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Devers–Palo Verde No. 2 Transmission Line Project

CEQA Addendum to Final Environmental Impact Report/ NEPA Environmental Assessment

Prepared for:

California Public Utilities Commission

and

United States Bureau of Land Management

DOI-BLM-CA-060-0013-0001

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Acronyms

ACC	Arizona Corporation Commission
BLM	Bureau of Land Management
CAAQS	California Ambient Air Quality Standards
CARB	California Air Resources Board
CEQA	California Environmental Quality Act
CO	Carbon monoxide
CPCN	Certificate of Public Convenience and Necessity
CPUC	California Public Utilities Commission
CRS	Colorado River Substation
DPV1	Devers–Palo Verde No. 1
DPV2	Devers–Palo Verde No. 2
EA	Environmental Assessment
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
FAA	Federal Aviation Administration
FDECP	Fugitive Dust Emission Control Plan
FLPMA	Federal Land Policy Management Act
GHG	greenhouse gas
IDA	International Dark Sky Association
JTNP	Joshua Tree National Park
KVP	Key Viewpoint
LED	light-emitting diode
LPS	low-pressure sodium
LST	localized significance thresholds
MMCRP	Mitigation Monitoring, Compliance and Reporting Program
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NPS	National Park Service
PCT	Pacific Crest Trail
PFM	Petition for Modification
PM10	Particulate matter
PM2.5	Fine particulate matter
PMR	Project Modification Report
ROD	Record of Decision
SBNF	San Bernardino National Forest
SCAB	South Coast Air Basin
SCAQMD	South Coast Air Quality Management District
SCE	Southern California Edison Company
SSAB	Salton Sea Air Basin
TAC	toxic air contaminant
ULSD	ultra low-sulfur diesel
USEPA	United States Environmental Protection Agency
VOC	volatile organic compounds
VRM	Visual Resource Management

Devers–Palo Verde No. 2 Transmission Line Project EIR Addendum/Environmental Assessment

1. Introduction and Background

Background and CPUC Process

This joint Environmental Impact Report (EIR) Addendum/Environmental Assessment (EA) has been prepared to evaluate the impacts of new project components related to the Devers-Palo Verde No. 2 (DPV2) transmission project. The new components include transmission tower lighting added to some towers and maker balls on certain spans between towers. The impacts of the DPV2 project were defined in a Final EIR/EIS in October 2006, but at that time, SCE did not indicate that tower lights or marker balls would be required so these components were not addressed in the Final EIR/EIS.

The DPV2 project was initially approved by the CPUC in January 2007. In May 2008, SCE filed a Petition for Modification to eliminate the Arizona portion of the transmission line; this was approved by the CPUC in November 2009. In November 2010, SCE submitted two applications for Permits to Construct, and after additional CEQA analysis, the Red Bluff and Colorado River Substations were approved by the CPUC in 2011.

As part of final transmission line design, SCE submitted a number of project refinements between August 2010 and July 2011. The CPUC evaluated each proposed refinement in a Refinements Consistency Determination memorandum dated May 2011. However, this memorandum did not address SCE's proposed addition of tower lights and marker balls. The FAA determined in November 2011 that these facilities would be required. The CPUC and SCE discussed concerns related to the FAA determinations during regular meetings until August 2012. On August 17, 2012, the CPUC informed SCE that its proposed addition of tower lighting and marker balls must be submitted to the CPUC in a Petition for Modification of the previously approved project. As a result, on September 5, 2012, SCE filed a second Petition for Modification, proposing to add the tower lighting and marker ball components to the CPUC.

CEQA and NEPA Compliance

This document complies with both the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA). The **Addendum** is prepared in response to Southern California Edison Company's (SCE) September 5, 2012 filing of a Petition for Modification (PFM) of the California Public Utilities Commission's (CPUC) Decisions D.07-01-040 and D.09-11-007. The Addendum, if approved, would modify the previously certified EIR prepared for the Devers-Palo Verde No. 2 Transmission Line Project (DPV2). The **EA** is based on the information provided to the CPUC and also submitted to the U.S. Bureau of Land Management (BLM) as an acting Cooperating Agency with the CPUC under an existing Memorandum of Understanding. The EA, if approved, would modify the BLM Record of Decision (ROD) approving the Devers-Palo Verde No. 2 Transmission Line Project (DPV2).

BLM's requirements for preparation of an EA are defined in its NEPA Handbook (H-1790-1 (BLM, 2008)). In compliance with these requirements, this Addendum/EA includes sections that would not normally be included in an Addendum, for example, discussion of alternatives.

Summary of Conclusions

This EIR Addendum/EA presents impact analysis for the addition of tower lighting and marker balls required by the FAA for five areas of analysis: biological resources, visual resources, noise, air quality and cumulative impacts. For the remaining environmental disciplines, the impacts associated with construction and operation of the tower lights and marker balls would very minor, and would not affect the impact analysis presented in the Final EIR/EIS.

The impact analysis for the disciplines analyzed herein is summarized as follows:

- **Biological Resources**: Construction would create less than significant impacts through the loss or degradation vegetation and wildlife (including some native, and listed species) due to direct removal, introduction of dust, increased vehicular traffic, introduction of invasive species, habitat loss; additional impacts to jurisdictional waters, movement corridors, and nursery sites would also occur, with potential to conflict with local policies or ordinances. Mitigation already adopted would ensure that these impacts will be less than significant levels. The operational use of marker balls would reduce, but not eliminate, the likelihood of avian power line collisions. The impacts of proposed new tower lighting would slightly, but not substantially increase the risk of avian tower collisions. Overall, the modifications would not substantially increase the severity of effects or affect the impacts to biological resources analyzed in the Final EIR/EIS.
- **Visual Resources:** Construction of marker balls and hazard lights would not result in additional visual impacts. However, operational use of marker balls would increase the structure contrast, view blockage, and skylining of wilderness and national park areas near Interstate 10, elevating visual change from a low-to-moderate level to a moderate level. In these sensitive areas, the visual impact of the DPV2 project was defined as being significant and unmitigable in the Final EIR/EIS. Night lighting from hazard lights would fall within the characterization of BLM's VRM Class III, and would not significantly diminish the quality of night sky darkness relative to existing conditions. Impacts would be adverse but would create no significant effects not discussed previously in the DPV2 EIR nor would any significant effects previously examined be substantially more severe than described in the DPV2 EIR.
- **Noise:** The proposed modifications would result in nominal increases in noise levels from construction, but these changes would not affect significance conclusions presented in the Final EIR/EIS. High winds could cause increased noise levels from marker balls, but these levels would be less than the noise levels from the winds themselves. The marker balls would not create involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects described in the DPV2 EIR.
- **Air Quality and Greenhouse Gases**: The proposed modifications would result in nominal increases in emissions from construction. The project would remain above SCAQMD significance thresholds even with mitigation, but the modifications would not substantially change these impacts or significance conclusions. GHG emission increases would also be nominal and would not require mitigation. These increases would not involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects.
- **Cumulative Impacts:** The proposed modifications would serve to both slightly reduce (marker balls) and slightly increase (hazard lights) bird mortality and cumulative impacts to biological resources would not change. In air quality, noise, and visual resources the cumulative impacts defined in the Final EIR/EIS remain unchanged.

1.1 History of Devers–Palo Verde No. 2 Transmission Project

SCE filed Application 05-04-015 for a Certificate of Public Convenience and Necessity (CPCN) for the DPV2 Project with the CPUC on April 11, 2005. SCE's proposed DPV2 consisted of two transmission segments: a 500 kV segment and a 230 kV segment:

- The new 500 kV line would be 230 miles long, starting from the Harquahala Substation (in Arizona, near the Palo Verde nuclear power plant) to SCE's Devers Substation (in North Palm Springs, California). The 500 kV portion would follow the existing SCE 500 kV transmission line, Devers–Palo Verde No. 1 (DPV1) and is referred to as "Devers-Harquahala."
- Upgrades to an additional 50 miles of 230 kV transmission lines west of the Devers Substation, which is referred to as "West of Devers." Forty miles of 230 kV transmission line from Devers Substation to San Bernardino Junction at the western end of San Timoteo Canyon would be reconfigured and two separate 230 kV corridors, from San Bernardino Junction to SCE's Mountain View Substation and from San Bernardino Junction to SCE's Vista Substation would be reconductored.

The entire project was proposed to span 278 miles, with approximately 176 miles in California and 102 miles in Arizona.

For environmental review purposes, the CPUC is the State Lead Agency, responsible for compliance with CEQA, and the BLM is the lead agency under NEPA. A Draft EIR/Environmental Impact Statement (EIS) was published on May 4, 2006, and a Final EIR/EIS was released on October 24, 2006. The Environmentally Superior/Preferred Alternative (which was approved by the CPUC) was found to be identical to SCE's originally Proposed Project, except for inclusion of the Harquahala Junction Switchyard Alternative and the Alligator Rock–North of Desert Center Alternative. In addition, the proposed West of Devers Upgrades was approved but it was noted that this project segment might be infeasible based on the lack of tribal land use agreements, and in fact, the Devers-Valley No. 2 Alternative is being constructed instead.

On January 25, 2007, the CPUC certified the Final EIR/EIS and approved the DPV2 Project in D.07-01-040. The Arizona Corporation Commission (ACC) denied SCE's request for a Certificate of Environmental Compatibility for the Arizona-portion of the project on June 6, 2007.

1.1.1 Modifications to the Originally Approved Project

Elimination of Arizona Portion

On May 14, 2008, SCE filed a PFM of the existing CPCN that was issued per Decision D.07-01-040. In light of renewable resource potential and projects proposed in eastern Riverside County, SCE requested that the CPUC authorize SCE to construct DPV2 facilities in only the California portion of DPV2 including the Midpoint Substation (now called the Colorado River Substation) near Blythe, California. The CPUC prepared an Addendum to the Final EIR (dated February 2009), which described the impacts of the renewable energy projects, and approved SCE's PFM on November 20, 2009 in Decision D.09-11-007.

New and Modified Substations

After the CPUC's 2009 Decision regarding the PFM, several large solar power projects were proposed in the Blythe and Desert Center areas of eastern Riverside County. SCE filed with the CPUC separate Permit to Construct applications and Plans of Development with BLM. BLM incorporated the analysis prepared by CPUC regarding the modification of the original DPV2 line proposal that included expansion of the

Colorado River Substation (CRS) to allow interconnection of the Blythe and Genesis solar projects. The analysis of the Red Bluff Substation was made as part of the Environmental Impact Statement process for the Desert Sunlight project near Desert Center. The substation would connect the Desert Sunlight Solar Farm and other solar projects in the area to SCE's regional transmission grid. These components were not covered in the original DPV2 Final EIR/EIS, because the solar power projects had not yet been proposed. Therefore, two additional environmental documents were prepared to evaluate these two substations.

Red Bluff Substation. First, BLM prepared an EIS for the Desert Sunlight solar project and the Red Bluff Substation. The CPUC, as a Cooperating Agency, used the Desert Sunlight Solar Farm EIS in accordance with CEQA Guidelines §15221 to support its discretionary decision to approve SCE's Permit to Construct application for the Red Bluff Substation on July 14, 2011 (Decision D.11-07-020).

Colorado River Substation. The CPUC published a Draft and Final Supplemental EIR for the expansion of the Colorado River Substation in February and April 2011, respectively. On July 14, 2011, the CPUC approved the Southern Alternative for the location of the expanded CRS in Decision D.11-07-011.

