.</td>
<td>The Project would be inconsistent with Forest Plan Standard LMP (Part 3) S10, with the High Scenic Integrity Objective of NFS lands, and with Goal Visual-1 and Objective Visual-1.2 of the Puente Hills Landfill Native Habitat Preservation Authority Resource Management Plan.</td>
<td>Less inconsistency than Alt 2 due to better compliance with Forest Plan Standard S10 because of use of colored galvanizing treatments</td>
<td>Same as Alternative 2</td>
</tr>
<tr>
<td>WILDERNESS AND RECREATION</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total number of Developed Recreation resources located within one-half mile of Project components</td>
<td>Another, similar T/L project would likely introduce similar impacts to recreational and wilderness resources that would be introduced through the Project or an alternative.</td>
<td>MED</td>
<td>MED</td>
<td>MED</td>
</tr>
<tr>
<td></td>
<td>147</td>
<td></td>
<td></td>
<td>Same as Alternative 2</td>
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<tr>
<td></td>
<td>(13 / 74 / 60)</td>
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<tr>
<td>Level of disturbance to Dispersed Recreation that would occur as a result of construction-related access restrictions/disturbances such as increased noise</td>
<td>Another, similar T/L project would likely introduce similar impacts to recreational and wilderness resources that would be introduced through the Project or an alternative.</td>
<td>Alt 2 would require the use of some roads not included under Alt 6 (such as West Fork San Gabriel River), but helicopter use would be more disruptive to Dispersed Recreation than road closures.</td>
<td>The use of helicopters to construct 151 towers throughout the Forest would distribute helicopter noise more than under Alt 2, which would construct 33 towers by helicopter.</td>
<td>Same as Alternative 2</td>
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2 Following are the Forest Plan Standards that apply to visual resource management on the ANF:
- ANF S1 - Pacific Crest Trail - Protect scenic integrity of foreground views as well as from designated viewpoints. Where practicable, avoid establishing nonconforming land uses within the viewshed of the trail (Lieber-Sawmill, Santa Clara Canyons, Soledad Front Country and Angeles High Country). (p. 76)
- S9: Design management activities to meet the Scenic Integrity Objectives (SIOs) shown on the Scenic Integrity Objectives Map.
- S10: Scenic Integrity Objectives will be met with the following exceptions: Minor adjustments not-to-exceed a drop of one SIO level is allowable with the Forest Supervisor’s approval.
- Temporary drops of more than one SIO level may be made during and immediately following project implementation providing they do not exceed three years in duration. The Forest Supervisor may approve a project in the ANF that would lower the Scenic Integrity Objectives level without a Forest Plan amendment, as long as the decrease would not be greater than one SIO level (for instance if a project would achieve a Moderate SIO in an area designated for a High SIO). See the detailed discussion of SIOs achieved by mileposts (MP) for Segments 6 and 11 under Alternatives 2 and 6. A drop of more than one level of SIO would require a Forest Plan amendment.

3 “Project components” include transmission line towers, access roads, and helicopter staging areas. Recreational resources on NFS lands in the ANF are managed by the Forest Service as either Developed Recreation or Dispersed Recreation; this row only reflects Developed Recreation resources, which are regularly maintained by the Forest Service. Resources that would be affected by the Project in more than one area (particularly trails and OHV routes) are only counted once in this table. Please see Table 3.15-14a for detailed description of each resource.

4 “Level of disturbance” is indicated as being “LOW”, “MED”, or “HIGH”, which represent generalized rankings for the purposes of comparison only and do not reflect impact significance determinations, which are discussed in the impact analysis for wilderness and recreation. Dispersed Recreation includes undeveloped areas such as open space and natural scenic vistas which are used for recreational purposes but are not regularly maintained by the Forest Service or other responsible agency.
## Table 4.2-1. Summary Comparison of Environmental Issues for Alternatives Affecting Federal Lands

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<tr>
<td>Level of unmanaged recreation that would occur as a result of Project construction 5</td>
<td>Another, similar T/L project would likely introduce similar impacts to recreational and wilderness resources that would be introduced through the Project or an alternative.</td>
<td>MED</td>
<td>LOW</td>
<td>Same as Alternative 2.</td>
</tr>
<tr>
<td></td>
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<td>Road improvements required for construction could facilitate unmanaged recreation, particularly OHV.</td>
<td></td>
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<tr>
<td>Level of temporary degradation of the &quot;Solitude and Unconfined Recreation&quot; characteristic of the San Gabriel WA 6</td>
<td>Another, similar T/L project would likely introduce similar impacts to recreational and wilderness resources that would be introduced through the Project or an alternative.</td>
<td>MED</td>
<td>LOW</td>
<td>Same as Alternative 2.</td>
</tr>
<tr>
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<td>Four helicopter staging areas (HAY 5A, HAY 6A, and HAY 8) are located near the WA, and flight paths may enter airspace over this WA.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Level of temporary degradation of the &quot;backcountry experience&quot; on the PCT (temporary / permanent) 7</td>
<td>Another, similar T/L project would likely introduce similar impacts to recreational and wilderness resources that would be introduced through the Project or an alternative.</td>
<td>HIGH / LOW</td>
<td>HIGH / LOW</td>
<td>Same as Alternative 2.</td>
</tr>
<tr>
<td>Miles of Forest Roads (FR) designated for OHV use (OML 2) that would be temporarily upgraded to OML 3 standards, restricting OHV use until OML 2 standards are restored</td>
<td>Another, similar T/L project would likely introduce similar impacts to recreational and wilderness resources that would be introduced through the Project or an alternative.</td>
<td>43.1 Total</td>
<td>22.2 Total (48.5% less)</td>
<td>Same as Alternative 2.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>FR 4N24: 7.1</td>
<td>FR 4N24: 2.4</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>FR 4N18: 10.1</td>
<td>FR 4N18: 8.3</td>
<td></td>
</tr>
<tr>
<td>Level of temporary disturbance and/or preclusion that would affect hunting and fishing opportunities in the ANF 8</td>
<td>Another, similar T/L project would likely introduce similar impacts to recreational and wilderness resources that would be introduced through the Project or an alternative.</td>
<td>LOW</td>
<td>MED</td>
<td>Same as Alternative 2.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Less extensive use of helicopters under Alt 2 would introduce less noise with potential to disturb hunting activities.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Alt 6 would not affect recreational fishing along West Fork San Gabriel River, but would introduce more helicopter noise throughout the ANF.</td>
<td></td>
</tr>
<tr>
<td><strong>WILDFIRE PREVENTION AND SUPPRESSION</strong></td>
<td></td>
<td>Wildfire ignition risks during the construction phase through wildland areas with high-risk fuels.</td>
<td>Reduced construction-related ignitions compared with Alt 2 due to less ground based equipment.</td>
<td>Same as Alternative 2.</td>
</tr>
<tr>
<td>Construction and/or maintenance activities would increase the risk of wildfire.</td>
<td>Construction of a T/L in place of TRTP in a new corridor could substantially increase the risk of ignitions.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

5 Unmanaged recreation refers to recreational activities that occur but are not authorized, such as OHV use in areas that are managed to be non-motorized. In the ANF, unmanaged recreation would be expected to occur in areas where roads are improved or installed, thus providing access to areas that otherwise were not easily accessible by the public.

6 Wilderness Areas (WA) are officially designated by the U.S. Congress only if they have the following primary characteristics: natural and undisturbed landscape; solitude and unconfined recreation; 5,000 contiguous acres; features of natural value. Due to the Project’s proximity to the San Gabriel WA, construction noise would have the potential to temporarily affect the “Solitude and Unconfined Recreation” characteristic of the San Gabriel WA.
### Table 4.2-1. Summary Comparison of Environmental Issues for Alternatives Affecting Federal Lands

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction and/or maintenance activities would increase the risk of personnel injury or death in the event of fire.</td>
<td>Construction and maintenance of a T/L in place of TRTP would have a similar risk of personnel injury or death if constructed through wildland areas with high-risk fuels and limited ingress/egress.</td>
<td>Increased risk of personnel injury or death due to presence of personnel in access-limited wildlands that are highly susceptible to wildfire.</td>
<td>Same as Alt 2 after implementation of additional mitigation measures.</td>
<td>Same as Alternative 2.</td>
</tr>
<tr>
<td>Presence of the overhead transmission line would increase the risk of wildfire.</td>
<td>Presence of a T/L in place of TRTP would have a similar risk of long-term ignitions if constructed through high-risk fuels for a similar length.</td>
<td>Same risk of igniting fire in fire-prone areas of route as the existing T/L the Project would replace.</td>
<td>Same as Alternative 2.</td>
<td>Same as Alternative 2.</td>
</tr>
<tr>
<td>Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread.</td>
<td>Construction of a T/L in place of TRTP through wildland areas could have similar effects on fire behavior resulting from the introduction of non-native plants.</td>
<td>Introduces non-native plants, which would contribute to a change in fuel characteristics and fire behavior that could worsen the effects of fire.</td>
<td>Introduces incrementally fewer non-native plants than Alt 2 as a result of fewer roads (approx. 53 miles less) being constructed in the ANF.</td>
<td>Same as Alternative 2.</td>
</tr>
</tbody>
</table>

7 The proposed Project and each of the identified alternatives would traverse the Pacific Crest National Scenic Trail (PCT) in three locations: once in the North Region and twice in the Central Region. Transmission lines that would be replaced by the Project currently exist at each of the proposed crossings of the PCT. The size of infrastructure included under the proposed Project and alternatives is larger than existing infrastructure, and would be visible from a greater distance away on the PCT. In addition to direct crossing of the trail by the transmission line, helicopter staging areas located near the PCT would also contribute to the nature and magnitude of this impact.

8 In Hunting Zone D-11, the USDA Forest Service regulates access on NFS lands and the CA Department of Fish and Game regulates the issuance of hunting permits. As a result of the Station Fire, public access to portions of Hunting Zone D-11 are currently restricted by the Forest Service. If Project construction occurs before access is restored, the Project would have no effect on activities within Hunting Zone D-11. If Project construction occurs after access is restored, hunting activities could be disrupted, particularly as a result of noise.
### Table 4.2-1a. Summary Comparison of Environmental Issues on National Forest System Lands

<table>
<thead>
<tr>
<th>Environmental Issue</th>
<th>Alternative 2 (SCE’s Proposed Project)</th>
<th>Alternative 6 (Max. Helicopter Construction in ANF)</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIR QUALITY</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Project Emissions (tons) *</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pollutant</td>
<td>SoCAB</td>
<td>MDAB / AVAQMD</td>
</tr>
<tr>
<td>VOC</td>
<td>0.14</td>
<td>0.11</td>
</tr>
<tr>
<td>CO</td>
<td>0.72</td>
<td>0.59</td>
</tr>
<tr>
<td>NOx</td>
<td>0.75</td>
<td>0.62</td>
</tr>
<tr>
<td>SOx</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>PM10</td>
<td>1.64</td>
<td>0.70</td>
</tr>
<tr>
<td>PM2.5</td>
<td>0.36</td>
<td>0.17</td>
</tr>
<tr>
<td>2009</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pollutant</td>
<td>SoCAB</td>
<td>MDAB / AVAQMD</td>
</tr>
<tr>
<td>VOC</td>
<td>3.09</td>
<td>0.55</td>
</tr>
<tr>
<td>CO</td>
<td>15.17</td>
<td>2.58</td>
</tr>
<tr>
<td>NOx</td>
<td>20.04</td>
<td>3.92</td>
</tr>
<tr>
<td>SOx</td>
<td>0.09</td>
<td>0.00</td>
</tr>
<tr>
<td>PM10</td>
<td>15.04</td>
<td>4.68</td>
</tr>
<tr>
<td>PM2.5</td>
<td>4.09</td>
<td>2.00</td>
</tr>
<tr>
<td>2010</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pollutant</td>
<td>SoCAB</td>
<td>MDAB / AVAQMD</td>
</tr>
<tr>
<td>VOC</td>
<td>3.08</td>
<td>0.55</td>
</tr>
<tr>
<td>CO</td>
<td>15.27</td>
<td>2.82</td>
</tr>
<tr>
<td>NOx</td>
<td>18.69</td>
<td>3.28</td>
</tr>
<tr>
<td>SOx</td>
<td>0.07</td>
<td>0.01</td>
</tr>
<tr>
<td>PM10</td>
<td>21.00</td>
<td>4.68</td>
</tr>
<tr>
<td>PM2.5</td>
<td>5.00</td>
<td>1.02</td>
</tr>
<tr>
<td>2011</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pollutant</td>
<td>SoCAB</td>
<td>MDAB / AVAQMD</td>
</tr>
<tr>
<td>VOC</td>
<td>1.98</td>
<td>2.64</td>
</tr>
<tr>
<td>CO</td>
<td>9.08</td>
<td>11.60</td>
</tr>
<tr>
<td>NOx</td>
<td>10.84</td>
<td>14.03</td>
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<tr>
<td>SOx</td>
<td>0.04</td>
<td>0.07</td>
</tr>
<tr>
<td>PM10</td>
<td>12.71</td>
<td>8.86</td>
</tr>
<tr>
<td>PM2.5</td>
<td>3.15</td>
<td>2.46</td>
</tr>
<tr>
<td>2012</td>
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<td></td>
</tr>
<tr>
<td>Pollutant</td>
<td>SoCAB</td>
<td>MDAB / AVAQMD</td>
</tr>
<tr>
<td>VOC</td>
<td>0.01</td>
<td>0.01</td>
</tr>
<tr>
<td>CO</td>
<td>0.06</td>
<td>0.04</td>
</tr>
<tr>
<td>NOx</td>
<td>0.08</td>
<td>0.05</td>
</tr>
<tr>
<td>SOx</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>PM10</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>PM2.5</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>2013</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pollutant</td>
<td>SoCAB</td>
<td>MDAB / AVAQMD</td>
</tr>
<tr>
<td>VOC</td>
<td>0.01</td>
<td>0.01</td>
</tr>
<tr>
<td>CO</td>
<td>0.06</td>
<td>0.04</td>
</tr>
<tr>
<td>NOx</td>
<td>0.08</td>
<td>0.05</td>
</tr>
<tr>
<td>SOx</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>PM10</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>PM2.5</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Years with exceedance of General Conformity thresholds ** - SoCAB</td>
<td>None based on standards in place at time General Conformity was completed and approved.</td>
<td>None based on standards in place at time General Conformity was completed and approved.</td>
</tr>
</tbody>
</table>