San Bernardino National Forest

The Devers-Valley No. 2 segment of the approved DPV2 project also crosses lands under jurisdiction of the U.S. Department of Agriculture Forest Service on the San Bernardino National Forest within an existing Forest Service-issued easement. The BLM and U.S. Department of Agriculture Forest Service issued a joint Record of Decision and Right –of-Way Grant approving the DPV2 Project, including the CRS expansion, on July 19, 2011.

Petition for Modification: FAA Requirements

After CPUC, BLM, and Forest Service approval of the project components described above, construction of the DPV2 project began in June 2011. The first components were construction and helicopter yards, and the majority of construction started in late 2011/early 2012 after the CPUC and BLM issued Notices to Proceed for the overhead transmission line and substation construction.

As part of its approval process, the CPUC also adopted a Mitigation, Monitoring, Compliance and Reporting Program (MMCRP) to ensure compliance with all mitigation measures imposed on the DPV2 project during implementation. The MMCRP acknowledges that minor project refinements as a result of final engineering are anticipated and common practice for construction efforts of this scale. The MMCRP sets forth a process for minor project modification that are located within the geographic boundary of the study area of the Final EIR/EIS and Supplemental EIR, and do not, without mitigation, result in a new significant impact or a substantial increase in the severity of a previously identified significant impact based on the criteria used in the environmental documents; conflict with any mitigation measure or applicable law or policy; or trigger an additional permit requirement. While some requested changes may qualify for the process as set forth in the MMRCP for minor project modifications, others may require the submittal of a PFM pursuant to CPUC Rules of Practice & Procedure, Rule 16.4(a).

Throughout 2012, CPUC requested that SCE provide impact analysis for the proposed modifications required by the FAA. SCE submitted a PFM and accompanying Project Modification Report (PMR) to the CPUC on September 5, 2012 to address the Federal Aviation Administration's (FAA) requirement for tower lighting and marker balls along DPV2, which were not analyzed in accordance with CEQA and NEPA in previous DPV2 environmental documents and require additional CEQA and NEPA review (SCE, 2012). The specific lighting and marking requirements are defined in Section 3.

1.2 Regulatory Requirements

1.2.1 FAA Regulations

The FAA regulations establish standards for determining obstructions in navigable airspace, including height limitations on structures taller than 200 feet or within 20,000 feet (approximately 3.8 miles) of an airport. (14 Code of Federal Regulations [CFR], part 77) The FAA requires that it be notified of these types of structures through the filing of FAA Form 7460-1 (Notice of Proposed Construction or Alteration).

Filing a Form 7460-1 allows the FAA to conduct an aeronautical study to ascertain whether the proposed structure would present a hazard to air navigation or could negatively impact the operational procedures of a nearby airport. The FAA then makes its recommendations, determining whether: (1) the proposed structure constitutes a hazard to air navigation; (2) the proposed structure would not constitute a hazard if the structure is marked and/or lit; or (3) the proposed structure is not a hazard even in the absence of marking or lighting.

After final engineering was completed for DPV2, SCE identified the structures and conductor spans that met the FAA reporting thresholds and submitted Forms 7460-1. In response, the FAA issued determinations recommending the installation of marker balls on certain transmission line spans and aviation lights on certain transmission structures. These lighting and marking recommendations are based on FAA guidance, Obstruction Marking and Lighting Advisory Circular, No. AC/70/7460-1K. FAA's recommendations on marking and lighting may vary based on terrain features, weather patterns, and geographic location, and, depending on the hazard potential, may result in a recommendation for higher standards for increased visibility of towers to ensure safety to air navigation.

1.2.2 CEQA Requirements

When an EIR has been certified for a project and further discretionary approval on that project is not required, CEQA Guidelines (Pub. Res. Code §21166; CEQA Guidelines §15162(a)) define that preparation of a subsequent or supplemental EIR is not required unless the lead agency determines, on the basis of substantial evidence in light of the whole record that:

> *(1) Substantial changes are proposed in the project which will require major revisions of the previous EIR … due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects;*
>
> *(2) Substantial changes occur with respect to the circumstances under which the project is undertaken which will require major revisions of the previous EIR … due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant impacts; or*
>
> *(3) New information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the previous EIR was certified as complete …, shows any of the following:*
>
> > *(A) The project will have one or more significant effects not discussed in the previous EIR …;*
> >
> > *(B) Significant effects previously examined will be substantially more severe than shown in the previous EIR;*

> *(C) Mitigation measures or alternatives previously found not to be feasible would in fact be feasible and would substantially reduce one or more significant effects of the project, but the project proponents decline to adopt the mitigation measure or alternative; or*
>
> *(D) Mitigation measures or alternatives which are considerably different from those analyzed in the previous EIR would substantially reduce one or more significant effects on the environment, but the project proponents decline to adopt the mitigation measure or alternative.*

Based on these sections of the CEQA Guidelines, a subsequent or supplemental EIR for the modifications proposed by SCE to the DPV2 project would only be required if the modifications involve one of the three circumstances described above. If not, an addendum may be prepared (CEQA Guidelines §15164). An addendum should include a "brief explanation," supported by substantial evidence, of the decision not to prepare a subsequent or supplemental EIR (CEQA Guidelines §15164(e)).

As defined in this Addendum/EA, the proposed modifications do not create any new significant environmental effects or any substantial increases in the severity of previously identified significant effects. The modifications do not otherwise trigger the need to prepare a supplemental or subsequent EIR. Therefore, the CPUC has determined that a supplemental or subsequent EIR is not required and an EIR Addendum is the appropriate level of CEQA review to address SCE's PFM. The analysis in this EIR Addendum/EA explains the basis for this conclusion.

1.2.3 NEPA Requirements

The federal Council on Environmental Quality and BLM's NEPA Handbook require preparation of a supplement to a draft or final EIS if there are: (1) "substantial changes in the proposed action that are relevant to environmental concerns" or (2) "significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts" (40 CFR §1502.9(c)(1); BLM NEPA Handbook).

BLM may also prepare a supplement if it "determines that the purposes of [NEPA] will be furthered by doing so" (40 CFR §1502.9(c)(2)). If new information indicates that there will be a significant impact not already considered in an existing NEPA document for a pending major federal action, then a supplemental EIS may be appropriate. In contrast, if a project change or new information is consistent with the NEPA document, then a supplemental EIS is not necessary (40 CFR §1502.9(c)(1)).

Because the proposed modifications would not constitute "substantial changes in the proposed action that are relevant to environmental concerns" or "significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts," BLM has determined that a supplemental EIS is not required and an Environmental Assessment is the appropriate level of additional NEPA review. The analysis in this EIR Addendum/EA explains the basis for this conclusion.

2. Description of Proposed Modifications

SCE proposes to install lights on 17 transmission tower structures and marker balls on 50 transmission line spans for DPV2 in response to FAA requirements (SCE, 2012). Section 2.1 presents a detailed description of this proposal. Figures 2-1 to 2-6 illustrate the locations of the proposed FAA components.

SCE has also undertaken a review of the heights of existing spans and structures on Devers–Palo Verde No. 1 Transmission Line (DPV1) in locations adjacent to the 17 DPV2 structures and 50 DPV2 spans that would be modified. Upon comparing the existing nearby DPV1 structures and spans with these 17 DPV2 structures and 50 DPV2 spans, SCE identified three DPV1 towers that are taller than the new adjacent DPV2 towers. At this time, SCE has not determined whether any of the existing DPV1 structures or spans would require modification in the same manner as the newer DPV2 components. SCE is continuing to evaluate aviation-related issues associated with DPV1, and additional CEQA and/or NEPA review for similar modifications to the DPV1 components may be required in the future.

2.1 Project Components

2.1.1 Installation of Marker Balls on Transmission Line Spans

Marker balls installed in accordance with FAA requirements would be 36 inches in diameter, weigh approximately 20 to 30 pounds, and are typically made of light but durable materials such as aluminum, fiberglass, or UVA-stabilized plastic. If a span requires three or fewer marker balls, then the marker balls on the span would all be aviation orange. If a span requires more than three marker balls, then the marker balls would alternate between aviation orange, white, and yellow.

Marker Ball Installation

SCE proposes to install the marker balls on the overhead ground wire, in accordance with FAA guidance (FAA, 2007) during the transmission line construction process. Most of the marker balls would be installed by helicopter, but some may be installed using spacer cart, as described below. SCE's construction contractor would select the most suitable construction method for a particular span. Table 2.1-1 lists the affected spans and number of marker balls that would be installed.

The two options for installation of the marker balls on the ground wires are described below.

Helicopter Installation

Most marker balls would be installed by a light-duty helicopter. Installation by helicopter may require de-energization of nearby subtransmission lines and transmission lines to ensure safety of installation personnel. The amount of helicopter usage needed to install the marker balls would be relatively small when compared to the helicopter usage needed for the construction of structures and the stringing of conductor.

Helicopter installation would require staging at a landing zone where the helicopter would pick up the construction worker and a marker ball and travel to the installation location. SCE's construction contractor would use helicopter landing zones already approved by CPUC, BLM, and/or U.S. Forest Service or would identify existing helipads or airports near the project for additional landing zones where necessary to reduce additional ground disturbing activities. Therefore, helicopter installation is not expected to result in additional ground disturbance.

Table 2.1-1. DPV2 Transmission Line Spans with FAA Marker Balls

Structure Span	Approximate Number of Marker Balls	Structure Span	Approximate Number of Marker Balls
CRS-Devers Transmission Line		Devers-Valley Transmission Line cont'd	
Blythe Area		Tower 1067 to Tower 1068	8
Tower 2221 to Tower 2222	6	Tower 1069 to Tower 1070	11
Tower 2223 to Tower 2224	6	Tower 1070 to Tower 1071	7
Tower 2309X to Tower 2310X	4	Tower 1071 to Tower 1072	4
Tower 2310X to Tower 2312	11	Tower 1073 to Tower 1074	8
Tower 2412 to Tower 2413	7	Tower 1080 to Tower 1081	7
Tower 2413 to Tower 2414	9	Tower 1090 to Tower 1091	13
Tower 2415XX to Tower 2416	4	Tower 1092 to Tower 1093	10
Tower 2420X to Tower 2421XX	9	Tower 1093 to Tower 1094	11
Tower 2422 to Tower 2423	5	Tower 1097 to Tower 1098	9
Tower 2423 to Tower 2424	7	Tower 1102 to Tower 1103	10
Tower 2424 to Tower 2425ALTA	7	Tower 1103 to Tower 1104	8
Devers-Valley Transmission Line		Tower 1105 to Tower 1106	3
Devers Substation to Tower 1000	3	Tower 1106 to Tower 1107	13
Tower 1000 to Tower 1001	7	Tower 1107 to Tower 1108	7
Tower 1016 to Tower 1017	8	Tower 1108 to Tower 1109	9
Tower 1031 to Tower 1032	9	Tower 1109 to Tower 1110	8
Tower 1032 to Tower 1033	6	Tower 1111 to Tower 1112	12
Tower 1033 to Tower 1034	7	Tower 1113 to Tower 1114	8
Tower 1034 to Tower 1035	5	Tower 1122 to Tower 1123	14
Tower 1036 to Tower 1037	6	Tower 1127 to Tower 1128	15
Tower 1042 to Tower 1043	10	Tower 1130 to Tower 1131	5
Tower 1043 to Tower 1044	5	Tower 1137 to Tower 1138	8
Tower 1050 to Tower 1051	12	Tower 1143 to Tower 1144	8
Tower 1065 to Tower 1066	7	Tower 1144 to Tower 1145	7
Tower 1066 to Tower 1067	1	Tower 1145 to Tower 1146	9
TOTAL SPANS	**50**	**TOTAL MARKER BALLS**	**393**

Source: SCE, 2012.

Upon reaching the installation location on the ground wire, the helicopter would hover next to the transmission line for approximately 15 to 20 minutes while the construction worker would securely attach the marker ball to the overhead ground wire.

Water may be necessary for dust suppression at unpaved landing zones, marker ball installation locations, and access areas.

The total installation time for helicopter installation, including helicopter time to and from the landing zone and installation on the overhead ground wire, would vary slightly from the average for each marker ball and associated hardware, depending on the distance between the installation location and the relevant landing zone. In one work day (typically 10 hours), a single helicopter installation crew may be able to install 20 marker balls. There may be several helicopter installation crews operating at one time, maintaining suitable separation to ensure construction safety.

Spacer Cart Installation

The construction contractor may use a spacer cart to install marker balls and associated hardware on the ground wire. The spacer cart or "buggy" would be installed on the ground wire manually by installation crews and supports a line worker for work along the cable without having to lower the line. Because any installation of spacer carts would take place during conventional construction within the approved limits of disturbance, it is not expected that the use of spacer carts would cause any additional ground disturbance.

It would take between 60 to 90 minutes to install and remove the spacer cart. A construction worker would use the spacer cart to travel along the ground wire, installing marker balls one at a time. Using this method, approximately five marker balls could be installed per day per spacer cart team.

2.1.2 Lighting of Transmission Structures

SCE proposes to follow FAA specifications for the lighting of transmission structures at night (FAA, 2007). This would require installation of lights on 17 transmission structures pursuant to FAA recommendations, as shown in Table 2.1-2. Ground-based construction crews would install the lights on the transmission structures, although helicopter crews may be appropriate in certain circumstances. Where feasible, the lighting would be installed on a transmission structure as it is being constructed, resulting in negligible additional construction activity and no additional in ground disturbance. Some of the towers proposed for lighting are currently under construction; however, these towers would not be built to maximum height, thus triggering FAA safety requirements, prior to CPUC and BLM approval of the proposed modifications.

Table 2.1-2. DPV2 Transmission Line Structures with FAA Lighting

Tower Number	Tower Height	FAA Lighting
CRS-Devers Transmission Line		
Desert Hot Springs Area		
Tower 2000X	238 feet AGL	1 flashing red L-864 light at top; 2 steady-burning L-810 red lights midway
Chiriaco Summit Area		
Tower 2409	183 feet AGL	1 flashing red L-864 light at top; 2 steady-burning L-810 red lights midway
Tower 2410	148 feet AGL	2 steady-burning red L-810 lights at top
Tower 2411	167 feet AGL	1 flashing red L-864 light at top; 2 steady-burning L-810 red lights midway
Tower 2412	162 feet AGL	1 flashing red L-864 light at top; 2 steady-burning L-810 red lights midway
Tower 2413	153 feet AGL	1 flashing red L-864 light at top; 2 steady-burning L-810 red lights midway
Tower 2414	185 feet AGL	1 flashing red L-864 light at top; 2 steady-burning L-810 red lights midway
Tower 2415XX	118 feet AGL	2 steady-burning red L-810 lights at top
Tower 2416	111 feet AGL	2 steady-burning red L-810 lights at top
Tower 2417X	130 feet AGL	2 steady-burning red L-810 lights at top
Tower 2418	172 feet AGL	1 flashing red L-864 light at top; 2 steady-burning L-810 red lights midway

Table 2.1-2. DPV2 Transmission Line Structures with FAA Lighting

Tower Number	Tower Height	FAA Lighting
Tower 2420X	161 feet AGL	1 flashing red L-864 light at top; 2 steady-burning L-810 red lights midway
Devers-Valley Transmission Line		
Desert Hot Springs Area		
Tower 1000	236 feet AGL	1 flashing red L-864 light at top; 2 steady-burning L-810 red lights midway
Banning Area		
Tower 1071	167 feet AGL	1 flashing red L-864 light at top; 2 steady-burning L-810 red lights midway
Tower 1072	125 feet AGL	2 steady-burning red L-810 lights at top
Tower 1073	116 feet AGL	2 steady-burning red L-810 lights at top
Tower 1081	131 feet AGL	2 steady-burning red L-810 lights at top
TOTAL LIGHTED TOWERS: 17		**TOTAL LIGHTS: 44**

Source: SCE, 2012.

Types of FAA Lighting

SCE proposes to use two types of FAA-compliant obstruction lighting: L-810 lights and L-864 lights. The L-810 light is a steady-burning red light with an approximately 360 degree minimum intensity of 32.5 candela. The light fixture is approximately 6 to 12 inches tall and 5 inches in diameter. In some cases, two L-810 light fixtures may be installed together for redundancy.

The L-864 light is a flashing red light with a flash rate of 20 to 40 flashes per minute. It has an approximately 360 degree peak intensity of 2,000 candela, plus or minus 25 percent. The light fixture is approximately 9 inches tall and 14 inches in diameter. Both types of lights would use light emitting diodes rather than incandescent light bulbs to minimize size, weight, and power consumption. The L-810 and L-864 lights have highly focused beacons to minimize light spill outside the desired directions. Light would be directed upwards and outwards toward potential aviation traffic without creating illumination in nearby areas.

For transmission structures that are less than or equal to 150 feet where an FAA determination provides for lighting, the FAA has advised that one or more steady-burning red L-810 lights be installed at the top of transmission structure (FAA, Advisory Circular, AC 70/7460-1K, February 1, 2007). For Project structures meeting these criteria, SCE would install two steady-burning red L-810 lights at the top of each transmission structure. The additional light would be provided for redundancy.

For transmission structures that are greater than 150 feet and less than or equal to 300 feet where an FAA determination provides for lighting, the FAA has advised that one flashing red L-864 light should be installed at the top of the structure, and two steady-burning L-810 red lights should be installed midway up the transmission structure (FAA, Advisory Circular, AC 70/7460-1K, February 1, 2007). For project structures meeting these criteria, SCE would install one single-flashing red L-864 light at the top of each transmission structure and two single steady-burning L-810 red lights midway up the transmission structure.

Power Source for the Lights

SCE proposes to use solar-powered lights. Solar-powered lights would require panels of photovoltaic cells to charge a battery pack that powers the lights. Depending on the lighting requirements, the panels would be either 10 or 12.5 square feet in area and 2 inches deep. The storage battery cabinet would be approximately 40 inches long, 30 inches wide, and 16 inches high. A separate control unit would control the power, battery charging, and on-off cycles of the lights. The control unit may also vary in size, but the largest control unit that would be used would be approximately 18 inches long, 10 inches wide, and 18 inches high. In addition, a separate monitoring and communications system may be needed to provide continuous status monitoring and notification in the event of a lighting malfunction.

The control unit enclosure, communications system enclosure, photovoltaic panels, and storage battery cabinet would all be mounted on metal brackets securely affixed to the transmission structure, approximately 20 feet above ground level. The exact placement of the components would vary depending on tower orientation to optimize the solar charging function.

2.1.3 Maintenance of Marker Balls and Lighting

SCE performs a visual inspection of its transmission lines and transmission structures once a year and performs a comprehensive inspection of its transmission lines and transmission structures once every two years. SCE would incorporate inspection and necessary maintenance for marker balls into these existing transmission line and transmission structure inspections; therefore, no separate vehicle trips or activities would be required. For lighting, SCE proposes to use a notification system that would be integrated into the lighting devices to alert SCE of the need for maintenance or replacement of the lights.

2.2 Project Objectives and Need

The information in this section is provided primarily to support BLM's NEPA requirement to define the purpose and need for its action. CPUC's project objectives are summarized from the EIR/EIS and the 2008 PFM.

2.2.1 CPUC Project Objectives

The original project objectives for the DPV2 project were listed in Section A.2 (Purpose and Need for the Proposed Project) of the DPV2 Final EIR/EIS (CPUC and BLM, 2006). However, in SCE's previous PFM submitted on May 14, 2008, SCE requested modifications to CPUC Decision D.07-01-040 to permit SCE to construct the California portion of DPV2 in advance of any approval to construct the Arizona portion of DPV2. The PFM states that such a modification of the CPUC's decision regarding DPV2 is appropriate in light of the renewable resource potential in and around the California terminus of the DPV2 line, near Blythe, California. Because Arizona did not permit the portion of DPV2 in Arizona, DPV2 would be used to deliver renewable resources located in the Blythe area to California load centers. The PFM also requests authorization to construct the Midpoint Substation (now called Colorado River Substation), near Blythe.

Therefore, the project objectives in the analysis of the PFM to eliminate the Arizona portion were revised from the original DPV2 EIR/EIS. CPUC Decision D.09-11-007, which modifies D.07-01-040, states that SCE sought to access "potential new renewable and conventional gas-fired generation in the Blythe, California area" and the PFM stated that "[s]uch authorization will help enable California to meet its renewable energy goals." The PFM stated that "SCE is committed to constructing the DPV2 facilities in Arizona"

notwithstanding ACC denial, and claimed that phasing the construction "does not change the cost-effectiveness of the DPV2 project. ... DPV2 will still provide net benefits."

SCE's current PFM, submitted on September 5, 2012, confirms the objectives defined in the 2007 decision, stating that the DPV2 project is a

> *critically important high-voltage transmission infrastructure project, the timely completion of which is essential for California's progress towards its aggressive renewable energy goals...Once completed, DPV2 will provide interconnection and electrical transmission for numerous solar energy facilities as well as conventional generation proposed for construction, including nine large-scale solar projects in California and Nevada with a potential output of more than 3,600 megawatts. DPV2 will provide the infrastructure necessary for transmission of this energy to load centers in Los Angeles and San Bernardino Counties.*

SCE submitted its current PFM to address certain structural modifications to proposed towers and conductor spans on DPV2 that SCE has determined to be necessary for consistency with recommendations provided by the FAA with respect to the project's potential effects on aircraft operations. The objectives of the project have not changed as a result of the PFM.

2.2.2 BLM Purpose and Need

As discussed in Section 2.2.1, the original purpose and need for the DPV2 project were listed in Section A.2 (Purpose and Need for the Proposed Project) of the DPV2 Final EIR/EIS (CPUC and BLM, 2006) and in BLM's and U.S. Forest Service's Record of Decision (ROD) for the DPV2 project, published in July 2011.

BLM's ROD states that its purpose and need for the original proposed DPV2 project was to respond to SCE's application under Title V of the Federal Land Policy Management Act (FLPMA) for a ROW grant amendment and special use easement, respectively, to construct, operate, maintain, and decommission a 500 kV transmission line and associated facilities on public lands in compliance with FLPMA, BLM ROW regulations, U.S. Forest Service regulations, and other applicable federal laws.

As discussed in Sections 1.1 and 2, the DPV2 project description changed since the issuance of the Final EIR/EIS in 2006; however, BLM's purpose and need for the project is still applicable. While the DPV2 project will no longer transport electricity produced at generation sites in western Arizona to the SCE service area, the project will transport renewable energy from the Blythe area to population centers in southern California as originally envisioned. SCE's proposed lighting and marker modifications in response to FAA regulations would not change BLM's aforementioned purpose and need.