**NOX**

- **2010**: 35.61 tons vs. 25 ton-threshold
- **2011**: 38.14 tons vs. 25 ton-threshold
- **2012**: 28.64 tons vs. 25 ton-threshold

### BIOLOGICAL RESOURCES

<table>
<thead>
<tr>
<th>Environmental Issue</th>
<th>Alternative 2 (SCE’s Proposed Project)</th>
<th>Alternative 6 (Max. Helicopter Construction in ANF)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total acres impacted on NFS lands</td>
<td>318</td>
<td>198</td>
</tr>
<tr>
<td>Acres of riparian vegetation impacted on NFS lands</td>
<td>Approximately 1.31</td>
<td>Approximately 3.15</td>
</tr>
<tr>
<td>Number of RCAs crossed by access/spur roads</td>
<td>274 (76 negatively impacted)</td>
<td>68 (51 negatively impacted)</td>
</tr>
</tbody>
</table>
### Table 4.2-1a. Summary Comparison of Environmental Issues on National Forest System Lands

<table>
<thead>
<tr>
<th>Environmental Issue</th>
<th>Alternative 2 (SCE’s Proposed Project)</th>
<th>Alternative 6 (Max. Helicopter Construction in ANF)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Miles of roads new roads and roads to be improved (includes maintenance and reconstruction) on NFS lands</td>
<td>95.6</td>
<td>43.4</td>
</tr>
<tr>
<td>Santa Ana sucker – amount of USFWS Proposed Critical habitat impacted</td>
<td>0.30 acre</td>
<td>None</td>
</tr>
<tr>
<td>Arroyo toad – amount of USFWS Proposed Critical habitat impacted</td>
<td>0.37 acre</td>
<td>2.12 acres</td>
</tr>
<tr>
<td>California condor – potential harassment due to helicopter use</td>
<td>Up to approx. 9,339 helicopter round trips</td>
<td>Up to approx. 44,723 helicopter round trips</td>
</tr>
<tr>
<td>California spotted owl – potential habitat impacted</td>
<td>38 acres</td>
<td>25 acres</td>
</tr>
<tr>
<td>Special-status plants – number of occurrences potentially impacted</td>
<td>18 (roads); 32 (temporary staging areas)</td>
<td>12 (roads); 28 (helicopter staging areas)</td>
</tr>
<tr>
<td>Non-native and invasive weeds – number of roads with identified infestations</td>
<td>14</td>
<td>10</td>
</tr>
<tr>
<td>Non-native and invasive weeds – overall risk of spread along access roads</td>
<td>High</td>
<td>Moderate</td>
</tr>
</tbody>
</table>

### CULTURAL RESOURCES

<table>
<thead>
<tr>
<th>Environmental Issue</th>
<th>Alternative 2 (SCE’s Proposed Project)</th>
<th>Alternative 6 (Max. Helicopter Construction in ANF)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of identified resources in the APE</td>
<td>88 (36 prehistoric/44 historical/8 both)</td>
<td>90 (37 prehistoric/45 historical/8 both)</td>
</tr>
<tr>
<td>Number of known resources added</td>
<td>None, in comparison to Alt 6</td>
<td>2, in comparison to Alt 2</td>
</tr>
<tr>
<td>Potential for unanticipated discoveries during construction</td>
<td>Yes</td>
<td>Yes, but less than Alt 2, due to a reduction in ground disturbance from associated road construction.</td>
</tr>
</tbody>
</table>

### ENVIRONMENTAL CONTAMINATION AND HAZARDS

<table>
<thead>
<tr>
<th>Environmental Issue</th>
<th>Alternative 2 (SCE’s Proposed Project)</th>
<th>Alternative 6 (Max. Helicopter Construction in ANF)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soil contamination, including flammable or toxic gases, during construction</td>
<td>Construct 845 new transmission structures (165 on NFS lands, across 172.5 miles (Total does not include 66 kV structures). Includes 20 helicopter staging areas along Segments 6 and 11 (16 on NFS lands) supporting 6,633 (min.) to 9,339 (max.) helicopter round trips which results in a potential for leaks and spills during construction.</td>
<td>Same as Alt 2; however, Alt 6 results in an incrementally increased potential for soil contamination resulting from spills and leaks due to the greater use of helicopters and increased fueling and maintenance in the field. Includes 13 helicopter staging areas along Segments 6 and 11 supporting 31,919 (min.) to 44,723 (max.) helicopter round trips.</td>
</tr>
<tr>
<td>Mobilization of contaminants currently existing in the soil</td>
<td>227 known contaminated sites within 0.25-mile of ROW. Use of helicopter staging area HAY 10X increases the potential to mobilize pre-existing and/or fire-related contamination.</td>
<td>Slightly less than Alt 2, as Alt 6 would not utilize helicopter staging area HAY 10X decreasing potential to mobilize pre-existing and/or fire-related contamination and would have a reduced amount of road construction and associated ground disturbance.</td>
</tr>
</tbody>
</table>

### GEOLOGY, SOILS, AND PALEONTOLOGY

<table>
<thead>
<tr>
<th>Environmental Issue</th>
<th>Alternative 2 (SCE’s Proposed Project)</th>
<th>Alternative 6 (Max. Helicopter Construction in ANF)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Erosion could be triggered or accelerated due to construction activities.</td>
<td>Soil erosion could occur due to grading and excavation at new and modified access and spur roads, storage yards, tower locations, and at the 16 helicopter staging areas located on NFS lands.</td>
<td>Helicopter construction for most towers in the ANF results in less road grading compared to Alt 2. The overall ground disturbance during construction would be reduced by approx. 131 acres compared to Alt 2, resulting in a decreased potential to trigger or accelerate erosion.</td>
</tr>
<tr>
<td>Excavation and grading during construction activities could cause slope instability or trigger landslides.</td>
<td>Slope failures could be triggered by construction related excavation and grading of access and spur roads, helicopter staging areas, and new towers through hillside and mountain areas with known landslides and unstable slopes.</td>
<td>Reduced construction and grading of access and spur roads in steep mountainous terrain (approx. 52 miles less roads on NFS lands in the ANF compared to Alt 2) resulting in decreased potential to trigger landslides or slope instability during construction.</td>
</tr>
</tbody>
</table>
### Table 4.2-1a. Summary Comparison of Environmental Issues on National Forest System Lands

<table>
<thead>
<tr>
<th>Environmental Issue</th>
<th>Alternative 2 (SCE’s Proposed Project)</th>
<th>Alternative 6 (Max. Helicopter Construction in ANF)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>HYDROLOGY AND WATER QUALITY</strong></td>
<td>Number of named / unnamed streams crossed by new and/or improved access and spur roads in the ANF</td>
<td>13 (named) / 123 (unnamed) 5 (named) / 62 (unnamed)</td>
</tr>
<tr>
<td><strong>LAND USE</strong></td>
<td>Temporary disruptions to residential and non-residential land uses within the ANF</td>
<td>Would occur but can be mitigated. Would be greater than Alt 2 in and surrounding the ANF due to increased length and intensity of helicopter construction, but can be mitigated.</td>
</tr>
<tr>
<td></td>
<td>Temporary and permanent land disturbances in the ANF</td>
<td>Would be greater in comparison to Alt 6 due to the need to construct access and spur roads for each tower that is not constructed by helicopter (33 helicopter towers associated with construction and O&amp;M activities). Would be less than Alt 2 due to decreased tower access and spur roads (151 helicopter towers associated with construction and O&amp;M activities).</td>
</tr>
<tr>
<td><strong>NOISE</strong></td>
<td>Construction noise would substantially disturb sensitive receptors.</td>
<td>Sensitive noise receptors within close proximity to construction activities would be disturbed by substantial construction noise (i.e., result in an ambient noise increase of at least 5 dBA). Construction noise impacts would be greater than those of Alt 2. Construction of Alt 6 would expose sensitive receptors on ANF lands to a higher volume of helicopter noise due to the increased use of helicopters.</td>
</tr>
<tr>
<td><strong>TRAFFIC AND TRANSPORTATION</strong></td>
<td>Construction traffic would result in closure of roads to through traffic, reduction of travel lanes, congestion on area roadways, and/or temporarily interfere with emergency response.</td>
<td>Temporary road closures would affect 22 roadways during transmission line stringing activities, plus 12 additional road closures related to helicopter staging areas. Temporary road closures would affect 22 roadways during transmission line stringing activities, plus 8 additional road closures related to helicopter staging areas.</td>
</tr>
<tr>
<td><strong>VISUAL RESOURCES</strong></td>
<td>Temporary visual contrast resulting from construction activities and equipment</td>
<td>Project construction activities including road improvements, heavy equipment use, and helicopter staging areas would be visible from sensitive receptor locations as strong visual contrasts. Greater than Alt 2 due to helicopter visibility. Within the ANF, less spur road and access road improvement would occur and associated long-term visual contrast would be less; however, short-term helicopter use would be more intense (construction of 151 towers via helicopter vs. 33 for Alt 2) and temporary visual contrast would be greater.</td>
</tr>
<tr>
<td></td>
<td>Visual contrast due to increasing T/L structure size and/or type where T/L structures currently exist</td>
<td>Single-circuit and double-circuit 500-kV T/L structures would be larger and taller than existing 220-kV structures and result in the following visual contrasts: increased prominence and industrial character; structure skylining; increased background landscape obstruction; lower scenic integrity conditions in the ANF. Project-specific Forest Plan amendment would be needed for Standard S10 (Inconsistencies with Forest Plan SIOs). Less than Alt 2 due to the use of color treatments to galvanized steel LSTs in the ANF. Slightly fewer miles of Project-specific Forest Plan amendments, as compared to Alt 2, would be needed for Alt 6 Standard S10 (Inconsistencies with Forest Plan SIOs).</td>
</tr>
</tbody>
</table>
### Table 4.2-1a. Summary Comparison of Environmental Issues on National Forest System Lands

<table>
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<tr>
<th>Environmental Issue</th>
<th>Alternative 2 (SCE’s Proposed Project)</th>
<th>Alternative 6 (Max. Helicopter Construction in ANF)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visual contrast due to clearing and grading activities</td>
<td>Roads (access / spur) in the ANF would be improved, resulting in substantial adverse visual effects including strong soil color contrasts. Visual effects from spur road improvement would not occur for 33 structures that would be constructed via helicopter. Twenty helicopter staging areas would be impacted in the ANF and would result in visual scarring and contrast similar to roads.</td>
<td>Less than Alt 2 due to fewer access road and spur road improvements. Fewer access/spur roads would be constructed due to increased helicopter construction (151 for Alt 6 vs. 33 for Alt 2); adverse visual effects of spur roads would not occur for the 151 helicopter-constructed towers. Other roads, such as West Fork National Scenic Bikeway, would not be widened or result in visual contrast.</td>
</tr>
<tr>
<td>Long-term loss or degradation of scenic viewshed(s)</td>
<td>The Project would traverse and/or be visible from multiple designated or eligible scenic highways and trails, thereby directly degrading and causing the long-term loss of scenic quality of the viewsheds.</td>
<td>Less than Alt 2 due to decreased road construction in the ANF. Fewer access/spur roads would be constructed or improved in the ANF. Helicopter staging Site #5 would be visible at background distances from the PCT along Santa Clara Divide; however, no helicopter staging areas would be visible from the Angeles Crest Scenic Byway, I-210, West Fork National Scenic Bikeway Trail, or State Routes 39 and 57.</td>
</tr>
<tr>
<td>Non-compliance with established visual resource management plans or landscape conservation plans</td>
<td>The Project would be inconsistent with Forest Plan Standard LMP (Part 3) S10, with the High and Moderate Scenic Integrity Objectives of NFS lands. As such, a Project-specific Forest Plan amendment would be needed for Standard S10 (Inconsistencies with Forest Plan SIOs).</td>
<td>Less than Alt 2 due to better compliance with Forest Plan Standard S10 because of the use of colored galvanizing treatments in the ANF. Therefore, slightly fewer miles of Project-specific Forest Plan amendments to Standard S10 would be needed for Alt 6.</td>
</tr>
</tbody>
</table>