2.3 BLM NEPA Alternatives Considered But Not Analyzed in Detail

CEQA does not require consideration of alternatives in an Addendum. However, because the project modifications are being evaluated in a joint NEPA/CEQA document, i.e. this EIR Addendum/EA, the following alternatives are presented by the BLM in compliance with NEPA. Alternatives that have been considered but eliminated from detailed analysis in this document include:

- Infrared Lighting
- Radar-Activated Obstruction Lighting
- Tower and Span Modifications

The No Action Alternative is discussed in Section 2.4.

2.3.1 Infrared Lighting

Discussion: Infrared lighting would emit electromagnetic radiation with longer wavelengths than those of visible light, so that the lights on the towers would not be visible to the human eye. In order for infrared lighting to be useful to aviators trying to avoid tower collisions, night vision devices would be have to be used on aircraft, allowing them to see the tower lights in the dark.

Because infrared lights located on the transmission towers would not be visible to the unaided human eye, there would be no operational visual resources impacts with the use of infrared lighting. Birds and bats may be attracted to insects clustered around the infrared lights, which may indirectly increase their potential to collide with the towers.

Infrared lighting technology was used on specific towers for San Diego Gas and Electric Company's Sunrise Powerlink Project, also approved by the CPUC and BLM. However, the infrared lighting was installed in response to aircraft safety requests from the Department of Defense and Homeland Security (Border Patrol), which operate aircraft with night vision technology on board. This technology was not requested by the FAA for collision protection near airports.

Rationale for Elimination: Infrared lighting is not visible to the human eye and night vision devices are not now used in general aviation aircraft. Therefore, use of infrared lighting would not satisfy the FAA's hazard marking requirements and it is not considered further for use on the DPV2 project.

2.3.2 Radar-Activated Obstruction Lighting

Discussion: A new alternative technology, called an Audio Visual Warning System (AVWS), has been developed using radar to activate obstruction lighting. The AVWS radar detects an aircraft approaching the obstruction (e.g., towers and conductor spans). When an aircraft is detected, the obstruction hazard lights automatically switch on and, depending on the technology, an audio warning is sent to the aircraft via radio if it continues to approach. Use of this type of system requires review by FAA and the agency's approval is on a case-by-case basis.

This technology reportedly has been installed on transmission towers in the United States and the FAA is in the process of revising its Advisory Circular on obstruction lighting (AC70/7460-1K, dated 2/2007), which will include use of AVWS-type aircraft detection systems to control lighting. The detection range for the radar activated obstruction lighting systems has not been established. One system, called OCAS™ (Obstruction Collision Avoidance System), employs radar with a detection range of 2.7 miles. The current FAA standard for visibility of L-864 night lighting is 3 miles. The final aircraft detection distance requirement for an AVWS will be established in the revised Advisory Circular, which is expected to be issued in 2013.

Site-specific project information on tower locations and surrounding topography is needed to optimize the number and placement of radars to determine the number of systems needed and, therefore, the cost of the technology. Regardless, any radar-activated obstruction lighting system would be significantly more costly than the proposed standard 'constant on' red hazard lighting. In a conversation with the OCAS™ vendor, the potential cost was stated as being in the "neighborhood" of $200,000 for each system (Mills, 2012). Based on the distance between transmission towers with lights and the aircraft detection distance requirements to activate the lights, it appears that a minimum of three radar systems would be required to control the lighting on the towers near Chiriaco Summit, if 2.7 miles or less is an acceptable detection distance to FAA. If FAA establishes a detection threshold of 3 miles, then a greater number of OCAS™ radars would need to be installed surrounding the transmission line to provide the required coverage.

Although it appears technologically possible to use radar-activated obstruction lighting, the FAA would make the final determination of whether to approve such a system at this location and what aircraft detection threshold it would have to meet. Given that visual impacts, including dark skies impacts, associated with the proposed modifications would not create new or more severe impacts (see analysis in Section 3.3), including in the area around Chiriaco Summit and Joshua Tree National Park, the cost of installation of this technology would be disproportionate to the impacts themselves.

Rationale for Elimination: The existing lighting at Chiriaco Summit and on I-10 is substantially greater than what would be emitted by the more distant tower obstruction lights. Radar-activated obstruction lighting would incur a cost substantially higher than that of the proposed modifications using standard lighting methods. No additional benefits would be achieved to justify the high cost of the technology. Therefore, this alternative has been eliminated from further consideration.

2.3.3 Tower and Span Modifications

Discussion: Under this alternative, SCE would reengineer some or all of the towers and spans such that the shorter towers or spans would not require hazard lighting or marker balls by the FAA. The FAA determines whether a structure poses a hazard to navigable airspace and in those determinations FAA presents advisory guidance on what markers or lighting should be used to ensure that no hazard would exist. As a result of the FAA's aeronautical studies and resulting determinations, SCE has proposed to install 393 marker balls on 50 project spans and 44 lights on 17 towers based on the location of each span and tower (near airports, at road crossings, and at crossings of canyons) as determined by FAA regulations.

As discussed in Section 1.2.1, the FAA regulations establish standards for determining obstructions in navigable airspace, including height limitations on structures taller than 200 feet or within 20,000 feet (approximately 3.8 miles) of an airport. (14 Code of Federal Regulations [CFR], part 77). However, the FAA's recommendations on marking and lighting may vary based on terrain features, weather patterns, and geographic location, and, depending on the hazard potential, may result in a recommendation for higher standards for increased visibility of towers to ensure safety to air navigation. The marker balls and lights would be installed for the safety of flight crews whose aircraft may cross the DPV2 transmission lines at low levels. Therefore, depending on the FAA hazard determinations, it may not be technically feasible in places to construct the 500 kV line with shorter towers and spans that would not require lighting or marker balls and keep the line above the minimum height from the ground, as required by CPUC General Order (G.O.) 95.

Rationale for Elimination: The replacement of proposed towers with shorter towers and spans would likely result in a greater number of structures required. A greater number of structures would affect the length and intensity of short-term construction impacts and ground disturbance, increasing impacts in air quality, noise, transportation and traffic, hazardous materials related to environmental contamination, and geologic resources related to soil erosion. The potential to disturb unknown cultural resources and impact vegetation and wildlife is also increased with more ground disturbance. Increased disturbance and removal of vegetation could increase the chance of noxious weed introduction as well as the removal of more native desert vegetation. In addition to a greater number of structures required, the new DPV2 structures would not match the spans of the existing DPV1 structures, thereby creating greater operational visual impacts as well. Due to potential technical feasibility issues constructing shorter unmarked towers and spans in compliance with G.O. 95 and greater potential environmental impacts, this alternative has not been considered further.

2.4 BLM NEPA No Action Alternative

As discussed in Section 2.3, CEQA does not require the evaluation of a No Project Alternative in an addendum. NEPA, however, requires evaluation of a No Action Alternative in an EA in order for decision-makers to compare the impacts of approving the project with the impacts of not approving the project. Therefore this EIR Addendum/EA contains a No Action Alternative scenario, which is the circumstance under which the Proposed Project does not proceed (NEPA 40 C.F.R. 1502.14(c)). The analysis of the No Action Alternative compares the environmental effects of the property remaining in its existing state, against environmental effects which would occur if the proposed modifications are approved.

Here, under existing conditions, the DPV2 would be constructed as approved by the CPUC in its 2006 and 2009 Decisions and BLM in its 2011 ROD, but in order to do so the towers and spans would need to be reengineered such that they would not require lighting or marker balls by the FAA. Thus, the "No Project" analysis compares the environmental effects of constructing the DPV2 project as previously approved against environmental effects which would occur with installation of the proposed modifications. The environmental effects of constructing the DPV2 project as previously approved are described in Section D of the original DPV2 EIR/EIS (CPUC and BLM, 2006).

As discussed in more detail in Sections 1.2.1 and 2, SCE would install the proposed tower lighting and span marker ball modifications in accordance with FAA aircraft safety requirements in order to complete construction of the DPV2 project and provide transmission access to potential future renewable resources in the Blythe area, in order to help enable California to meet its renewable energy goals.

The importance of collision avoidance devices for air safety, such as marker spheres and lights is clear from the history of aircraft collision with transmission lines. As discussed in Section 1.2.1, FAA's recommendations on marking and lighting may vary based on terrain features, weather patterns, and geographic location, and, depending on the hazard potential, may result in a recommendation for higher standards for increased visibility of towers to ensure safety to air navigation. The marker balls and lights would be installed for the safety of flight crews whose aircraft may cross the DPV2 transmission lines at low levels. Therefore, depending on the FAA obstruction height requirements, it may not be technically feasible in places to construct a 500 kV line with shorter towers and spans that would not require lighting or marker balls and keep the line above the minimum height from the ground, as required by CPUC G.O. 95.

Even if it is technically feasible to reengineer the towers and spans as not to require lighting or marker balls, shorter towers and spans would likely result in a greater number of structures required. A greater number of structures would affect the length and intensity of short-term construction impacts and ground disturbance, increasing impacts in air quality, noise, transportation and traffic, hazardous materials related to environmental contamination, and geologic resources related to soil erosion. The potential to disturb unknown cultural resources and impact vegetation and wildlife is also increased with more ground disturbance. Increased disturbance and removal of vegetation could increase the chance of noxious weed introduction as well as the removal of more native desert vegetation. In addition to a greater number of structures required, the new DPV2 structures would not match the spans of the existing DPV1 structures, thereby creating greater operational visual impacts as well. Due to technical feasibility issues constructing shorter unmarked towers and spans in compliance with G.O. 95 and greater potential environmental impacts, the No Action Alternative is not considered to be preferred to installation of the proposed tower lights and span marker balls modifications.

3. Environmental Analysis

3.1 Introduction to Environmental Analysis

Pursuant to CEQA Guidelines §15164 and NEPA 40 CFR §1502.9(c)(1), the purpose of this EIR Addendum/EA is to document proposed modifications to the approved project and the impacts of those modifications. This EIR Addendum/EA is limited to describing the types of impacts/mitigations that would be associated with installation and operation of red tower lighting and marker balls on spans, as required by the FAA. The modifications and associated impacts are identified under each environmental discipline in this EIR Addendum/EA for the benefit of decision-makers and the public. Mitigation measures from the DPV2 Final EIR/EIS that would apply to these impacts are also listed.

Section D of the DPV2 Final EIR/EIS identified Significance Criteria for evaluating project impacts to each issue area, and evaluated potential project impacts in terms of those criteria. Impacts are classified as Class I (significant, cannot be mitigated to a level that is less than significant), Class II (significant, can be mitigated to a level that is less than significant), Class III (adverse, but less than significant), and Class IV (beneficial). This EIR Addendum/EA reviews the significance determinations for each of the potential impacts, identifies any further impacts that may result from implementing the proposed modifications and concludes whether any change to the original determinations are warranted or whether further mitigation would be necessary.

As discussed in this section, this EIR Addendum/EA concludes that construction and operation of the marker balls and tower lighting create no new or more severe impacts; no new mitigation measures would be required to reduce impacts to less than significant levels beyond those presented in the Final EIR/EIS; and that the impact levels presented in the Final EIR/EIS remain unchanged.

Because this document evaluates modification of an approved project, the baseline for analysis of impacts under CEQA will be the previously approved project (*Benton v. Board of Supervisors* (1991) 226 Cal.App.3d 1467.). Under NEPA §1502.2, [w]henever a broad environmental impact statement has been prepared (such as a program or policy statement) and a subsequent statement or environmental assessment is then prepared on an action included within the entire program or policy (such as a site specific action) the subsequent statement or environmental assessment need only summarize the issues discussed in the broader statement and incorporate discussions from the broader statement by reference and shall concentrate on the issues specific to the subsequent action." However, a summary of the environmental setting is included for the decision-makers and public.

3.1.1 Environmental Issues Not Analyzed in this Addendum

This EIR Addendum/EA presents site-specific impact analysis for the addition of tower lighting and marker balls required by the FAA for biological resources, visual resources, noise, air quality and cumulative impacts. The impact analysis for those disciplines is presented in Sections 3.2 through 3.6.

For the remaining environmental disciplines, the impacts associated with construction and operation of the tower lights and marker balls would be less than significant. All relevant mitigation measures from the Final EIR/EIS would apply to construction of these facilities. The addition of marker balls and tower lighting would not result in effects that are more severe under either NEPA or CEQA. Under CEQA these disciplines are not addressed because the impacts would not be "substantially more severe than shown in the previous [DPV2] EIR" (CEQA guidelines §15162(a)(3)(B)). Under NEPA these impacts are not addressed because they would not result in "substantial changes in the proposed action that are rele-

vant to environmental concerns" for these disciplines or "significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts" (40 CFR §1502.9(c)(1)).

Therefore, the following disciplines are not discussed further for impacts related to the installation, operation and maintenance of tower lights and marker balls:

- Land Use
- Wilderness and Recreation
- Agriculture
- Cultural and Paleontological Resources
- Water Resources
- Geology, Mineral Resources and Soils
- Transportation and Traffic
- Public Health and Safety
- Socioeconomics, Services, and Utilities

Impacts related to public lands and land management agencies, including consultation with the U.S. Forest Service and National Park Service, are discussed in Section 4.

3.2 Biological Resources

3.2.1 Methodology

This document evaluates the impacts of SCE's proposed project modifications and considers the independently reviewed published literature on the potential effects of transmission line marker balls and aviation obstruction lighting to birds. Sections D.2.6 (Environmental Impacts and Mitigation Measures for the Proposed Project) and D.2.8 (Alternatives for West of Devers) of the Final EIR/EIS identified 16 potential impacts to biological resources (Impacts B-1 through B-16). It described the biological resources that may be affected by each potential impact, and described SCE's APMs (if any) that may serve to mitigate those impacts. Where appropriate, the Final EIR/EIS specified mitigation measures to supplement the APMS and further mitigate the impacts. This Addendum summarizes the potential impacts and mitigation measures for biological resources as analyzed in the Final EIR/EIS, and describes whether further potential impacts may result from implementing the proposed Project modifications.

3.2.2 Environmental Setting

The DPV2 ROW is located in Riverside County, California. It is generally parallel to Interstate 10 (I-10) between the Colorado River Substation and the Devers Substation. West of Devers Substation, the Devers-Valley ROW continues toward the southwest, across western Riverside County, to the Valley Substation near Menifee. A large portion of the route is located within the Colorado Desert. The most common habitat type in the Colorado Desert is creosote bush scrub. Other habitats include windblown sand fields and dunes, and dry wash woodlands. In the western portion of the ROW, the route crosses urbanized areas, canyons, and foothills of western Riverside County. The desert scrub transitions to chaparral and sage scrub communities in the San Gorgonio Pass area near the cities of Beaumont and Banning. The vegetation, wildlife habitat, and special-status plants and animals of the ROW and surrounding areas are described in the Final EIR/EIS Section D.2.

The proposed marker balls and tower lighting would be located in the following portions of the ROW (Figures 2-1 through 2-6):

- Chiriaco Summit area – Marker balls and aviation obstruction lights;
- Between Chiriaco Summit and Indio – Marker balls only;

- Between the Devers Substation and San Gorgonio Pass – Marker balls at various locations;
- San Gorgonio Pass area – Marker balls and aviation obstruction lights;
- Between San Gorgonio Pass and the Valley Substation - Marker balls at various locations.

3.2.3 Environmental Impacts and Mitigation Measures

Construction Impacts

Construction impacts of the DPV2 project to biological resources were analyzed in the Final EIR/EIS as Impacts B-1 through B-9. These project impacts are summarized below, and the potential impacts of the Proposed Modification are described. SCE would implement all APMs and mitigation measures that are defined in the Final EIR/EIS, all of which have been adopted by the CPUC and BLM.

The proposed installation of marker balls and aviation obstruction lighting would minimally add to the duration of construction, and would not expand the disturbance areas already defined. The lights would be installed during the course of constructing the towers, and the marker balls would be added to the ground wires between towers when they conductors are installed. With the proposed modification to the project, all construction impacts would remain less than significant (Class II), with mitigation adopted by the CPUC and BLM, as concluded in the Final EIR/EIS. Table 3.2-1 summarizes the construction impacts and mitigation measures. These issues are discussed in detail in the Final EIR/EIS Section D.2.6.1 (impacts of construction) and D.2.8.1 (Devers-Valley Alternative).

Table 3.2-1. Construction Impacts and Mitigation: Biological Resources

Impact Title and CEQA Significance	Mitigation
Impact B-1: Construction activities would result in temporary and permanent losses of native vegetation (Class II)	B-1a: Prepare and implement a Habitat Restoration/Compensation Plan.
Impact B-2: Construction activities would result in the introduction invasive non-native or noxious plant species (Class II)	B-1a: Prepare and implement a Habitat Restoration/Compensation Plan. B-2a: Conduct invasive and noxious weed inventory. B-2b: Implement control measures for invasive and noxious weeds.
Impact B-3: Construction activities would create dust that may result in degradation to vegetation (Class III)	None
Impact B-4: Construction activities and increased vehicular traffic on access roads would result in disturbance to wildlife species (Class III)	
Impact B-5: Construction activities during the breeding season would result in a potential loss of nesting birds (Class II)	B-5a: Conduct pre-construction surveys and monitoring for breeding birds.
Impact B-6: Construction activities would result in indirect or direct loss of listed plants (Class II)	B-6a: Develop a transplanting plan.

Table 3.2-1. Construction Impacts and Mitigation: Biological Resources

Impact Title and CEQA Significance	Mitigation
Impact B-7: Construction activities would result in indirect or direct loss of listed wildlife or habitat (Class II and Class III)	B-1a: Prepare and implement a Habitat Restoration/Compensation Plan. B-5a: Conduct pre-construction surveys and monitoring for breeding birds. B-7a: Avoid Colorado River. [Not applicable for the approved project because no construction will occur within portions of the Colorado River or flowing tributaries of the river.] B-7b: Conduct pre-construction tortoise surveys. B-7c: Purchase mitigation lands for impacts to tortoise habitat. B-7d: Purchase mitigation lands for impacts to fringe-toed lizard habitat. B-7e: Conduct focused surveys for California gnatcatchers. B-7f: Conduct focused surveys for Stephens' kangaroo rat and San Bernardino kangaroo rat
Impact B-8: Construction activities would result in indirect or direct loss of individuals, or a direct loss of habitat for sensitive plants (Class III)	B-8a Conduct surveys for listed plant species.
Impact B-9: Construction activities would result in indirect or direct loss of individuals, or a direct loss of habitat for sensitive wildlife (Class II and Class III)	B-1a: Prepare and implement a Habitat Restoration/Compensation Plan. B-5a: Conduct pre-construction surveys and monitoring for breeding birds. B-9a: Conduct pre-construction surveys. B-9b: Conduct biological monitoring B-9c: Implement a Worker Environmental Awareness Program. B-9d: Conduct pre-construction reptile surveys. B-9e: Conduct pre-construction surveys and owl relocation. B-9f: Perform construction outside of breeding and lambing period. B-9g: Conduct pre-construction surveys and relocation for American badger. B-9h: Conduct pre-construction surveys for roosting bats. B-9i: Schedule construction when the Coachella Valley round-tailed squirrel is dormant.
Impact B-10: Construction activities would result in adverse effects to Jurisdictional Waters and Wetlands (Class II and Class III)	B-1a: Prepare and implement a Habitat Restoration/Compensation Plan.
Impact B-11: Construction activities would result in adverse effects to the movement of fish, wildlife movement corridors, or native wildlife nursery sites (Class II)	B-9f: Perform construction outside of breeding and lambing period. B-9h: Conduct pre-construction surveys for roosting bats.
Impact B-12: Construction activities would result in adverse effects to linkages and wildlife movement corridors (Class III)	None

Table 3.2-1. Construction Impacts and Mitigation: Biological Resources

Impact Title and CEQA Significance	Mitigation
Impact B-13: Construction activities may conflict with local policies or ordinances protecting biological resources (Class II and Class III)	B-7b: Conduct pre-construction tortoise surveys. B-7c: Purchase mitigation lands for impacts to tortoise habitat. B-7d: Purchase mitigation lands for impacts to fringe-toed lizard habitat. B-9f: Perform construction outside of breeding and lambing period. B-9i: Schedule construction when the Coachella Valley round-tailed squirrel is dormant. B-13a: Demonstrate compliance with the Western Riverside County MSHCP. SCE shall provide documentation that it has complied with the provisions of the MSHCP. B-13b: Implement the Best Management Practices required by the Western Riverside County MSHCP. SCE shall provide documentation that is has implemented the Best Management Practices set forth in Appendix C of the Western Riverside MSCHP.
Impact B-18: The Project would result in disturbance to Management Indicator Species (on National Forest Lands; Class II and Class III)	B-5a: Conduct Pre-construction Surveys and Monitoring for Breeding Birds B-18a: No Activities in Riparian Conservation Areas.

Operational Impacts

This section addresses the operational impacts of the proposed marker balls and aviation obstruction lighting for biological resources.

Impact B-14: Operation of the transmission line may result in electrocution of listed or protected bird species (Class III)

Large birds such as raptors and herons may be susceptible to electrocution when a bird simultaneously contacts two energized phase conductors or an energized conductor and grounded hardware (Section D.2.6 of the Final EIR/EIS). The design characteristics of transmission poles are a major factor in electrocutions, because of insufficient clearance between these elements. The majority of raptor electrocutions are caused by lines that are energized at voltage levels between 1 kV and 69 kV due to lower clearance distances between lower voltage conductors. Due to the approved DPV2 Project's design requirements for high voltage transmission, this potential impact would be less than significant and no mitigation was required (Class III) in the DPV2 EIR.

The proposed installation of marker balls and aviation obstruction lighting would not affect potential for electrocution of the transmission line. The marker balls would be on non-energized ground wires and the lights would be enclosed and grounded. Neither would pose an electrocution risk. With the proposed modification, this impact would remain Class III as concluded in the Final EIR/EIS. No additional mitigation would be necessary.

Impact B-15: Operation of the transmission line may result in collisions by listed bird species (Class II)

The Final EIR/EIS analyzed potential bird collisions with project facilities in Section D.2.6. It did not distinguish collisions with transmission lines from collisions with other components (i.e., transmission structures). Bird collisions with power lines generally occur when: (1) a power line or other aerial structure transects a daily flight path used by a concentration of birds, and (2) migrants are traveling at reduced altitudes and encounter tall structures in their path (Brown, 1993). Collision rates generally increase in low light conditions, during inclement weather, such as rain or snow, during strong winds, and during panic flushes when birds are startled by a disturbance or are fleeing from danger. Collisions are more

probable near wetlands, valleys that are bisected by power lines, and within narrow passes where power lines run perpendicular to flight paths. Songbirds) and waterfowl collide with wires (APLIC, 1994), particularly during nocturnal migrations or poor weather conditions (Avery et al., 1978). However, these species have lower potential for collisions than larger birds such as raptors. Some behavioral factors contribute to a lower collision mortality rate for these birds. Passerines and waterfowl tend to fly under power lines, as opposed to larger species, which generally fly over the lines and risk colliding with the higher static lines, and many smaller birds tend to reduce their flight activity during poor weather. It is generally expected that collision mortality would be greatest where the movements of susceptible species are the greatest such as along waterways or over adjacent agricultural areas. During operations, the approved DPV2 Project may cause mortality of listed or sensitive bird species and this would be a significant impact (Class II). Mitigation Measure B-15a (Utilize collision-reducing techniques in installation of transmission lines) would minimize the potential for collisions by listed and sensitive birds such that impacts would be reduced to a less than significant level.