**WILDERNESS AND RECREATION**

<table>
<thead>
<tr>
<th></th>
<th>Alternative 2</th>
<th>Alternative 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Developed Recreation resources within ½-mile of Project components</td>
<td>147 Total</td>
<td>140 Total</td>
</tr>
<tr>
<td></td>
<td>74 in Central Region</td>
<td>68 in Central Region</td>
</tr>
<tr>
<td></td>
<td>61 on NFS lands</td>
<td>56 on NFS lands</td>
</tr>
<tr>
<td>Level of disturbance to Dispersed Rec that would result from construction activities, including access restrictions</td>
<td>MED</td>
<td>HIGH</td>
</tr>
<tr>
<td>Level of unmanaged recreation that would occur as a result of Project construction</td>
<td>MED</td>
<td>LOW</td>
</tr>
<tr>
<td>Level of temporary degradation of the “Solitude and Unconfined Recreation” characteristic of the San Gabriel WA</td>
<td>MED</td>
<td>LOW</td>
</tr>
<tr>
<td>Level of temporary degradation of the “backcountry experience” on the PCT (temporary / permanent)</td>
<td>HIGH / LOW</td>
<td>HIGH / LOW</td>
</tr>
<tr>
<td>Miles of Forest Roads (FR) designated for OHV use (OML 2) that would be temporarily upgraded to OML 3 standards, restricting OHV use until OML 2 standards are restored</td>
<td>43.1 Total</td>
<td>22.2 Total (48.5% less)</td>
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<td>FR 4N24: 7.1</td>
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<tr>
<td></td>
<td>FR 4N18: 10.1</td>
<td>FR 4N18: 8.3</td>
</tr>
<tr>
<td>Level of temporary disturbance and/or preclusion that would affect hunting and fishing opportunities in the ANF</td>
<td>LOW</td>
<td>MED</td>
</tr>
</tbody>
</table>
Table 4.2-1a. Summary Comparison of Environmental Issues on National Forest System Lands

<table>
<thead>
<tr>
<th>Environmental Issue</th>
<th>Alternative 2 (SCE’s Proposed Project)</th>
<th>Alternative 6 (Max. Helicopter Construction in ANF)</th>
</tr>
</thead>
<tbody>
<tr>
<td>WILDFIRE PREVENTION AND SUPPRESSION</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Presence of the overhead transmission line would increase the risk of wildfire.</td>
<td>Wildfire ignition risks during the construction phase through wildland areas with high-risk fuels. Would be mitigated through a Forest Service approved Fire Safety Plan.</td>
<td>Reduced construction-related ignitions in ANF compared with Alt 2.</td>
</tr>
<tr>
<td>Introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread</td>
<td>Introduces non-native plants, which would contribute to a change in fuel characteristics and fire behavior that could worsen the effects of fire.</td>
<td>Introduces incrementally fewer non-native plants to ANF than Alt 2 as a result of fewer roads (approx. 53 miles less) being constructed in the ANF.</td>
</tr>
</tbody>
</table>

* The project schedule for the major construction activities within the NFS lands has been delayed due to the Station Fire but the general comparison of the emissions is still valid.
** The General Conformity Analysis was completed and approved by the Forest Service on June 2, 2010, before the attainment status for the SoCAB was revised to extreme.

4.2.1 Agricultural Resources

Based on the analyses of the Agricultural Resources impacts of the proposed Project and those action alternatives where the re-routed portions or changes in construction methods occur on federal lands (i.e., Alternatives 2, 6, and 7), as presented in detail in Section 3.2 of the Final EIR and summarized in Section 3.2 of this EIS, distinguishing characteristics of the alternatives have been highlighted in order to evaluate the overall effect of each alternative. For Agricultural Resources, the environmental issues used to compare the alternatives included primarily the amount of Prime Farmland, Unique Farmland, and Farmland of Statewide importance that would be converted to non-agricultural uses, and secondarily on the linear distance (miles) of agricultural lands that would be traversed by the Project.

As shown in Final EIR Table 3.2-1, implementation of Alternative 2 (SCE’s Proposed Project) would result in the permanent conversion of approximately 5.83 acres of Farmland to non-agricultural use. The other Project alternatives affecting federal lands (Alternatives 6 and 7) would result in the conversion of the same amount of Farmland as Alternative 2.

4.2.2 Air Quality

Based on the analyses of the Air Quality impacts of the proposed Project and the action alternatives where the re-routed portions or changes in construction methods occur on federal lands (i.e., Alternatives 2, 6, and 7), as presented in Section 3.3 of this EIS, distinguishing characteristics of the alternatives have been highlighted in order to evaluate the overall effect of each alternative. For Air Quality, the environmental issues used to compare the alternatives included total emissions, health impacts of the emissions, location of the emissions (urban areas vs. rural areas), and ability to mitigate the emissions due to the differences in construction methods for the alternatives.

Section 3.3 describes the anticipated construction and operational emissions associated with each Project alternative, including GHG emissions. As discussed in Section 3.3 and shown in Table 4.2-1, all of the Project alternatives would exceed regional emission thresholds for the South Coast Air Quality Management District (SCAQMD), Antelope Valley Air Quality Management District (AVAQMD), and the Eastern Kern Air Pollution Control District (EKAPCD). The magnitude of exceedances would vary for each alternative with Alternative 6 resulting in the greatest amount of exceedance; Alternatives 2 and 7 resulting in the same, with less exceedances.
Alternative 2 (SCE’s Proposed Project) and Alternative 7 (66-kV Subtransmission) would have similar air quality impacts, although the emissions from Alternative 2 would be marginally less than Alternative 7 due to less undergrounding of 66-kV lines. The Project changes for Alternative 2 since the Draft EIR/EIS (as described in the Supplemental Draft EIS), such as additional helicopter staging areas and modified access road use, may increase or decrease the construction emissions. However, these changes are minor in comparison with the helicopter requirements and resulting emissions from Alternative 6 and so would not alter the general comparative magnitude of the Project emissions estimates between Alternative 2 and Alternative 6. Therefore, the impacts of Alternative 2 and Alternative 7 would still remain similar, and less than that of Alternative 6. Compared to the other Project alternatives, Alternative 6 (Maximum Helicopter Construction in the ANF) would contribute to a greater increase in construction emissions for VOC, CO, and NOx resulting from the substantial increase in helicopter use.

4.2.3 Biological Resources

Based on the analyses of the Biological Resources impacts of the proposed Project and the action alternatives where the re-routed portions or changes in construction methods occur on federal lands (i.e., Alternatives 2, 6, and 7), as presented in Section 3.4 of this EIS, distinguishing characteristics of the alternatives have been highlighted in order to evaluate the overall effect of each alternative. For Biological Resources, the environmental issues used to compare the alternatives included such considerations as total land disturbance, the use of access roads through habitat occupied by sensitive or listed species, sensitive vegetation communities affected, designated critical habitat lost or disturbed, and numbers of listed and special-status species affected.

As shown in Table 4.2-1 and detailed in Section 3.4, although Alternative 2 (SCE’s Proposed Project) and Alternative 6 (Maximum Helicopter Construction in the ANF) would result in direct and indirect impacts to biological resources, impacts associated with these alternatives would be lower in size and magnitude than Alternative 7. However, due to the placement of helicopter landing sites Alternative 6 would have slightly higher temporary impacts to riparian vegetation. Alternative 2 would result in more land disturbance than Alternative 6 due to the extent of road improvements and construction. Alternative 6 follows the same route as the other alternatives through the ANF, impacting identical habitats and species, but it would comprise a net decrease in the size and magnitude of direct and indirect long-term impacts as a result of the construction of the majority of the transmission line on the ANF by helicopter. However, short-term impacts associated with helicopter construction, such as noise, rotor wash, temporary impacts to riparian vegetation, and general disturbance to wildlife, would be greater under this alternative as compared to Alternative 2.

Alternative 7 would result in incrementally lower impacts to the federally and State listed least Bell’s vireo. The Segment 7 overhead re-route would result in fewer 66-kV subtransmission structures than Alternative 2, and correspondingly less ground disturbance in areas that support least Bell’s vireo. The Segment 8A overhead re-route (Option 1) would result in a new route for the 66-kV subtransmission line that would traverse habitat that likely supports least Bell’s vireo, but is marginal habitat compared with the habitat crossed by Alternative 2. Segment 8A (Option 2) would occur in the same ROW as Alternative 2 in areas that support the least Bell’s vireo, but would result in fewer 66-kV subtransmission structures in the ROW, therefore, decreasing ground disturbance. Both options would incrementally decrease impacts to the least Bell’s vireo compared to Alternative 2, but Option 1 would likely result in impacts to fewer birds than Option 2 or Alternative 2. However, it should be noted that impacts to the least Bell’s vireo would likely occur under both routing options of Alternative 7 as well as Alternative 2.
4.2.4 Cultural Resources

Based on the analyses of the Cultural Resources impacts of the proposed Project and the action alternatives where the re-routed portions or changes in construction methods occur on federal lands (i.e., Alternatives 2, 6, and 7), as presented in Section 3.5 of this EIS, distinguishing characteristics of the alternatives have been highlighted in order to evaluate the overall effect of each alternative. For Cultural Resources, the environmental issues used to compare the alternatives included total land surface and subsurface disturbance; nature and extent of physical impacts; amount of new ROW required; extent to which cultural resource inventories have been completed; the location, distribution, and nature of known cultural resources affected; and the potential for unanticipated discoveries of cultural resources during construction.

As described in Table 4.2-1, there are 149 identified cultural resources within the Area of Potential Effects (APE) for Alternative 2 (SCE’s Proposed Project); 148 for Alternative 6 (Maximum Helicopter Construction in the ANF); and 163 for Alternative 7 (66-kV Subtransmission). Alternative 6 would result in a reduction in ground disturbance in previously undisturbed areas in comparison to Alternative 2, which would reduce the potential for unanticipated discoveries. Alternative 7 (66-kV Subtransmission), however, has the greatest potential among the Project alternatives for direct and indirect impacts on cultural resources because of the greater number of known resources, higher archaeological sensitivity, and enhanced potential for buried archaeological remains, including human remains.

4.2.5 Environmental Contamination and Hazards

Based on the analyses of the Environmental Contamination and Hazards impacts of the proposed Project and the action alternatives where the re-routed portions or changes in construction methods occur on federal lands (i.e., Alternatives 2, 6, and 7), as presented in Section 3.6 of this EIS, distinguishing characteristics of the alternatives have been highlighted in order to evaluate the overall effect of each alternative. For Environmental Contamination and Hazards, the environmental issues used to compare the alternatives included proximity to known and suspected areas of soil and groundwater contamination, proximity to oil fields and landfills where methane and toxic gases may be present, potential for previously unanticipated contamination in Project areas due to past land use activities, and the potential for construction-related contamination based on the relative amount of construction work (length of each alternative, number of new structures to be constructed, number of existing structures to be removed).

Alternative 2 (SCE’s Proposed Project) includes approximately 16 miles of transmission line within commercial and industrial areas along Segment 8A with numerous known environmental contamination sites. Alternatives 2 and 7 use helicopter staging area HAY 10X which is an EDR listed LUST site and a severely burned site with potential for contamination which increases the potential to mobilize pre-existing contamination and/or fire-related contamination. Alternative 7 also includes increased trenching and ground disturbance for construction of 0.6 miles of underground 66-kV subtransmission line in commercial land use areas which results in incrementally increased potential to encounter preexisting contaminated soil in this area.

Alternative 7 (66-kV Subtransmission) and Alternative 6 (Maximum Helicopter Construction in the ANF) would slightly increase the potential for spills and leaks of fuel, lubricants and other chemicals to occur during construction compared to Alternative 2. Potential spills and leaks from Alternative 7 may result from the increase in construction effort required for underground construction of 66-kV subtransmission lines, while spills and leaks from Alternative 6 may result from the extensive use of helicopters to support construction along Segments 6 and 11 in the ANF.
Alternative 6 would slightly decrease the potential to encounter unanticipated contamination compared to Alternative 2 due to lesser ground disturbance. This decrease is expected to be insignificant due to the lower probability of unknown contamination in the ANF compared to the developed urban areas crossed by the Project under all the alternatives.