The proposed modifications to the approved DPV2 Project have the potential to alter risk of bird collisions with Project structures and conductors.

Marker Balls

Several studies have examined the effect of marking transmission lines on bird behavior and collision rates.

- **Morkill and Anderson** (1991) evaluated the effectiveness of marking power lines to reduce sandhill crane (*Grus canadensis*) collisions. The authors evaluated behavioral response and crane mortality rates at marked and unmarked lines in Nebraska. This study documented no difference in the number of cranes flying over marked and unmarked spans and found that cranes increased altitude more and tended to react at a greater distance to marked lines. In contrast, "flare reactions" (sudden changes in altitude or direction) were more common over unmarked spans. Additionally, a greater number of fatalities were recorded near unmarked spans.
- **Saverno et al.** (1996) evaluated bird behavior and mortality at power lines in coastal South Carolina and determined that birds changed behavior more frequently when approaching marked lines at line level and that collision rates were 53 percent lower at the lines with yellow marker balls than at unmarked lines with similar characteristics.

No negative effects of marker balls were documented in the Morkill or Saverno studies.

Other types of transmission line markers designed specifically to minimize bird collision risk have also been evaluated , although there are relatively few well-designed, peer-reviewed studies (e.g., Barrientos et al., 2012; Murphy et al., 2009; Jenkins et al., 2012; Brown and Drewien, 1995; Crowder, 2000; Yee, 2008). Although none of these markers directly resemble the FAA marker balls identified by the proposed modification, they are conceptually similar in that they increase visibility of the line, and studies have generally supported the conclusion that marking power lines reduces the overall number of bird collisions (Barrientos et al., 2012; Jenkins et al., 2010).

Barrientos et al. (2012) conducted the largest field study to date investigating the effectiveness of wire marking in reducing collisions, and the role of power line type (transmission vs. distribution) and spiral marker size on effectiveness. Their results are consistent with previous studies: wire marking reduces, but does not eliminate, bird collisions with power lines. No influence of either marker size or power line type on collision rate was found for birds when analyzed as a whole, although mortality of great bustard

(a large Eurasian species) was slightly lower when lines were marked with large spirals and in marked transmission lines (Barrientos et al., 2012).

The literature suggests the addition of marker balls would reduce, but not eliminate, the potential for daytime collisions along spans that are outfitted with marker balls because the markers would increase visibility of the lines to birds. The installation, operation, and maintenance of marker balls would not substantially alter the severity of effects or affect the determinations on biological resources identified in the Final EIR/EIS.

Aviation Obstruction Lighting

Lighting on towers can disorient and attract birds migrating at night or during inclement weather when visibility is low (Evans et al., 2007; Manville, 2009; Longcore et al., 2012). Birds migrating in natural night lighting see only moonlight and starlight as consistent light sources, and use these as navigational aids during clear weather. Modern lighting has greatly altered the night environment. Little is known about how this light affects migrating birds.

In North America, bird mortality has been documented at tall communication towers outfitted with aviation obstruction lighting since the mid-twentieth century (Evans et al., 2007). Several studies have examined avian collision rates at towers outfitted with different types of lighting (flashing versus steady burning, colored versus white, etc.) (Kerlinger et al., 2000; Longcore et al., 2008; Gehring et al., 2009; Manville, 2009). Generally, there are fewer mortalities at towers with flashing lights than steady burning lights, and fewer mortalities at towers with red lights than white incandescent lights (although some studies have shown reduced mortality with white strobe lights compared with red steady burning and flashing lights) (Kerlinger et al., 2000; Manville, 2005; Longcore et al., 2008; Gehring et al., 2009). Cloud cover and visibility may affect likelihood of birds striking lighted towers. Birds have long been observed to aggregate in flight around isolated bright light sources during nights with low visibility.

Evans et al. (2007) found that flashing lights or steady-burning red aviation obstruction beacons are less likely to produce bird aggregation during inclement weather. These results are somewhat contrary to other research. On cloudy nights birds can orient using magnetoreception (i.e., sensing the earth's magnetic field) instead of visual navigation (Evans et al., 2007). As one potential explanation, Evans et al. hypothesized that the disorientation to red light only occurs when birds are navigating with magnetoreception. If ambient light levels were too low at ground level during the study to enable magnetoreception, then the red lights would not have interfered with that process to cause the aggregation that has been documented at red lights on communication towers in numerous other studies (Evans et al., 2007).

Studies of bird collisions with lighted towers have primarily focused on communication towers (e.g., Erickson et al., 2005; Gehrig et al., 2009) rather than transmission line structures. Longcore et al. (2012) estimated that 6.8 million birds are killed each year at communication towers in the United States and Canada. The majority (71 percent) of the mortality is attributed to the tallest 1.9 percent of towers (≥ 984 feet [300 meters] in height); while shorter towers (197-492 feet [60-150 meters]) accounted for 17 percent of mortality despite comprising the vast majority of the towers in the analysis (Longcore et al., 2012). Communication towers are likely to pose a greater risk to birds than transmission towers because (1) they are often considerably taller and therefore more likely to intersect the flight paths of migrating birds and (2) communication towers, especially taller towers, often are supported by guy wires. Guy wires are essentially invisible to birds under many conditions and pose a large risk of collision to birds that aggregate at lighted communication towers, as guy wires occupy far more airspace than the towers themselves (Longcore et al., 2008). Communication towers typically range from 199 feet above ground level to 2,000 feet (Manville, 2009). The approved DPV2 transmission towers are generally about 140

feet to 250 feet tall (Final EIR/EIS Section B, figures B-8 through B-11). Studies of communication towers have consistently found a higher level of mortality at taller towers than at towers that are comparable in height to the approved project towers (Erickson et al., 2005; Manville, 2005; Longcore et al., 2008; Gehrig et al., 2009; Longcore et al., 2012). Further, the DPV2 transmission structures do not have guy wires.

In conclusion, the tallest guyed towers have consistently been associated with the highest levels of bird mortality, while the transmission towers proposed to be outfitted with aviation obstruction lighting are comparable in height to the shortest communication towers which have generally been associated with little to no known fatalities. Therefore, the risk to birds from the addition of aviation obstruction lighting would be slightly, but not substantially greater than the collision risk as analyzed in the Final EIR/EIS. Installation, operation, and maintenance of aviation lighting would not result in a new significant effect or substantially increase the severity of significant effects previously identified or affect the determinations on biological resources identified in the Final EIR/EIS and no additional mitigation is required.

Conclusion. Overall, the proposed installation of marker balls and aviation obstruction lighting would not significantly affect potential for bird collisions with the transmission line or towers. The proposed marker balls are expected to reduce the risk of bird collisions with segments of the transmission line where they are installed. The proposed aviation obstruction lighting is expected to slightly, but not significantly, increase risk of bird collision with the few transmission towers where they are installed. However, the marker balls would be installed on many more segments of the transmission line than would the aviation lighting. Therefore, the proposed modifications would result in net reduction in bird collision risk with the DPV2 conductors and towers. With the proposed modification, this impact would remain less than significant (Class II) as concluded in the Final EIR/EIS. Implementation of Mitigation Measure B-15a adopted by CPUC and BLM would reduce the severity of potential impacts and no additional mitigation would be necessary.

One mitigation measure is presented for Impact B-15(Operation of the transmission line may result in line collisions by listed bird species): Mitigation Measure B-15a, Utilize collision-reducing techniques in installation of transmission lines. The introduction of marker balls and lights to some parts of the project would not involve new significant environmental effects or a substantial increase in the severity of previously identified significant effects.

Impact B-16: Operation of the transmission line may result in increased predation of listed and sensitive wildlife species by ravens that nest on transmission towers (Class II)

Common ravens nest on transmission towers and they are opportunistic scavengers and predators, feeding upon any available food including carrion, food waste, and native wildlife species in the vicinity of perching and nesting sites including sensitive species and juvenile desert tortoises. The approved DPV2 Project's transmission towers will provide new nesting or perching sites for common ravens. APM B-20 states that:

> *all transmission lines should be designed in a manner that would reduce the likelihood of nesting by common ravens. Each transmission line company should remove any common raven nests that are found on its structures. Transmission line companies must obtain a permit from USFWS Division of Migratory Birds to "take" common ravens or their nests.*

This APM will reduce potential predation by common ravens on listed and sensitive wildlife species. However, the impacts may still remain significant (Class II) if SCE does not check the towers and remove

nests on a regular basis. Mitigation Measure B-16a (Prepare and implement a raven control plan) will minimize the impacts of ravens on listed and sensitive wildlife species to less than significant levels.

The proposed installation of marker balls and aviation obstruction lighting would not affect the DPV2 project's potential to provide food or water subsidies to common ravens, the potential for ravens to nest or perch on the transmission line or towers, or the potential to provide new perch or nest sites for common ravens on or among the lighting fixtures, solar panels, electrical boxes, and other lighting components. This potential effect would be less than significant and would not cause substantially more severe impacts than those described and analyzed in the Final EIR/EIS. With the proposed modification, this impact would remain Class II as concluded in the Final EIR/EIS. Implementation of Mitigation Measure B-16a adopted by CPUC and BLM would minimize the potential for raven perching or nesting on transmission towers through the monitoring, prevention and control measures to be implemented by SCE according to the Raven Control Plan. The adopted mitigation would reduce the severity of potential impacts and no additional mitigation would be necessary.

One mitigation was presented in the Final EIR/EIS for Impact B-16: Mitigation Measure B-16a (Prepare and implement a raven control plan).

Impact B-17: Wildlife mortality resulting from traffic on access roads (Class III)

Operation of the approved DPV2 Project will require vehicle and equipment access on the primary project access roads and spur roads for facilities maintenance throughout the life of the project. These activities will take place at about the same frequency as for the existing adjacent DPV1 transmission line. SCE has indicated that vehicle speeds would be limited to a maximum of 25 mph in desert tortoise habitat (APM B-29). With this APM, the combined hazard vehicle hazard to wildlife of the two projects will be similar to baseline conditions (i.e., operations and maintenance of the DPV1 transmission line). Expected wildlife mortality will be adverse but not significant and no mitigation would be required (Class III).

The marker balls would necessitate periodic inspection and maintenance, to be completed on the Project's regular maintenance schedule (Section 1.2.3, Maintenance of Marker Balls and Lighting). For the proposed aviation obstruction lighting, SCE proposes to use a notification system that would be integrated into the lighting devices to alert SCE of the need for maintenance or replacement of the lights. Although the lights would be long-lived LED lights requiring little maintenance, the proposed modification may necessitate some vehicle trips for maintenance of the lighting and electrical fixtures. These maintenance visits would be limited to the areas where aviation obstruction lighting would be installed (the Chiriaco Summit and San Gorgonio Pass areas) and the number of increased vehicle trips is not likely to be substantial. With the proposed modification, this impact would remain Class III as concluded in the Final EIR/EIS. No additional mitigation would be necessary.