4.2.6 Geology, Soils, and Paleontology

Based on the analyses of the Geology, Soils, and Paleontology impacts of the proposed Project and the action alternatives where the re-routed portions or changes in construction methods occur on federal lands (i.e., Alternatives 2, 6, and 7), as presented in Section 3.7 of this EIS, distinguishing characteristics of the alternatives have been highlighted in order to evaluate the overall effect of each alternative. For Geology, Soils, and Paleontology, the environmental issues used to compare the alternatives include such considerations as erosion potential (based on soil characteristics and total land disturbance), potential for damage from slope instability or other ground failures both during construction and operation, potential for damage from seismic events (i.e., fault rupture, liquefaction, or seismically induced landslides), and potential to disturb and or destroy unique paleontologic resources.

As described in Table 4.2-1, Alternative 2 (SCE’s Proposed Project) would involve the construction of access roads, helicopter and other associated construction staging areas, and a total of 845 new towers (151 on NFS lands, 32 on USACE controlled lands). Land disturbance consisting of grading and excavation would be required through approximately 77 miles of hillside and mountain areas with known landslides and unstable slopes, resulting in the potential for impacts from construction triggered slope failures, seismically induced slope failures, and slope failures during Project operation. Slope stability impacts associated with Alternative 7 (66-kV Subtransmission) would be similar to Alternative 2, as this alternative would have similar construction through the same hillside and mountain areas for the same distance. Compared to Alternative 2, impacts related to construction triggered landslides under Alternative 6 (Maximum Helicopter Construction in the ANF) are expected to decrease due to the reduction in land disturbance from grading of fewer helicopter staging areas (13 versus 20 total) and fewer access and spur roads (approximately 53 miles versus 106 miles) in the hillside and mountain areas of the ANF.

Compared to Alternative 2, construction-related erosion is expected to increase under Alternative 7 (66-kV Subtransmission) due to increased ground disturbance from underground construction activities. Of all the Project alternatives, erosion related impacts would have the greatest decrease under Alternative 6 (Maximum Helicopter Construction in the ANF) due to the reduction in the number of new and upgraded access and spur roads (approximately 53 miles with a ±15% range of 45 to 61 miles) and fewer helicopter staging areas (13 versus 20 total), resulting in less ground disturbance in areas with potential erosion issues.

In comparison with the other Project alternatives, Alternative 7 would result in slightly increased potential for damage from surface fault rupture. Two of the 66-kV subtransmission re-routes for Alternative 7 cross the southward projection of the East Montebello Hills Fault.

Compared to the other Project alternatives, the potential to damage or destroy paleontologic resources during construction is expected to increase for Alternative 7 (66-kV Subtransmission). Alternative 7 would cause a slight increase in ground disturbance from underground construction, with from excavations for the underground re-routes and the new 66-kV poles for the overhead re-routes in young alluvium with moderate paleontologic sensitivity. Alternative 6 has less potential to damage or destroy
paleontologic resources than Alternatives 2 or 7 due to a decrease in ground disturbance. This difference would not be substantial as most of the formations on the ANF have low sensitivity for paleontology.

4.2.7 Hydrology and Water Quality

Based on the analyses of the Hydrology and Water Quality impacts of the proposed Project and the action alternatives where the re-routed portions or changes in construction methods occur on federal lands (i.e., Alternatives 2, 6, and 7), as presented in Section 3.8 of this EIS, distinguishing characteristics of the alternatives have been highlighted in order to evaluate the overall effect of each alternative. For Hydrology and Water Quality, the environmental issues used to compare the alternatives included such considerations as the number of streams that would be crossed, the water quality and level of surrounding development of the streams that would be crossed, the number of miles of Project structures within a Flood Hazard Area, and the potential for underlying groundwater to be contaminated by Project construction activities. A quantitative comparison of the alternatives was conducted for criteria where adequate data are available.

As a result of constructing 151 transmission towers in the ANF by helicopter, Alternative 6 (Maximum Helicopter Construction in the ANF) would include the least amount of new or upgraded access and spur roads, in comparison with the proposed Project and other alternatives. Therefore, the amount of erosion and sedimentation that would occur under Alternative 6 would be lower and the subsequent impacts to surface and groundwater quality would also be diminished.

Alternative 7 (66-kV Subtransmission) would also introduce the potential to come into contact with groundwater resources as a result of the undergrounded portions of 66-kV subtransmission line in the South Region (Segments 7 and 8).

4.2.8 Land Use

Based on the analyses of the Land Use impacts of the proposed Project and the action alternatives where the re-routed portions or changes in construction methods occur on federal lands (i.e., Alternatives 2, 6, and 7), as presented in Section 3.9 of this EIS, distinguishing characteristics of the alternatives have been highlighted in order to evaluate the overall effect of each alternative. For Land Use, the environmental issues used to compare the alternatives included such considerations as total land disturbance, the duration of potential short- and long-term impacts, the ability to avoid or minimize the types of land uses affected, and conflicts with adopted land use plans.

Under Alternative 2 (SCE’s Proposed Project), no residential or non-residential land uses would be permanently displaced by construction, operation or maintenance, and short-term disruptions and disturbances to residential and non-residential land uses can be mitigated to minimize adverse effects; the same would be true for implementation of either Alternative 6 (Maximum Helicopter Construction in the ANF) or Alternative 7 (66-kV Subtransmission). However, due to the intensified activities related to increased helicopter construction that would occur under Alternative 6, temporary impacts to residential and non-residential land uses in the ANF would occur for a longer period of time and be of a greater magnitude in comparison to Alternative 2. For operations and maintenance activities, many of the existing towers are currently inaccessible for inspections except by helicopter; therefore, temporary disturbance to non-residential and residential land uses on the ANF would not substantially increase from current conditions. Alternatives 2, 6 and 7 would all require coordination with the FAA and Los Angeles County Sheriff’s Department for helicopter construction, as well as helicopter operation and maintenance activities within the ANF. For Alternative 7, the increased length and intensity of construction along
portions of Segments 7 and 8A, temporary impacts to residential and non-residential land uses in this area (Segment 7 in the vicinity of MP 9.9 for 1.1 miles and MP 11.4 for 0.6 miles, and Segment 8A between MPs 2.2 to 3.8) would be greater in magnitude in comparison to Alternatives 2 and 6.

Alternatives 2, 6 and 7 would all require two Project-specific amendments to the Forest Service’s ANF Land Management Plan for Standard S10 (Scenic Integrity Objectives) and Standards for Riparian Conservation Areas (RCAs). However, with these amendments, Alternatives 2, 6 and 7 would not conflict with any federal, State, or local adopted land use plans.

### 4.2.9 Noise

Based on the analysis conducted for Noise impacts of the proposed Project and the action alternatives where the re-routed portions or changes in construction methods occur on federal lands (i.e., Alternatives 2, 6, and 7), as presented in detail in Section 3.10 of the Final EIR and summarized in Section 3.10 of this EIS, distinguishing characteristics of the alternatives have been highlighted in order to evaluate the overall effect of each alternative. For Noise, the environmental issues used to compare the alternatives included such considerations as duration and intensity of construction noise, operational corona noise levels, and numbers of sensitive receptors affected by construction and operational noise.

Alternative 2 (SCE’s Proposed Project) would have significant unavoidable construction and operational noise impacts to sensitive receptors. Impacts would be similar for the other Project alternatives. Although Alternative 6 (Maximum Helicopter Construction in the ANF) and Alternative 7 (66-kV Subtransmission) would have nearly identical operational noise impacts to sensitive receptors as Alternative 2, construction noise impacts would be greater than Alternative 2. Alternative 6 would expose the highest number of sensitive receptors to high volume helicopter noise, while Alternative 7 would result in an increase in the amount of construction equipment and the intensity of construction for the underground placement of the 66 kV subtransmission line.

### 4.2.10 Public Services and Utilities

Based on the analysis of the Public Services and Utilities impacts for the proposed Project and the action alternatives where the re-routed portions or changes in construction methods occur on federal lands (i.e., Alternatives 2, 6, and 7), as presented in detail in Section 3.11 of the Final EIR and summarized in Section 3.11 of this EIS, distinguishing characteristics of the alternatives have been highlighted in order to evaluate the overall effect of each alternative. For Public Services and Utilities, the environmental issues used to compare the alternatives included the potential interference with or an increased need for public services and utility systems.

For each of the Project alternatives, construction activities would present equal potential to interfere with emergency services as well as Los Angeles County Public Works maintenance yards and waste management services. In addition, construction of each alternative would potentially increase the need for utility systems, such as water resources, and could temporarily disrupt the flow of utility systems. However, these impacts would be minimized with implementation of the mitigation measures presented in Section 3.11 of this Final EIS.

### 4.2.11 Socioeconomics

Based on the analysis of the Socioeconomic impacts for the proposed Project and the action alternatives where the re-routed portions or changes in construction methods occur on federal lands (i.e., Alternatives
2, 6, and 7), as presented in Section 3.12 of this EIS, distinguishing characteristics of the alternatives have been highlighted in order to evaluate the overall effect of each alternative. For Socioeconomics, the six identified Issues of Concern were used as environmental issues to compare the alternatives. These Issues of Concern included the following: Population and Housing, Quality of Life, Employment, Private Property Value, Local Business Revenue, and Public Revenue. Of these six Issues of Concern, three provided for a difference between alternatives: Private Property Value, Local Business Revenue, and Public Revenue.

As shown in Final EIR Table 3.12-1, each of the Project alternatives would have the potential to result in decreased agricultural business revenue, particularly during the construction period. Each of the alternatives would also have the potential to affect private property value as a result of Project infrastructure, particularly in the South Region. In comparison with the other Project alternatives, Alternative 6 (Maximum Helicopter Construction in the ANF) could have a greater effect on the Quality of Life Issue of Concern during the construction period, particularly for visitors on lands in the ANF, because certain factors that are considered to contribute to an individual’s perception of quality of life (such as noise, aesthetics, and air quality) would be temporarily degraded due to this alternative’s increased use of helicopter construction.

4.2.12 Traffic and Transportation

Based on the analyses of the Traffic and Transportation impacts of the proposed Project and the action alternatives where the re-routed portions or changes in construction methods occur on federal lands (i.e., Alternatives 2, 6, and 7), as presented in Section 3.13 of this EIS, distinguishing characteristics of the alternatives have been highlighted in order to evaluate the overall effect of each alternative. For Traffic and Transportation, the environmental issues used to compare the alternatives primarily included the total number of roadways crossed, roadway congestion, number of transit and pedestrian routes crossed, and overall construction duration.

As shown in Table 4.2-1, implementation of Alternative 2 (SCE’s Proposed Project), Alternative 6 (Maximum Helicopter Construction in the ANF), and Alternative 7 (66-kV Subtransmission) would result in overhead crossings of approximately 420 roadways. There is not expected to be a significant difference in traffic and transportation impacts between Alternative 2 and Alternative 6 as both will require similar levels of use of area roadways. The greater use of helicopter construction under Alternative 6 would not substantially change the amount of traffic on public roads within the ANF since HAYs, marshalling yards, and wire pulling sites must still be accessed by road. Trenching required for construction of the 66-kV lines under Alternative 7 would result in temporary closure of roadways that would not be required for any other alternative.

4.2.13 Visual Resources

Based on the analyses of the Visual Resources impacts of the proposed Project and the action alternatives where the re-routed portions or changes in construction methods occur on federal lands (i.e., Alternatives 2, 6, and 7), as presented in Section 3.14 of this EIS, distinguishing characteristics of the alternatives have been highlighted in order to evaluate the overall effect of each alternative. For Visual Resources, the environmental issues used to compare the alternatives included such considerations as differences in: visual sensitivity; changes from existing visual conditions to future visual conditions; total land area and visual environment disturbance; Project visibility from sensitive receptor locations; amount of skyline interruption; and, numbers of communities, residential areas, and/or parklands affected.
Alternative 2 (SCE’s Proposed Project) would have the greatest visual impacts of all Project alternatives from placing new T/Ls along a second priority scenic highway (110th Street West) in Segment 4 and in a highly visible location to many viewers (urban area) through the Cities of Chino Hills, Chino, and Ontario in Segment 8.

Compared to Alternative 2, Alternative 6 (Maximum Helicopter Construction in the ANF) would utilize helicopter construction to reduce the construction of new and upgraded access and spur roads within the ANF in order to minimize land disturbances, thereby reducing the visual impacts associated with those 151 towers that would be constructed by helicopter. For comparative purposes, 33 towers within the ANF would be constructed by helicopter in the ANF under Alternative 2. It is noted, however, that the increased helicopter construction associated with Alternative 6 would be more intensive and thus it would result in short-term (construction phase) visual impacts that would be greater in magnitude than Alternative 2. In comparison to Alternative 2, Alternative 6 would reduce long-term visual contrasts of the LSTs located within the ANF by applying color treatments to their galvanized steel surface (under Alternative 2, the transmission line towers within the ANF would be finished with SCE’s standard treatment, which is a dulled galvanized steel that has a light-gray or silver appearance). Both alternatives (Alternatives 2 and 6) would require a Forest Plan amendment for inconsistencies with Forest Plan Standard S10 for Scenic Integrity Objectives; both alternatives would also conflict with Goal Visual-1 and Objective Visual-1.2 of the Puente Hills Landfill Native Habitat Preservation Authority (PHLHPA) Resource Management Plan. Outside of the ANF, the visual impacts associated with Alternative 6 would be identical to Alternative 2.

Alternative 7 (66-kV Subtransmission) would result in the exact same impacts on existing landscape character and visual quality as Alternative 2 for all Project segments except for portions of Segments 7 and 8A. Alternative 7 would result in a new 66-kV subtransmission line being placed in an area (Segment 8A, between MPs 2.2 to 3.8) that currently has no transmission lines; therefore, it would create long-term visual contrasts and impact landscape quality and character in an adverse manner. Alternative 7 would, however, also result in the undergrounding of portions of two subtransmission lines along Segment 7 (MP 9.9 for an estimated 1.1 miles, and MP 11.4 for approximately 3,300 linear feet (0.6 miles). The undergrounding and overhead placement of these subtransmission lines would increase the duration and intensity of construction related impacts, and thus would adversely impact landscape character and visual quality and contrast. Alternative 7 would, though, result in long-term improvements to the visual environment of Segment 7 in the vicinity of the Duck Farm Project area and in the Whittier Narrows Recreation Area due to the above-referenced undergrounding of existing overhead subtransmission lines. As with Alternatives 2 and 6, Alternative 7 would require a Forest Plan amendment for inconsistencies with Forest Plan Standard S10 and would also conflict with Goal Visual-1 and Objective Visual-1.2 of the PHLNHPA Resource Management Plan.

4.2.14 Wilderness and Recreation

Based on the analysis of the Wilderness and Recreation impacts of the proposed Project and the action alternatives where the re-routed portions or changes in construction methods occur on federal lands (i.e., Alternatives 2, 6, and 7), as presented in Section 3.15 of this EIS, distinguishing characteristics of the alternatives have been highlighted in order to evaluate the overall effect of each alternative. For Wilderness and Recreation, the environmental issues used to compare the alternatives included such considerations as the level of disturbance that would affect recreational resources and opportunities in the Project Area. Particular consideration was given to potential disturbance of unique or sensitive
recreational resources, such as the Pacific Crest National Scenic Trail (PCT), San Gabriel Wilderness Area (WA), West Fork San Gabriel River National Scenic Bikeway, Whittier Narrows Recreation Area, Santa Fe Dam Recreation Area, and the River Commons at the Duck Farm Project, among others.

All of the Project alternatives are routed through the ANF, and would introduce temporary impacts to recreational resources and opportunities on NFS lands as a result of construction activities. Under Alternative 6 (Maximum Helicopter Construction in the ANF), 13 helicopter staging areas would be required to construct 151 transmission towers in the ANF using helicopters, whereas Alternatives 2 and 7 would require 20 helicopter staging areas to construct 33 transmission towers in the ANF using helicopters. Of the Alternative 6 helicopter staging areas, one would be located within one mile of the San Gabriel WA, and one would be located within 0.1 miles of the PCT. For Alternatives 2 and 7, four helicopter staging areas would be located within one mile of the San Gabriel WA, and three would be adjacent to different portions of the PCT. Therefore, the Alternative 6 helicopter staging areas would avoid more sensitive recreational resources than these other Project alternatives; however, helicopter use under Alternative 6 would be more distributed throughout the ANF due to substantially more transmission towers being constructed by helicopter. Overall, the nature and magnitude of helicopter-related disturbance to the PCT is considered comparable between Alternatives 2, 6 and 7, though distributed differently depending on the location of helicopter staging areas and helicopter-constructed towers, while the magnitude of disturbance to the San Gabriel WA is considered slightly greater under Alternatives 2 and 7, due to the location of four helicopter staging areas within proximity to the WA.

Under all Project alternatives, existing transmission lines would be replaced within existing utility corridors within Segments 6 and 11 through the ANF; the operations and maintenance activities required for existing infrastructure and Project infrastructure would be the same. Therefore, operation and maintenance of the Project on ANF lands would be the same as existing operation and maintenance activities, with the exception of differences in the extent of road improvements that would occur under various Project alternatives in order to maintain access to Project components. Alternative 6 would require less road improvements on the ANF than Alternatives 2 and 7 (approximately 53 miles less), and is therefore expected to be susceptible to less unmanaged recreation during the operation and maintenance phase of the Project.

Wilderness and Recreation Table 3.15-22 (Alternative 6 Wilderness and Recreation Impacts: Comparison with Alternative 2) and Table 4.2-1 (Summary Comparison of Environmental Issues for Alternatives Affecting Federal Lands), above, indicate that Alternative 2 would require more extensive temporary upgrades to designated OHV routes than would Alternative 6. As described in Section 3.15, OHV recreation on the ANF is restricted on roadways with an Operational Maintenance Level (OML) designation above OML 2 (including OML 3, 4, and 5 roads). During construction of Alternative 2, approximately 43.1 miles of designated OHV roads would be temporarily upgraded to OML 3, versus approximately 22.2 miles of temporary upgrades that would occur under Alternative 6. OHV recreation would be restricted on existing OHV roads that are temporarily upgraded until the affected roads are returned to OML 2 standards. Therefore, Alternative 2 would result in approximately 48.5 percent greater temporary loss of OHV opportunities associated with construction-required road upgrades. The OHV roads that would be affected under all alternatives include the following: Forest Road 2N23 (Rincon Shortcut), Forest Road 2N24 (Rincon Redbox), Forest Road 4N24 (Edison Road), and Forest Road 4N18 (Lynx Gulch).

In addition to NFS lands on the ANF, the Project also traverses federal lands under USACE jurisdiction, through the Whittier Narrows Recreation Area and the Santa Fe Dam Recreation Area. In comparison to
the other Project alternatives, Alternative 7 (66-kV Subtransmission Alternative) includes two options that would re-route Segment 8 farther away from Legg Lake, to the southern portion of the Whittier Narrows Recreation Area. Under either option, Segment 8 would still traverse USACE controlled lands in the Whittier Narrows area, but would be located farther away from recreational opportunities associated with Legg Lake. Alternative 7 would also underground a portion of the 66-kV subtransmission line through the River Commons at the Duck Farm Project, reducing disturbance to recreational opportunities in that area, and avoiding permanent disruption to the approved Duck Farm site plan, unlike Alternatives 2 and 7.

4.2.15 Wildfire Prevention and Suppression

Based on the analyses of the Wildfire Prevention and Suppression impacts of the proposed Project and the action alternatives where the re-routed portions or changes in construction methods occur on federal lands (i.e., Alternatives 2, 6, and 7), as presented in Section 3.16 of this EIS, distinguishing characteristics of the alternatives have been highlighted in order to evaluate the overall effect of each alternative. For Wildfire Prevention and Suppression, the environmental issues used to compare the alternatives included such considerations as the number of adverse and unavoidable impacts, the number of miles of new transmission lines that would be constructed through wildland areas with high-risk fuels, and whether indefensible spaces would be created by siting transmission lines in new corridors resulting in conflicts with firefighting operations.

All of the Project alternatives would pose wildfire ignition risks during the construction phase. Compared to the other Project alternatives, Alternative 6 (Maximum Helicopter Construction in the ANF) would require the construction of fewer roads within the ANF, which would slightly reduce the number of potential ignitions during construction and slightly reduce the potential introduction of non-native weeds that provide fine fuels for the propagation of wildfires.

4.2.16 Electrical Interference and Hazards

Based on the analyses of the Electrical Interference and Hazards impacts of the proposed Project and the action alternatives where the rerouted portions or changes in construction methods occur on federal lands (i.e., Alternatives 2, 6, and 7), as presented in Section 3.17 of the Final EIR and summarized in Section 3.17 of this EIS, distinguishing characteristics of the alternatives have been highlighted in order to evaluate the overall effect of each alternative. For Electrical Interference and Hazards, the environmental issues used to compare the alternatives included such considerations as the transmission line length, as Electrical Interference and Hazards impacts are directly related to the length of the line, and whether the transmission line would be located overhead or placed underground. Please note that potential health risks associated with EMF are not considered in this evaluation because there is no consensus in the scientific community regarding health risks associated with EMF exposure and, therefore, conclusions regarding this concern cannot be reached in this report.

As shown in Table 4.2-1, placement of the 66-kV subtransmission lines underground as part of Alternative 7 (66-kV Subtransmission) would reduce potential impacts, as underground portions would not have any Electrical Interference and Hazards impacts. Alternative 2 (SCE’s Proposed Project) and Alternative 6 (Maximum Helicopter Construction in the ANF) would result in the same Electrical Interference and Hazards impacts as these alternatives are the same length and have the same proposed overhead and underground transmission and subtransmission infrastructure.
### Table 4.2-2. Summary of Alternative Comparisons for Alternatives Affecting Federal Lands

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<tr>
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<tr>
<td><strong>Air Quality</strong></td>
<td>Slightly lower air quality emissions during construction than Alt 7 due to shorter 66-kV overhead routes in Segment 7 and 8A compared to Alt 7 and elimination of underground construction. Substantially lower construction emissions, except particulate matter, than Alt 6 due to a lower number of towers constructed by helicopter.</td>
<td>Substantially increases construction emissions due to helicopter use. While total particulate emissions would decrease due to less unpaved road travel; those particulate emissions have a lower toxic profile than the emissions from helicopters.</td>
<td>Will result in slightly higher emissions than Alt 2 due to additional construction activities from underground construction and longer 66-kV overhead routes in Segments 7 and 8A compared to Alt 2.</td>
</tr>
<tr>
<td><strong>Biological Resources</strong></td>
<td>Generally located in existing ROW thereby minimizing the amount of necessary habitat disturbance. Alt 2 would result in additional long-term impacts from land disturbance compared to Alt 6.</td>
<td>Alt 6 will result in reduced long-term impacts from land disturbance than Alt 2, impacts will be lessened due to the use of helicopters for construction; however, helicopter noise may increase short-term impacts by disturbing wildlife.</td>
<td>Incremental decrease in biological resource impacts over Alt 2. Re-routed portions of the 66 k-V distribution lines would incrementally decrease impacts to sensitive biological resources (least Bell’s vireo). Option 1 would decrease effects to a greater degree than Option 2, but both options would incrementally decrease effects over Alt 2.</td>
</tr>
<tr>
<td><strong>Cultural Resources</strong></td>
<td>149 (72 prehistoric / 71 historical / 6 both) identified resources in the APE, with 56.8 miles of new/expanded ROW.</td>
<td>148 (70 prehistoric / 73 historical / 5 both) identified resources in the APE, with 56.8 miles of new/expanded ROW.</td>
<td>163 (72 prehistoric / 85 historical / 6 both) identified resources in the APE, with 57.0 miles of new/expanded ROW. A greater number of known cultural resources and higher archaeological sensitivity is located in the area of the re-routed 66-kV lines.</td>
</tr>
<tr>
<td><strong>Environmental Contamination and Hazards</strong></td>
<td>Alternative 2 helicopter staging area HAY 10X is an EDR listed LUST site and a severely burned site with potential for fire related contamination which increases the potential to mobilize pre-existing and/or fire-related contamination.</td>
<td>Would increase (approximately 4 times) the amount of helicopter fueling and maintenance compared to Alt 2. Could increase fuel leaks, etc from helicopter activity which may result in soil contamination. Less potential to encounter existing environmental contamination than Alt 2 due to not using helicopter staging area HAY 10X.</td>
<td>Better than Alt 6 due to less helicopter fueling and maintenance in undeveloped forest area. Would incrementally increase potential for leaks of fuel, etc during construction due to increased disturbance as opposed to overhead construction of Alt 2. Also increased potential to encounter impacted soils due to increased ground disturbance.</td>
</tr>
<tr>
<td><strong>Geology, Soils, and Paleontology</strong></td>
<td>Alt 2 results in more ground disturbance than Alt 6 with construction and grading of more helicopter staging areas (16 versus 12 on NFS lands) and more access and spur roads (approximately 55 miles versus 106 miles) contributing to increased potential for erosion and construction related slope stability impacts.</td>
<td>Decreases the amount of grading required for helicopter staging areas and access and spurs roads in the ANF (Segments 6 and 11) resulting in approximately 131 less acres of ground disturbance, which correspondingly decreases the potential for construction triggered erosion and landslides in landslide prone mountainous terrain as compared to Alt 2.</td>
<td>Excavations for underground construction and for new poles for the 66-kV re-routes slightly increases the potential for construction-related erosion compared to Alt 2. Excavations for underground construction and new poles for the 66-kV re-routes in the San Gabriel Valley and Whittier Narrows areas also slightly increases the potential to damage or destroy paleontologic resources in comparison to Alt 2. Incrementally increases the potential for damage from fault rupture for the two overhead 66-kV sub-transmission lines (Whittier Narrows 66-kV Overhead Re-Route (Segment 7 and Segment</td>
</tr>
</tbody>
</table>
**Table 4.2-2. Summary of Alternative Comparisons for Alternatives Affecting Federal Lands**