3.3 Visual Resources

3.3.1 Methodology

The FAA-requires safety features were not part of SCE's original project description and were not considered in the original evaluation of project effects on visual resources. Therefore, it is necessary to revisit the earlier characterizations to evaluate whether the addition of these new features would significantly alter the earlier impact conclusions.

The DPV2 EIR/EIS presents in detail the methodologies used to assess visual impacts from the project (DPV2 EIR/EIS page D.3-1ff). These methodologies are summarized here.

On BLM-administered lands, the BLM's Visual Resource Management (VRM) System is used. The system is based on an assessment of scenic quality, viewer sensitivity, and viewing distance zones. The process leads to categorization of an area into one of four VRM Classes (I through IV), each of which has specific management prescriptions.

The objectives of each VRM classification are as follows:

- **VRM Class I.** The objective is to preserve the existing character of the landscape. This class provides for natural ecological changes; however, it does not preclude very limited management activity. The level of change to the characteristic landscape should be very low and must not attract attention.
- **VRM Class II.** The objective is to retain the existing character of the landscape. The level of change to the characteristic landscape should be low. Management activities may be seen but should not attract the attention of the casual observer. Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape.
- **VRM Class III.** The objective is to partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate or lower. Management activities may attract attention but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape.
- **VRM Class IV.** The objective is to provide for management activities which require major modification of the existing character of the landscape. The level of change to the characteristic landscape can be high. These management activities may dominate the view and be the major focus of viewer attention. However, every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance, and repeating the basic elements.

Subsequent to the establishment of the applicable VRM Class(es), project consistency with the VRM Class Management Objectives was determined based on the use of the VRM Contrast Rating process set forth in BLM Handbook H-8431-1. Key Viewpoints (KVPs) (commonly referred to as Key Observation Points (KOPs) under the BLM methodology) were established and analyzed as part of the DPV2 EIS process. Among the KVPs established during the EIS process were two in the vicinity of Chiriaco Summit: KVP 11 on eastbound I-10 approximately 0,9 miles west of Hayfield Road and KVP 12 on southbound Cottonwood Springs Road just south of the entrance to Joshua Tree National Park. However, these KVPs do not cover the location of the marker balls and lights in the Chiriaco Summit area. Therefore, two additional KVPs were established to analyze the Chiriaco Summit area. The locations of these KVPs are shown in Figure 3-1.

Non-BLM administered lands are evaluated using a Visual Sensitivity-Visual Change Methodology. In this approach, Key Viewpoint (KVP) locations are established to assess the various factors that are considered in the evaluation of a landscape's existing visual resources. KVPs are representative locations from which the visual analysis is focused and are generally selected to be representative of the most critical locations from which the project would be seen. KVPs often are located in an effort to evaluate existing landscapes and potential impacts on visual resources with various levels of sensitivity, in different landscape types and terrain, and from various vantage points. KVP locations for the project were (1) along major or significant travel corridors or points of visual access; (2) at key vista points; (3) at significant recreation areas; (4) in residential areas; and (5) at locations that provide good examples of the existing visual context.

At each key KVP, the existing landscape is characterized and photographed. Visual quality, viewer concern, and viewer exposure are factors considered. Each of the factors considered in the evaluation of the existing landscape under the Visual Sensitivity–Visual Change Methodology is generally expressed as low,

moderate, or high. These conclusions are used to establish the overall visual sensitivity of the landscape. A landscape with a high degree of visual sensitivity is able to accommodate a lower degree of adverse visual change without resulting in a significant visual impact. Conversely, a landscape with a low degree of visual sensitivity is able to accommodate a higher degree of adverse visual change without resulting in a significant visual impact.

Impact Evaluation Criteria. As stated in the EIR/EIS for the DPV2 project, the factors considered in determining impacts on visual resources typically include:

(1) scenic quality of the project site and vicinity;

(2) available visual access and visibility,

(3)frequency and duration that the landscape is viewed;

(4) viewing distance and degree to which project components would dominate the view of the observer;

(5) resulting contrast of the proposed facilities or activities with existing landscape characteristics;

(6) the extent to which project features or activities would block views of higher value landscape features; and

(7) the level of public interest in the existing landscape characteristics and concern over potential changes.

An *adverse visual impact* occurs within public view when: (1) an action perceptibly changes existing features of the physical environment so that they no longer appear to be characteristic of the subject locality or region; (2) an action introduces new features to the physical environment that are perceptibly uncharacteristic of the region and/or locale; or (3) aesthetic features of the landscape become less visible (e.g., partially or totally blocked from view) or are removed. Changes that seem uncharacteristic are those that appear out of place, discordant, or distracting. The degree of the visual impact depends upon how noticeable the adverse change may be. The noticeability of a visual impact is a function of project features, context, and viewing conditions (angle of view, distance, primary viewing directions, and duration of view).

The criteria used to assess the significance of visual impacts resulting from a project take into consideration the factors described above, as well as federal, State, and local policies and guidelines pertaining to visual resources. Appendix G of the CEQA Guidelines identifies the following four circumstances that can lead to a determination of significant visual impact:

- Project construction or the long-term presence of project components would cause a substantial effect on a scenic vista.
- Project construction or the long-term presence of project components would substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within view of a State Scenic Highway.
- Project construction or the long-term presence of project components would substantially degrade the existing visual character or quality of the site and its surrounding landscape. [Note: Substantial degradation results from high levels of visual contrast, project dominance, and view blockage. Visual contrast relates to spatial characteristics, visual scale, texture, form, line, and color.]

- Project construction or the long-term presence of the Proposed Project would create a new source of substantial light or glare that would adversely affect day or nighttime views in the area or be hazardous to motorists or pedestrians.

Three additional criteria that can lead to a determination of significant visual impact for this project include:

- The presence of the Proposed Project would result in a long-term (greater than three years) inconsistency with established (or interim) BLM VRM Class objectives (applies only to public lands administered by the BLM). This would typically occur where a landscape with a relatively high visual quality and viewer concern is noticeably altered.
- Construction of the Proposed Project or the presence of project components would result in an inconsistency with local regulations, plans, and standards applicable to the protection of visual resources.
- The presence of the Proposed Project would add to a cumulative visual alteration.

It should be noted that the above criteria represent thresholds beyond which a determination of a "significant" impact is likely, although it is not certain due to specific site and viewing circumstances.

Under the **BLM's VRM Methodology**, an adverse visual change was usually considered significant if it resulted in a long-term inconsistency with the applicable VRM Class management objectives. Again, specific site and viewing circumstances may warrant a different outcome.

Under the **Visual Sensitivity–Visual Change Methodology**, the degree of impact significance is generally arrived at as a function of overall visual sensitivity and visual change. Table D.3-7 illustrates the general interrelationship between visual sensitivity and visual change and is used primarily as a consistency check between individual KVP evaluations. Actual parameter determinations (e.g., visual contrast, project dominance, and view blockage) are primarily based on analyst experience and site-specific circumstances.

3.3.2 Environmental Setting

The locations where marker balls and tower lights would be installed across the project are shown on Figures 2-1 through 2-6. For the purposes of field reconnaissance and preliminary review, these marker spans and hazard lights locations were subdivided into geographic areas, as listed in Table 2.3-1. Based on that reconnaissance, the majority of the marker spans (9 of 11) and hazard light locations (4 of 5) were not expected to result in visual impacts substantially different from what was previously determined in the Final EIR/EIS. Table 3.3-1 explains the rationale for not analyzing each of these areas.

The visual impacts in the locations defined in the table below would not be substantially different from what was previously determined in the Final EIR/EIS due primarily to: (1) a lack of structure visibility (poor visual access, brief view durations, structure screening), and/or (2) low-contrast viewing contexts (existing landscape characteristics such as existing facilities and/or landscape backgrounds that would help blend the spans with marker balls with the landscape, or in the case of the red hazard lights, the presence of existing lights).

Table 3.3-1. Explanation of Hazard Marker Balls and Red Hazard Lights Not Analyzed in Detail

Geographic Area	Factors Affecting Lack of Impact	Discussion
HAZARD MARKER BALLS		
West of Chiriaco Summit	• Restricted visibility. • Low-contrast viewing context.	In close-proximity views of the spans from I-10, spans are at 90 degrees off the direction of travel and are partially screened from view by intervening terrain. Views from I-10 tend to be drawn away from the spans toward landscapes south of I-10, including the Coachella Valley (for westbound travelers). Spans are also partially backdropped by higher contrast rocky terrain that would help the marker balls to blend with the landscape.
North of Indio	• Limited viewing opportunity. • Low-contrast viewing context. • Minimal noticeability.	The spans would be visible from northbound Madison Street, eastbound 38th Avenue, and from perimeter residences of the nearby (0.70 mile) Shadow Hills residential development. However, spans are situated in a partially industrial context at the Granite Construction Company mineral extraction facility adjacent to other transmission facilities. Spans are backdropped by higher-contrast rocky terrain that would help the marker balls to blend with the landscape.
Devers Substation	• Limited visibility. • Low-contrast viewing - industrial context.	The span would be visible though not noticeable from Twentynine Palms Highway (SR62), Dillon Road, North Indian Canyon Drive, and Pierson Blvd. The landscape context would be energy industrial due to presence of Devers Substation, converging transmission lines, and numerous wind energy turbines.
Whitewater	• Brief view duration. • Low-contrast viewing.	The span of I-10 would be visible from eastbound and westbound I-10. However, in the context of the numerous wind energy turbines in the immediate vicinity, the hazard marker balls would not be particularly noticeable or substantially increase the visual contrast of the DV2 transmission line. Although the span would be visible from the southern portion of Whitewater Canyon Road, the hazard marker balls would not draw the attention of the viewer given the substantial presence of numerous structures in the landscape (transmission lines, utility poles, and wind energy turbines), which would minimize any noticeable contrast associated with the hazard marker balls.
Cabazon	• Limited close-proximity viewing. • Low-contrast viewing context.	The spans descending the foothills of the San Jacinto Mountains into Cabazon would have limited close-proximity viewing from the nearby (0.35 mile) Cabazon residential area. Spans would be backdropped by high contrast rocky slopes, which would help the marker hazard balls blend with background, thereby substantially reducing their noticeability. The hazard marker balls would not be substantially noticeable in the more distant (1.65 miles) views from I-10.
Cabazon to Banning	• Limited close-proximity viewing. • Low-contrast viewing context.	The spans crossing the foothills of the San Jacinto Mountains between Cabazon and Banning would have limited close-proximity viewing from nearby (0.6 mile) Cabazon residences and Banning local roads. Spans would be backdropped by high contrast rocky slopes, which would help the hazard marker balls blend with background, thereby substantially reducing their noticeability. The hazard marker balls would not be substantially noticeable in the more distant (1.25 – 1.5 miles) views from I-10.
Banning to Beaumont	• Limited close-proximity viewing. • Low-contrast viewing context.	The span crossing the foothills of the San Jacinto Mountains between Banning and Beaumont would have limited close-proximity viewing from nearby (0.4 mile) residences and Banning local roads. The span would be backdropped by high contrast rocky slopes, which would help the hazard marker balls blend with background, thereby substantially reducing their noticeability. The hazard marker balls would not be substantially noticeable in the more distant (1.25 miles) views from I-10.