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>Hydrology and Water Quality</strong></td>
<td>Similar to Alt 6 as it affects less high quality surface water and groundwater resources than Alt 3. However, a greater number of streams within the ANF would be impacted by construction of access and spur roads.</td>
<td>Would affect the fewest high quality surface and groundwater resources.</td>
<td>Has potential to directly affect groundwater resources due to underground construction disturbance.</td>
</tr>
<tr>
<td><strong>Land Use</strong></td>
<td>No residential or non-residential land uses would be permanently displaced by construction, operation or maintenance, and short-term disruptions and disturbances to residential and non-residential land uses can be mitigated to minimize adverse effects.</td>
<td>Results in the smallest acreage of permanent land disturbance reducing potential long-term disruptions to existing and planned land uses compared to Alts 2 and 7; however, maximum use of specialized helicopters and construction personnel would be expected to result in the longest duration of temporary, construction-related impacts to land uses within the ANF.</td>
<td>Within the ANF, impacts would be identical to Alt 2. Undergrounding portions of the 66-kV lines would likely be considered a net benefit to the residential and non-residential land uses that are adjacent to their respective ROWs; otherwise, identical to Alt 2.</td>
</tr>
<tr>
<td><strong>Noise</strong></td>
<td>Significantly impacts sensitive receptors during construction and operations due to corona noise.</td>
<td>Alt 6 would have maximum construction noise impacts from helicopter noise to sensitive receptors and same amount of corona noise as Alt 2.</td>
<td>Nearly identical impacts as Alt 2; however Alt 7 would result in slightly increased construction noise in the areas where subtransmission lines would be rerouted or installed.</td>
</tr>
<tr>
<td><strong>Traffic and Transportation</strong></td>
<td>Increased potential to affect roadways compared to Alt 6. Crosses the highest number of municipal transit routes, bicycle routes, and pedestrian routes and requires the highest number of roadway closures due to proximity of 12 helicopter staging areas to public roadways.</td>
<td>This alternative would result in fewer temporary closures of roadways than Alt 2 or Alt 7.</td>
<td>Trenching required for this alternative would require temporary closure of roads and highways in areas of residential and business development that would not occur under other alternatives.</td>
</tr>
<tr>
<td><strong>Visual Resources</strong></td>
<td>Greatest visual impacts of all the alternatives as the new T/Ls would be placed along a second priority scenic highway (110th Street West) in Segment 4 and in a highly visible location to many viewers (urban area) through Chino Hills, Chino, and Ontario. Re-opening and widening existing access roads along Segments 6 and 11, plus reconstructing spur roads to all but 33 LSTs would create strong visual contrasts. Construction of LST at the PCT Trailhead at Mill Creek Summit would require trail relocation and Forest Plan amendment. Use of the West Fork National Scenic Bikeway for construction equipment and deliveries would degrade the visual environment of this scenic viewshed.</td>
<td>Visual impacts in the ANF would be minimized by avoidance of soil disturbance, cut slopes in bedrock, and soil color contrasts associated with new and/or upgraded access and spur roads as a result of helicopter construction. The West Fork National Scenic Bikeway would not be used for construction access to Segment 6 and the immediate environment of the West Fork would not be degraded.</td>
<td>Undergrounding the 66-kV lines would eliminate existing aboveground visual contrasts, skylining, and viewed blockage in Whittier Narrows and Duck Farm viewsheds. Relocating the 66-kV line adjacent to a collector street, rather than through the Whittier Narrows Recreation Area, would improve the visual environment of parklands.</td>
</tr>
</tbody>
</table>
4. COMPARISON OF ALTERNATIVES

Tehachapi Renewable Transmission Project

Table 4.2-2. Summary of Alternative Comparisons for Alternatives Affecting Federal Lands

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Wilderness and Recreation</td>
<td>Alt 2 would require 20 helicopter staging areas to construct 33 towers by helicopter. Four staging areas would be located within one mile of the San Gabriel WA and three would be located adjacent to different portions of the PCT. Alt 2 would temporarily upgrade 43.1 miles of designated OHV roads to Operational Maintenance Level (OML) 3 standards, restricting OHV use until OML 2 standards are restored.</td>
<td>The magnitude of disturbance to the San Gabriel WA is considered slightly less than Alts 2 and 7, due to the location of fewer helicopter staging areas within proximity to the WA. During operation and maintenance, less unmanaged recreation would be expected under Alt 6 due to fewer spur roads being constructed or improved. Alt 6 would temporarily upgrade 22.2 miles of designated OHV roads (~48.5% less than Alt 2).</td>
<td>Impacts on NFS lands in the ANF would be the same as Alt 2. On USACE controlled lands in the Whittier Narrows Recreation Area, Options 1 and 2 for Segment 8A would route the Project farther away from recreational activities at Legg Lake than Alts 2 and 6. Impacts to the River Commons at the Duck Farm Project would be minimized.</td>
</tr>
<tr>
<td>Wildfire Prevention and Suppression</td>
<td>Poses wildfire ignition risks during the construction phase and introduces long-term ignitions from overhead structures through high-risk fuels areas. Increases heights of transmission structures, creating marginally increased burden on aerial firefighting.</td>
<td>Would reduce construction-related ignitions compared with Alt 2 and would introduce incrementally fewer non-native plants than Alt 2 as a result of marginally fewer roads being constructed.</td>
<td>Same as Alt 2.</td>
</tr>
</tbody>
</table>

4.3 NEPA Lead Agency Preferred Alternative

The “preferred alternative” is a preliminary indication of the federal responsible official’s preference of action, which is chosen from among the proposed Project and alternatives. For the proposed Project, the federal responsible official is the Forest Supervisor of the ANF. In accordance with NEPA (40 CFR 1502.14(e)), the Forest Supervisor has identified the preferred alternative as a combination of various elements of Alternatives 2 and 6.

Following the completion of the Draft EIR/EIS (February 2009), an interdisciplinary team of Natural Resource Specialists from the Forest Service conducted detailed field reviews including visiting each new tower location on NFS lands. A key observation during these reviews was that some of the tower locations, which would be constructed by helicopter under Alternative 6, have roads which are either currently in place or could be built with minimal environmental impact. This team evaluated factors such as distance to the nearest existing access road, evidence of abandoned roadways which could be reused, and the gradient of slopes that such roads would have to cross. By allowing certain towers to be built utilizing road-based construction, many of the short-term construction impacts associated with Alternative 6’s higher level of helicopter use would be reduced, including reductions in air quality emissions, noise, and recreational impacts. Under this preferred alternative, 99 new towers would be constructed by helicopter, as compared to 151 under Alternative 6 and 33 under Alternative 2.

The Forest Service has also identified the preferred helicopter assembly yards (HAYs) for use during helicopter construction activities. The preferred HAYs include Alternative 2 Sites SCE#3B (same as Alternative 6 #8), SCE#7 (same as Alternative 6 #9), SCE#8 (same as Alternative 6 #11), HAY 1 (same as Alternative 6 #3), HAY 4, HAY 6, HAY 8, HAY 10X, and HAY 12, and Alternative 6 Sites #4, 5, 6, 7, 10 and 13 (15 total). The selection of these HAYs from both Alternatives 2 and 6 would minimize resource impacts associated with certain sites while allowing for adequate area to support the level of helicopter use associated with the preferred alternative. Table 4.3-1 provides a list of roads in the ANF to be utilized under the preferred alternative, which can be compared with Table 2.2-41 (for Alternative 2).
and Table 2.6-7 (for Alternative 6). Under the preferred alternative a total of approximately 45 miles of roads would be new/upgraded/maintained on the ANF, of which approximately 43 miles would occur on NFS lands. This represents a reduction in the amount of new/upgraded/maintained roads required for the preferred alternative of approximately 28 miles compared to SCE’s Proposed Project (Alternative 2), and a reduction of approximately 25 miles on NFS lands.

For operations and maintenance of the new lines, spur roads used to access towers under the preferred alternative would be considered permanent, and FS road permits would be amended or issued for their long-term use, operation, and maintenance. Spur roads used to access wire stringing sites or HAYs would be considered temporary, and would be restored according to Mitigation Measure B-1a (See Section 3.4, Biological Resources). Alternative 2 was analyzed assuming all new roads would remain permanent; Alternative 6 assumed all new roads would be temporary. The FS has made determinations on an individual tower basis as to where spur roads could be constructed, used, or maintained with minimal environmental impacts, and has incorporated helicopter construction where this was not the case. For these reasons, this approach is not expected to introduce any new impacts or require any new mitigation not already included in the Final EIS.

To offset any increase in permanent impacts from newly permitted roads, the FS would coordinate with SCE on identifying roads currently permitted that may be candidates for decommissioning and restoration. Two of these roads have been identified by the FS: the non-system road beginning at the Shortcut Fire Station driveway, at approximately S6 MP 16.5; and the non-system road connecting Upper Big Tujunga paved road to Forest Road 3N20 at approximately S6 MP 14.4. Upon further coordination with SCE, these roads would be included in the project restoration plan (Mitigation Measure B-1a). The net result would be a reduction of 1.6 miles of permanent road permitted to SCE for operations and maintenance. This would balance the protection of National Forest resources with SCE’s need for efficient access for inspection, operation, and maintenance of the lines.

Figure 4.3-1, located at the end of this chapter, provides an overview of the preferred alternative, including identifying the towers to be constructed by helicopter, the preferred HAYs, and roads to be utilized. This figure can be compared to Figures 2.2-83 and 2.6-1 to see how the preferred alternative is a combination of Alternatives 2 and 6, respectively. More detailed maps of the preferred alternative are also provided in Figures 4.3-2a through 4.3-2i, also located at the end of this chapter.

<table>
<thead>
<tr>
<th>Table 4.3-1. Roads in the ANF to be Utilized by the Preferred Alternative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forest System #</td>
</tr>
<tr>
<td>-----------------</td>
</tr>
<tr>
<td>N/A</td>
</tr>
<tr>
<td>N/A</td>
</tr>
<tr>
<td>N/A</td>
</tr>
<tr>
<td>N/A</td>
</tr>
<tr>
<td>N/A</td>
</tr>
<tr>
<td>2N46.1</td>
</tr>
<tr>
<td>N/A</td>
</tr>
<tr>
<td>2N25.1</td>
</tr>
<tr>
<td>N/A</td>
</tr>
<tr>
<td>2N65.2</td>
</tr>
<tr>
<td>3N17.4</td>
</tr>
<tr>
<td>3N17.5</td>
</tr>
<tr>
<td>3N17L</td>
</tr>
</tbody>
</table>

Subtotal = 84.3 miles
4. COMPARISON OF ALTERNATIVES
Tehachapi Renewable Transmission Project

Table 4.3-1. Roads in the ANF to be Utilized by the Preferred Alternative

<table>
<thead>
<tr>
<th>Forest System #</th>
<th>Forest System Name</th>
<th>Length (miles)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANF Unpaved System Roads – maintenance/reconstruction required</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1N36</td>
<td>Van Tassel</td>
<td>3.3</td>
</tr>
<tr>
<td>2N23</td>
<td>Shortcut Edison</td>
<td>8.9</td>
</tr>
<tr>
<td>2N24.2</td>
<td>Rincon/Redbox</td>
<td>5.1</td>
</tr>
<tr>
<td>2N24.3</td>
<td>Rincon/Redbox</td>
<td>1.6</td>
</tr>
<tr>
<td>2N25</td>
<td>West Fork/Cogwell</td>
<td>0.3</td>
</tr>
<tr>
<td>2N25.2</td>
<td>West Fork/Cogwell</td>
<td>1.1</td>
</tr>
<tr>
<td>2N30.1</td>
<td>Sawpit</td>
<td>3.1</td>
</tr>
<tr>
<td>2N75</td>
<td>CCC Ridge</td>
<td>0.6</td>
</tr>
<tr>
<td>2N76.3</td>
<td>Mount Lukens</td>
<td>0.3</td>
</tr>
<tr>
<td>2N79.1</td>
<td>Grizzly Flat</td>
<td>0.7</td>
</tr>
<tr>
<td>3N17</td>
<td>Santa Clara Divide</td>
<td>0.4</td>
</tr>
<tr>
<td>3N17.3</td>
<td>Santa Clara Divide</td>
<td>0.2</td>
</tr>
<tr>
<td>3N20</td>
<td>Powerline Road</td>
<td>1.6</td>
</tr>
<tr>
<td>3N27</td>
<td>Edison/Fall Creek</td>
<td>9.9</td>
</tr>
<tr>
<td>4N18.1</td>
<td>Lynx Gulch</td>
<td>6.3</td>
</tr>
<tr>
<td>4N18.2</td>
<td>Lynx Gulch</td>
<td>2.0</td>
</tr>
<tr>
<td>4N24.1</td>
<td>Edison</td>
<td>7.1</td>
</tr>
<tr>
<td>4N24.2</td>
<td>Edison</td>
<td>2.2</td>
</tr>
<tr>
<td></td>
<td><strong>Subtotal = 54.5 miles</strong></td>
<td></td>
</tr>
<tr>
<td>ANF Unpaved Non-System Roads – maintenance/reconstruction required</td>
<td></td>
<td></td>
</tr>
<tr>
<td>N/A</td>
<td>Non-FS roads</td>
<td>15.1</td>
</tr>
<tr>
<td></td>
<td><strong>Subtotal = 19.6 miles</strong></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td><strong>153.9 miles</strong></td>
</tr>
</tbody>
</table>

Table 4.3-2 provides a side-by-side comparison of the components of the preferred alternative and Alternatives 2 and 6.

The preferred alternative would follow the same route as the other alternatives through the ANF (i.e., Alternatives 2 and 6), affecting identical habitats and species. However, the preferred alternative would comprise a net decrease in the size and magnitude of direct and indirect long-term impacts compared to Alternative 2 as a result of constructing a majority of the transmission upgrades on the ANF by helicopter.

This combined alternative includes a reduction in the acreage of land disturbance as a result of a reduction in new spur roads and upgrades to existing access/spur roads, and a reduction in the acreage of land disturbance associated with ground-based construction in comparison to Alternative 2. This reduction in land disturbance would reduce the amount of habitat disturbance and reduce the potential for spread of invasive plants. The preferred alternative would also affect fewer Riparian Conservation Areas than Alternative 2. It would also likely affect fewer cultural resources than the other Project alternatives because the reduction in ground disturbance may eliminate impacts on more NRHP- or CRHR-eligible cultural resources. The potential for construction-triggered landslides under the preferred alternative would also be reduced due to the reduction in land disturbance from grading of fewer access and spur roads in the hillside and mountain areas. The reduced amount of new spur roads and upgrades to existing access/spur roads in the ANF would also result in reduced visual effects on the landscape and fewer inconsistencies with the ANF’s scenic integrity objectives. The preferred alternative is also preferable because it would affect fewer high quality surface water and groundwater resources.
Table 4.3-2. Summary Comparison of the Preferred Alternative to Other Alternatives in the ANF

<table>
<thead>
<tr>
<th></th>
<th>Alternative 2 (SCE's Proposed Project)</th>
<th>Preferred Alternative (Optimized Helicopter in ANF)</th>
<th>Alternative 6 (Max. Helicopter in ANF)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Overall Project Construction</strong>*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total length of 500-kV and 220-kV transmission line (T/L) ROW (miles)</td>
<td>172.5</td>
<td>172.5</td>
<td>172.5</td>
</tr>
<tr>
<td>Total number of new transmission structures (not including 66-kV sub-T/Ls)</td>
<td>844</td>
<td>844</td>
<td>844</td>
</tr>
<tr>
<td>Total land disturbance (acres, ±15%) (Construction / Permanent) On NFS lands</td>
<td>~1,685 / ~365</td>
<td>~1,599 / ~320</td>
<td>~1,554 / ~296</td>
</tr>
<tr>
<td>Helicopter Trips (Min/Max)</td>
<td>6,633 / 9,339</td>
<td>20,385 / 28,621</td>
<td>31,919 / 44,723</td>
</tr>
</tbody>
</table>

**Segment 11: New Mesa – Vincent (via Gould) 500/220-kV T/L**

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Segment Length (miles)</td>
<td>36.2</td>
<td>36.2</td>
<td>36.2</td>
</tr>
<tr>
<td>Distance on NFS lands (miles)</td>
<td>20.4</td>
<td>20.4</td>
<td>20.4</td>
</tr>
<tr>
<td>New transmission structures</td>
<td>69</td>
<td>69</td>
<td>69</td>
</tr>
<tr>
<td>No. on NFS lands</td>
<td>60</td>
<td>60</td>
<td>60</td>
</tr>
<tr>
<td>No. constructed by helicopter</td>
<td>16</td>
<td>37</td>
<td>55</td>
</tr>
<tr>
<td>Helicopter staging areas</td>
<td>10</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>No. on NFS lands</td>
<td>7</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>Helicopter Trips (Min/Max)</td>
<td>3,271 / 4,617</td>
<td>7,625 / 10,684</td>
<td>11,596 / 16,258</td>
</tr>
<tr>
<td>Total new/improved/maintained roads (±15%)</td>
<td>~36.9 miles</td>
<td>~32.2 miles</td>
<td>~19.2 miles</td>
</tr>
<tr>
<td>On NFS lands (±15%)</td>
<td>~29.9 miles</td>
<td>~27.5 miles</td>
<td>~12.5 miles</td>
</tr>
<tr>
<td>Newly constructed roads on NFS lands (±15%)</td>
<td>~1.41 miles</td>
<td>~0.06 miles</td>
<td>~0.06 miles</td>
</tr>
</tbody>
</table>

**Segment 6: Section of New Replacement Rio Hondo – Vincent No. 2 500-kV T/L (initially energized at 220 kV) and Section of New Mira Loma – Vincent 500-kV T/L**

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Segment Length (miles)</td>
<td>26.9</td>
<td>26.9</td>
<td>26.9</td>
</tr>
<tr>
<td>Distance on NFS lands (miles)</td>
<td>21.85</td>
<td>21.85</td>
<td>21.85</td>
</tr>
<tr>
<td>New transmission structures</td>
<td>136</td>
<td>136</td>
<td>136</td>
</tr>
<tr>
<td>No. on NFS lands</td>
<td>105</td>
<td>105</td>
<td>105</td>
</tr>
<tr>
<td>No. constructed by helicopter</td>
<td>17</td>
<td>62</td>
<td>96</td>
</tr>
<tr>
<td>Helicopter staging areas</td>
<td>10</td>
<td>10</td>
<td>9</td>
</tr>
<tr>
<td>No. on NFS lands</td>
<td>9</td>
<td>10</td>
<td>9</td>
</tr>
<tr>
<td>Helicopter Trips (Min/Max)</td>
<td>3,362 / 4,722</td>
<td>12,760 / 17,937</td>
<td>20,323 / 28,465</td>
</tr>
</tbody>
</table>

7 There are a total of 69 structures on NFS lands in Segment 11; where 60 structures are new and 9 are existing double-circuit structures of the Eagle Rock-Mesa 220-kV T/L where new 220-kV conductor would be strung on the vacant side of these structures.
While Alternative 6 offers the greatest reduction in impacts for many resources by reducing overall ground disturbance, the specialized helicopters used for transmission line construction are large machines that are extremely noisy and polluting. The preferred alternative would decrease the air quality, land use, and noise impacts associated with helicopter operations in comparison to Alternative 6. There are inherent risks associated with the use of helicopters for construction in mountainous terrain and due to inclement weather. By reducing the overall use of helicopters, the preferred alternative would decrease the potential for helicopter-related accidents in comparison with Alternative 6. On balance, the Forest Supervisor has determined that the preferred alternative best minimizes both short and long term impacts, and is preferable to Alternative 2 or Alternative 6 for construction, operation, and maintenance of the Project on NFS lands. Please see Table 4.3-3 which provides a side-by-side comparison of the preferred alternative and Alternatives 2 and 6 for each the environmental resource/issue areas where there is a clear difference between the alternatives.

Table 4.3-2. Summary Comparison of the Preferred Alternative to Other Alternatives in the ANF

<table>
<thead>
<tr>
<th></th>
<th>Alternative 2 (SCE’s Proposed Project)</th>
<th>Preferred Alternative (Optimized Helicopter in ANF)</th>
<th>Alternative 6 (Max. Helicopter in ANF)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total new/improved/maintained roads (±15%)</td>
<td>~68.7 miles</td>
<td>~45.0 miles</td>
<td>~33.4 miles</td>
</tr>
<tr>
<td>On NFS lands (±15%)</td>
<td>~65.7 miles</td>
<td>~42.7 miles</td>
<td>~31.0 miles</td>
</tr>
<tr>
<td>Newly constructed roads on NFS lands (±15%)</td>
<td>~3.61 miles</td>
<td>~0.55 miles</td>
<td>~0.19 miles</td>
</tr>
</tbody>
</table>

*** Project construction is scheduled to occur from April 2010 to October 2015 (67 months). Construction of the preferred alternative and Alternative 6 would be identical to Alternative 2, with the exception of Segments 6 and 11, where substantially more helicopter construction may result in a longer construction schedule due to the limited availability of specialized helicopters and personnel. The schedule for helicopter construction would be finalized as part of final design and pre-construction planning.

Table 4.3-3. Issue Area Comparison of the Preferred Alternative to Other Alternatives on NFS Lands

<table>
<thead>
<tr>
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<tr>
<td>Air Quality</td>
<td>Exceeds regional emission thresholds for the SCAQMD, AVAQMD, and EKAPCD. No years exceeding the General Conformity Thresholds in the SoCAB or MDAB/AVAQMD.</td>
<td>Exceeds regional emission thresholds for the SCAQMD, AVAQMD, and EKAPCD. Per the Final General Conformity Analysis completed and approved by the Forest Service on June 2, 2010, the General Conformity Threshold of 25 tons for NOx would be exceeded during one year. No years would exceed the General Conformity Thresholds for the other applicable pollutants in the SoCAB or MDAB/AVAQMD.</td>
<td>Exceeds the General Conformity Threshold of 25 tons for NOx in 2010 (35.6 tons), 2011 (38.1 tons), and 2012 (28.6 tons) in the SoCAB.</td>
</tr>
<tr>
<td>Biological</td>
<td>274 RCAs crossed by roads, of which 76 would be adversely impacted. 0.30 acre of Santa Ana sucker critical habitat potentially impacted. 0.37 acres of arroyo toad critical habitat potentially impacted; 9 acres of arroyo toad modeled habitat potentially impacted on the ANF. Potential harassment of California condor due to helicopter trips (9,339 max.).</td>
<td>116 RCAs crossed by roads, of which 59 would be adversely impacted. No adverse impacts to Santa Ana sucker critical habitat. 2.12 acres of arroyo toad critical habitat potentially impacted; 10 acres of arroyo toad modeled habitat potentially impacted on the ANF. Potential harassment of California condor due to helicopter trips (27,772 max.).</td>
<td>68 RCAs crossed by roads, of which 51 would be adversely impacted. No adverse impacts to Santa Ana sucker critical habitat. 2.12 acres of arroyo toad critical habitat potentially impacted; 10 acres of arroyo toad modeled habitat potentially impacted on the ANF. Potential harassment of California condor due to helicopter trips (44,723 max.).</td>
</tr>
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Table 4.3-3. Issue Area Comparison of the Preferred Alternative to Other Alternatives on NFS Lands

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<td>Cultural Resources</td>
<td>88 (36 prehistoric/44 historical/8 both) identified resources in the APE</td>
<td>88 (36 prehistoric/44 historical/8 both) identified resources in the APE</td>
<td>90 (37 prehistoric/45 historical/8 both) identified resources in the APE</td>
</tr>
<tr>
<td>Environmental Contamination and Hazards</td>
<td>Includes 20 helicopter staging areas along Segments 6 and 11 supporting 6,633 (min.) to 9,339 (max.) helicopter round trips which results in a potential for leaks and spills during construction. Use of helicopter staging area HAY 10X increases the potential to mobilize pre-existing and/or fire-related contamination.</td>
<td>Includes 15 helicopter staging areas along Segments 6 and 11 supporting 19,782 (min.) to 27,772 (max.) helicopter round trips which results in a potential for leaks and spills during construction. Use of helicopter staging area HAY 10X increases the potential to mobilize pre-existing and/or fire-related contamination.</td>
<td>Includes 13 helicopter staging areas along Segments 6 and 11 supporting 31,919 (min.) to 44,723 (max.) helicopter round trips which results in a potential for leaks and spills during construction. Slightly less than Alt 2 or the Preferred Alt, as Alt 6 would not utilize helicopter staging area HAY 10X decreasing potential to mobilize pre-existing and/or fire-related contamination and would have a reduced amount of road construction and associated ground disturbance.</td>
</tr>
<tr>
<td>Geology, Soils, and Paleontology</td>
<td>Soil erosion could occur due to grading and excavation at new and modified access and spur roads, storage yards, tower locations, and at the 20 helicopter staging areas. Slope failures could be triggered by construction related excavation and grading of access and spur roads, helicopter staging areas, and new towers through hillside and mountain areas with known landslides and unstable slopes.</td>
<td>Helicopter construction for most towers in the ANF results in less road grading compared to Alt 2. The overall ground disturbance during construction would be reduced by approx. 83 acres compared to Alt 2, resulting in a decreased potential to trigger or accelerate erosion. Reduced construction and grading of access/spur roads in steep mountainous terrain (approx. 25 miles less roads in the ANF on NFS lands compared to Alt 2) resulting in decreased potential to trigger landslides or slope instability during construction.</td>
<td>Helicopter construction for most towers in the ANF results in less road grading compared to Alt 2 or the Preferred Alt. The overall ground disturbance during construction would be reduced by approx. 131 acres compared to Alt 2, resulting in a decreased potential to trigger or accelerate erosion. Reduced construction and grading of access/spur roads in steep mountainous terrain (approx. 52 miles less roads in the ANF on NFS lands compared to Alt 2) resulting in decreased potential to trigger landslides or slope instability during construction.</td>
</tr>
<tr>
<td>Hydrology and Water Quality</td>
<td>13 (named) /123 (unnamed) streams crossed by new and/or improved access and spur roads in the ANF.</td>
<td>13 (named) /123 (unnamed) streams crossed by new and/or improved access and spur roads in the ANF.</td>
<td>5 (named) /62 (unnamed) streams crossed by new and/or improved access and spur roads in the ANF.</td>
</tr>
<tr>
<td>Land Use</td>
<td>Temporary impacts to Land Use would be least due to limited use of helicopters.</td>
<td>Temporary land use impacts would be greater than Alt 2 but less than Alt 6.</td>
<td>Would present the greatest Land Use impacts due to highest level of helicopter use.</td>
</tr>
<tr>
<td>Noise</td>
<td>Sensitive noise receptors within close proximity to construction activities would be disturbed by substantial construction noise. Would result in the least helicopter noise (9,339 max. helicopter trips). Construction of the Preferred Alt would expose sensitive receptors on ANF lands to the 2nd highest volume of helicopter noise due to the increased use of helicopters (27,772 max. helicopter trips).</td>
<td>Construction of the Preferred Alt would expose sensitive receptors on ANF lands to the 2nd highest volume of helicopter noise due to the increased use of helicopters (27,772 max. helicopter trips).</td>
<td>Construction of Alt 6 would expose sensitive receptors on ANF lands to the highest volume of helicopter noise due to the increased use of helicopters (44,723 max. helicopter trips).</td>
</tr>
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### 4.3-3. Issue Area Comparison of the Preferred Alternative to Other Alternatives on NFS Lands

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<td>Socioeconomics</td>
<td>Construction activities may temporarily degrade factors which contribute to individuals’ perception of quality of life, such as noise (33 towers constructed by helicopter), traffic, and the aesthetics of construction equipment and activities.</td>
<td>Approximately 67% more towers would be constructed by helicopter (99 versus 33 under Alt 2), with a corresponding 67% increase in helicopter disturbance that could temporarily affect perceptions of quality of life.</td>
<td>Approximately 78% more towers would be constructed by helicopter (151 versus 33 under Alt 2), with a corresponding 78% increase in helicopter disturbance that could temporarily affect perceptions of quality of life.</td>
</tr>
<tr>
<td>Traffic and Transportation</td>
<td>Temporary road closures would affect 22 roadways during transmission line stringing activities, plus 12 additional road closures related to helicopter staging areas.</td>
<td>Temporary road closures would affect 22 roadways during transmission line stringing activities, plus 10 additional road closures related to helicopter staging areas.</td>
<td>Temporary road closures would affect 22 roadways during transmission line stringing activities, plus 8 additional road closures related to helicopter staging areas.</td>
</tr>
<tr>
<td>Visual Resources</td>
<td>Project construction activities including road improvements, heavy equipment use, and helicopter staging areas would be visible from sensitive receptor locations as strong temporary visual contrasts.</td>
<td>Temporary visual contrasts greater than Alt 2 but less than Alt 6 due to helicopter visibility. Within the ANF; however, less spur road and access road improvement would occur and associated long-term visual contrast would be less but short-term helicopter use would be more intense (construction of 99 towers via helicopter vs. 33 for Alt 2) and temporary visual contrast would be greater.</td>
<td>Temporary visual contrasts greater than Alt 2 due to helicopter visibility. Within the ANF; however, less spur road and access road improvement would occur and associated long-term visual contrast would be less but short-term helicopter use would be more intense (construction of 151 towers via helicopter vs. 33 for Alt 2) and temporary visual contrast would be greater.</td>
</tr>
<tr>
<td></td>
<td>Project-specific Forest Plan amendments would be needed for Standards S9 and S10 (Inconsistencies with Forest Plan SIOs).</td>
<td>Slightly fewer miles of Project-specific Forest Plan amendments, as compared to Alt 2, would be needed for Alt 6 Standards S9 and S10 (Inconsistencies with Forest Plan SIOs).</td>
<td>Slightly fewer miles of Project-specific Forest Plan amendments, as compared to Alt 2, would be needed for Alt 6 Standards S9 and S10 (Inconsistencies with Forest Plan SIOs).</td>
</tr>
<tr>
<td></td>
<td>The Project would traverse and/or be visible from multiple designated or eligible scenic highways and trails, thereby directly degrading and causing the long-term loss of scenic quality of the viewsheds.</td>
<td>The long-term loss or degradation of scenic viewshed(s) would be less than Alt 2 but more than Alt 6 due to decreased road construction in the ANF. Fewer access/spur roads would be constructed or improved in the ANF. Helicopter staging area #5 would be visible at background distances from the PCT along Santa Clara Divide; however, no helicopter staging areas would be visible from the Angeles Crest Scenic Byway, I-210, West Fork National Scenic Bikeway Trail, or State Routes 39 and 57.</td>
<td>The long-term loss or degradation of scenic viewshed(s) would be less than Alt 2 due to decreased road construction in the ANF. Fewer access/spur roads would be constructed or improved in the ANF. Helicopter staging area #5 would be visible at background distances from the PCT along Santa Clara Divide; however, no helicopter staging areas would be visible from the Angeles Crest Scenic Byway, I-210, West Fork National Scenic Bikeway Trail, or State Routes 39 and 57.</td>
</tr>
<tr>
<td>Wilderness and Recreation</td>
<td>147 recreational resources (not incl. Dispersed Rec), including 74 in the Central Region and 60 on NFS lands, would be disrupted by Project construction.</td>
<td>143 recreational resources (not incl. Dispersed Rec), including 70 in the Central Region and 56 on NFS lands would be temporarily disrupted by Project construction.</td>
<td>140 recreational resources (not incl. Dispersed Rec), including 68 in the Central Region and 55 on NFS lands, would be disrupted by Project construction.</td>
</tr>
<tr>
<td></td>
<td>Level of disturbance to Dispersed Rec that would result from construction activities, including access restrictions, would be MEDIUM.</td>
<td>Level of disturbance to Dispersed Rec that would result from construction activities, including access restrictions, would be HIGH (~67% more helicopter-constructed T/L towers).</td>
<td>Level of disturbance to Dispersed Rec that would result from construction activities, including access restrictions, would be HIGH (~78% more helicopter-constructed T/L towers).</td>
</tr>
</tbody>
</table>
4. COMPARISON OF ALTERNATIVES
Tehachapi Renewable Transmission Project

### Table 4.3-3. Issue Area Comparison of the Preferred Alternative to Other Alternatives on NFS Lands

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<tr>
<td>Level of unmanaged recreation that would occur as a result of Project construction would be MEDIUM.</td>
<td>Level of unmanaged recreation that would occur as a result of Project construction would be MEDIUM.</td>
<td>Level of unmanaged recreation that would occur as a result of Project construction would be LOW.</td>
<td></td>
</tr>
<tr>
<td>Level of temporary degradation of the “Solitude and Unconfined Recreation” characteristic of the San Gabriel WA would be MEDIUM (Helicopter staging areas HAY 5A, HAY 6, HAY 6A, and HAY8 are within one mile of the WA).</td>
<td>Level of temporary degradation of the “Solitude and Unconfined Recreation” characteristic of the San Gabriel WA would be LOW/MEDIUM (Helicopter staging area HAY 8 is within one mile of the WA).</td>
<td>Level of temporary degradation of the “Solitude and Unconfined Recreation” characteristic of the San Gabriel WA would be LOW (No helicopter staging areas are within one mile of the WA).</td>
<td></td>
</tr>
<tr>
<td>43.1 miles of currently designated OHV roads would be temporarily upgraded to Operation Maintenance Level (OML) 3 standards, restricting OHV use until OML 2 standards are restored.</td>
<td>33.2 miles of currently designated OHV roads would be temporarily upgraded to OML 3 standards (~23.0 percent less than Alt 2), restricting OHV use until OML 2 standards are restored.</td>
<td>22.2 miles of currently designated OHV roads would be temporarily upgraded to OML 3 standards (~48.5 percent less than Alt 2), restricting OHV use until OML 2 standards are restored. App</td>
<td></td>
</tr>
<tr>
<td>Level of temporary disturbance and/or preclusion that would affect hunting and fishing opportunities in the ANF would be LOW (33 helicopter-constructed towers, 20 staging areas).</td>
<td>Level of temporary disturbance and/or preclusion that would affect hunting and fishing opportunities in the ANF would be MEDIUM (99 helicopter-constructed towers, 15 staging areas).</td>
<td>Level of temporary disturbance and/or preclusion that would affect hunting and fishing opportunities in the ANF would be MEDIUM (151 helicopter-constructed towers, 13 staging areas).</td>
<td></td>
</tr>
<tr>
<td>Wildfire Prevention and Suppression Wildfire ignition risks during the construction phase through wildland areas with high-risk fuels would increase the risk of wildfire. Introduces non-native plants, which would contribute to a change in fuel characteristics and fire behavior that could worsen the effects of fire.</td>
<td>Reduced construction-related ignitions in ANF compared with Alt 2 but more than Alt 6. Introduces incrementally fewer non-native plants to ANF than Alt 2 as a result of fewer roads (approx. 28 miles less) being constructed in the ANF (includes non-NFS lands), but more than Alt 6.</td>
<td>Reduced construction-related ignitions in ANF compared with Alt 2 or the Preferred Alt. Introduces incrementally fewer non-native plants to ANF than Alt 2 as a result of fewer roads (approx. 53 miles less) being constructed in the ANF (includes non-NFS lands).</td>
<td></td>
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In addition to the preferred alternative, the federal responsible official, or federal lead agency, is also required to identify an “environmentally preferable alternative” in the ROD for the EIS (40 CFR 1505.2(b)). In contrast with the preferred alternative, the environmentally preferable alternative is the alternative that will promote the National Environmental Policy Act as expressed in NEPA’s Section 101. Typically, this is the alternative that would cause the least damage to the biological and physical environment and which best protects, preserves, and enhances historic, cultural, and natural resources. Therefore, the preferred alternative identified in this Final EIS may not be the same as the environmentally preferable alternative identified in the ROD.
Aspen Environmental Group

Helicopter Towers & Staging Areas

Legend

- Roads on ANF
  - Paved Road - to be used
  - Maintenance Road
  - Reconstruction Road
  - New Road
  - Private Road
  - Forest Service Roads

- Proposed Routes
  - Segment 6
  - Segment 11
  - Substation
  - Pulling Sites
  - Helicopter_constructed_towers

1" = 2 miles
1:126,720

Legend

SCAQMD
AVAQMD

Figure 4.3-1 (New)
4. COMPARISON OF ALTERNATIVES

Tehachapi Renewable Transmission Project

Figure 4.3-2 (New)

Preferred Alternative, Segments 6 and 11
Construction Details (HAYs, Roads, Wire Setup Sites)
Figure 4.3-2a (New)

Preferred Alternative, Segments 6 and 11
Construction Details (HAYs, Roads, Wire Setup Sites)
4. COMPARISON OF ALTERNATIVES

4.4 Tehachapi Renewable Transmission Project

Kern
Los Angeles
Orange
San Bernardino

1" = Approx. 1/2 mile
1 : 32,000

Figure 4.3-2c (New)

Preferred Alternative, Segments 6 and 11
Construction Details (HAYs, Roads, Wire Setup Sites)
Figure 4.3-2d (New)

Aspen Environmental Group
Final EIS

Prefered Alternative, Segments 6 and 11
Construction Details (HAYs, Roads, Wire Setup Sites)

Risks on ANF
- Maintenance Road
- Reconstruction Road
- New Road
- Private Road
- Paved Road
- Forest Service Road - not part of project

Proposed Routes
- Segment 6
- Segment 11
- Substation
- Segment Milepost Marker

Wire Setup Site
- Helicopter Assembly Yard
- New Structure - by Road
- New Structure - by Helicopter
- Wreck Out Only Structure - by Road
- Wreck Out Only Structure - by Helicopter
- Existing Structure

1" = Approx. 1/2 mile
1 : 32,000
4. COMPARISON OF ALTERNATIVES

Tehachapi Renewable Transmission Project

September 2010

Figure 4.3-2e (New)

Preferred Alternative, Segments 6 and 11
Construction Details (HAYs, Roads, Wire Setup Sites)
4. COMPARISON OF ALTERNATIVES

Tehachapi Renewable Transmission Project

Figure 4.3-2f (New)

Preferred Alternative, Segments 6 and 11
Construction Details (HAYs, Roads, Wire Setup Sites)
4. COMPARISON OF ALTERNATIVES

Tehachapi Renewable Transmission Project

Figure 4.3-2g (New)

Preferred Alternative, Segments 6 and 11
Construction Details (HAYs, Roads, Wire Setup Sites)