Table 3.3-1. Explanation of Hazard Marker Balls and Red Hazard Lights Not Analyzed in Detail

Geographic Area	Factors Affecting Lack of Impact	Discussion
Beaumont to SR-79	• Low-contrast viewing context.	The spans crossing the foothills of the San Jacinto Mountains south of Beaumont would be backdropped by foothill terrain, which would reduce noticeability of the hazard marker balls to nearby (0.10 – 0.20 mile) residential viewers. The hazard marker balls would also be seen in the context of the two transmission lines (DV1 and DV2). Although the span over SR-79 would be slightly more noticeable with the addition of the hazard marker balls, the visual contrast and visual change associated with the DV2 transmission line (previously documented) would not be substantially affected by their addition.
SR-70 to Gilman Springs Road	• Limited viewing opportunity.	The spans in the foothills and badlands between Beaumont and San Jacinto Valley (Gilman Springs Road) have very limited public visibility. Most views from SR-79 (Beaumont Avenue) toward the transmission line (0.4 mile to 1.2 miles distant) are screened by intervening terrain. The southern-most span (1113-1114) would be visible from Gilman Springs Road, but the hazard marker balls would be partially backdropped by terrain, which would reduce any noticeable visual contrast. Also, views along Gilman Springs Road tend to be drawn to the south, across San Jacinto Valley, away from the span.
Ramona Expressway to Homeland	• Somewhat limited close-proximity viewing. • Reduced-contrast viewing context.	The spans crossing the Lakeview Mountains between San Jacinto Valley and the Homeland area are located in fairly rugged terrain with intermittent visibility of the spans from surrounding public viewpoints. In some cases, the spans would be partially backdropped by terrain; thus, reducing visual contrast associated with the hazard marker balls. In other viewing circumstances, the spans would skyline (extend above the horizon). Most public viewing opportunities (from residences and paved public roads) would range in distance from 0.5 mile to 1.25 miles, except for the span of the Ramona Expressway. In all cases, the addition of hazard marker balls would not significantly increase the noticeable visual contrast of the DV2 transmission line given the existing structural context of the DV1 transmission structures and conductors. The hazard marker balls would increase the visual impact of the DV2 line, but not significantly so given the existing landscape characteristics and viewing circumstances.
Red Hazard Lights		
North of Indio	• Limited viewing opportunity. • Low-contrast viewing context.	The red hazard lights would be visible from northbound Madison Street, eastbound 38th Avenue, and from perimeter residences of the nearby (0.70 mile) Shadow Hills residential development. However, the structures are situated in close proximity to the Granite Construction Company mineral extraction facility that has other night lights that establish a low-contrast night viewing context.
Devers Substation	• Limited visibility. • Low-contrast night viewing context.	The red hazard light would be visible, though not noticeable, from Twenty-nine Palms Highway (SR62), Dillon Road, North Indian Canyon Drive, and Pierson Blvd. The landscape context includes numerous existing hazard lights on wind energy turbines.
Cabazon to Banning	• Low-contrast night viewing context.	The three hazard lights located in the foothills of the San Jacinto Mountains between Cabazon and Banning would be viewed within a night viewing context that includes numerous other light sources in the Banning area including urban-suburban night lighting, vehicle lights on local roads and I-10, and the four FAA red hazard lights on top of the field lights at Banning High School.

Table 3.3-1. Explanation of Hazard Marker Balls and Red Hazard Lights Not Analyzed in Detail

Geographic Area	Factors Affecting Lack of Impact	Discussion
Banning to Beaumont	• Low-contrast night viewing context.	The single hazard light located in the foothills between Banning and Beaumont would be viewed with a night viewing context that includes numerous other light sources in the Banning-Beaumont area including urban-suburban night lighting, vehicle lights on local roads and I-10, and the four FAA red hazard lights on top of the field lights at Banning High School.

For marker ball spans, two areas of visual concern were identified (1) Chiriaco Summit to Hayfield Road and (2) Snow Creek Village-Pacific Crest Trail. For tower obstruction hazard lights, the Chiriaco Summit to Hayfield Road area was identified as an area of visual concern as well.

Daylight views are relevant to the proposed installation of marker balls. During the day, various colors, hues, shadows, and textures present in the landscape are visible and contribute to the scene being observed. Typically, these circumstances help an introduced feature (such as a marker ball) blend into the landscape and be less noticeable than when seen in isolation. In addition, in a varied, sunlit landscape, the eye is attracted to a multitude of elements, reducing the dominance of any one element.

Nighttime conditions and relevant to the proposed installation of hazard lights and include the night sky and any existing illumination already visible in the vicinity. Landscape color variety, texture and, contrast are greatly reduced or absent due to conditions of semi- or total darkness.

At its closest, the Joshua Tree National Park (JTNP) boundary is approximately 1.3 miles north of the DPV2 transmission line in the Chiriaco Summit to Hayfield Road area. The park is noted for its dark skies, which are largely free from the light pollution present in much of southern California. The park's remote location has ensured minimal light pollution; that and clear desert air make it a popular star-gazing destination, so much so that the park has established a night sky program to accommodate visitors. As a result, the potential effect of proposed new night lighting in the region is a major concern for the park. The darkest area in JTNP is in the Pinto Wells area, approximately 16 miles north of Desert Springs and approximately 24 miles northeast of the tower lights proposed in the Chiriaco Summit to Hayfield Road area. The Pinto Wells area is not within the viewshed of the towers; the line of sight between the two locations is blocked by intervening mountains.

Marker Ball Spans

The two areas where marker ball installation is of visual concern are:

- **Chiriaco Summit to Hayfield Road (marker balls)**. This area is within BLM VRM Class III. This segment of the transmission project is located approximately 0.5 to 0.75 mile south of Interstate 10, between Chiriaco Summit and Hayfield Road. From the highway, these foreground spans are partially back dropped by both lighter, even-tone sky (skylined spans) and coarser, high-contrast, rocky slopes. A total of 48 marker balls would be installed on 11 spans in this area. The number of balls installed per span would range from 4 to 9, depending on the length of the span.
- **Snow Creek Village/Pacific Crest Trail (PCT) (marker balls).** This area is within BLM VRM Class II. A group of five marker spans ascends the northern flank of Mt. San Jacinto, approximately 0.7 to 1.25 miles west of the Snow Creek Village residential community and approximately 0.5 to 0.75 mile west of the Pacific Crest Trail. These foreground to middleground spans are partially back dropped by both lighter, even-tone sky (skylined spans) and coarser, high-contrast rocky slopes.

Hazard Lights

The area where new hazard lights are of concern is between Chiriaco Summit and Hayfield Road. This area is BLM VRM Class III, as documented in Appendix 1 (Visual Contrast Data Rating Sheet). Eleven of 17 project towers in this area require lights. Seven of the towers would be topped with L-864 flashing lights; 4 towers would be topped with L-810 steady glowing lights. On taller towers, L-810 lights also would be installed partway down the tower sides. A total of 7 L-864 and 22 L-810 lights would be installed overall.

The DPV1 and DPV2 transmission lines in this area are approximately 0.5 to 0.7 mile south of I-10, at the foot of the Orocopia Mountains and Wilderness to the south of the JTNP. A cluster of street, service area, and building lights is present at Chiriaco Summit, which hosts a gas station, tourist services, and other facilities. Other lights along this portion of the transmission line route are automobile and truck lights on I-10, which are visible as a long narrow ribbon of red or white lights, winding through what is otherwise a dark night landscape.

I-10 is a major east-west highway through southern California. Caltrans traffic count data for I-10 are available only at Blythe and Indio, which bracket the JTNP area. The data from Blythe were collected on I-10 at the airport west of the city. There are few populated areas where people might exit the highway between Blythe and the Chiriaco Summit; therefore, these data are taken to be representative of typical night traffic in the Chiriaco Summit vicinity as well. Table 2.3-2 lists selected traffic counts by night hour on different days and in different seasons. The traffic counts are for westbound traffic only. From 6 pm to midnight, hourly westbound traffic ranges from 534 to 223 vehicles per hour. Assuming an approximately similar eastbound volume of traffic, total volume in this period would range from approximately 450 to 1,100 vehicles per hour (7.5 to 18 vehicles per minute). After midnight traffic volume drops off, picking up again in the 5 a.m. hour. Westbound night traffic volumes over 300 vehicles per hour (average 5 per minute westbound) are shown in bold. If one assumes an approximately similar level of eastbound traffic, the numbers would essentially double.

Table 2.3-2. Average Westbound Hourly Night Traffic – I-10 at Mesa Drive, Blythe, CA

Hour Ending	Winter Weekday	Winter Weekend	Spring Weekday	Spring Weekend	Summer Weekday	Summer Weekend	Fall Weekday	Fall Weekend
7 pm	**447**	**487**	**483**	**537**	**552**	**544**	**514**	**534**
8 pm	**403**	**393**	**422**	**457**	**486**	**474**	**455**	**472**
9 pm	**361**	**342**	**407**	**384**	**456**	**422**	**438**	**410**
10 pm	**329**	**311**	**398**	**343**	**453**	**366**	**419**	**360**
11 pm	243	223	290	259	**338**	286	288	246
12 am	225	176	253	225	267	216	259	192
1 am	210	147	227	176	234	188	210	166
2 am	197	133	214	159	221	173	201	139
3 am	178	115	212	147	207	141	179	123
4 am	173	122	187	137	190	148	173	105
5 am	183	138	181	130	200	154	166	125
6 am	**510**	**314**	**499**	**309**	**490**	**339**	**494**	281

Source: Caltrans, 2012

3.3.3 Environmental Impacts and Mitigation Measures

Construction Impacts

The marker balls and hazard lights would be added to structures previously analyzed for construction and operational impacts, including both short-term visibility of construction activities, equipment and night lighting and long-term visibility of land scarring in arid and semi-arid landscapes. These impacts are unchanged by the addition of the proposed safety features. The marker balls and hazard lights would be installed during the overall construction process and would not increase any construction-period visual impacts.

Operational Impacts

The presence of the transmission line will result in visual impacts during the long-term operation of the project. Long-term, operational visual impacts would be experienced by travelers on I-10 and on local roads, residents, and recreationists accessing JTNP, the Pacific Crest Trail, and BLM-administered public lands in the region. The addition of marker balls and hazard lights at various locations would increase the visibility of the transmission at those locations. For marker balls, this would be mostly a foreground and foreground/middleground change; the balls are 36 inches in diameter and would not be visually dominant at greater distances. As the transmission line nears completion and during its operation, the line will be highly visible from locations adjacent to it. This would continue to be the case with the introduction of marker balls and hazard lights. However, two previously analyzed areas of operational impacts would be affected, as described below.

Impact V-16: Increased structure contrast, view blockage, and skylining when viewing the Orocopia Mountains from Key Viewpoint 11 on Interstate 10 (VRM) (Class III)

The Chiriaco Summit to Hayfield Road portion of the transmission line is located south of I-10 and north of the Orocopia Wilderness. Here a total of 48 marker balls would be installed on 11 spans. The number of marker balls per span would range from 4 to 9 balls, depending on the length of the span. Eleven of 17 project towers requiring lights are in this area. Seven of the 11 towers here would have a higher intensity L-864 flashing light at its top with two lower intensity L-810 steady glowing lights mounted partway down each side of the tower. The other 4 towers would be topped with two lower intensity L-810 steady glowing lights. In all, there would be 7 L-864 lights and 22 L-810 lights. Figure 2-4 shows the location of the marker ball spans and lighted towers in this area.

Marker Balls. Hazard marker balls can create a repeating pattern that can appear prominent and distinctive and cause noticeable visual contrast. The degree of contrast will vary according to background conditions. Higher visual contrast can occur in foreground views of marker balls that are backdropped by lighter conditions. Sky conditions provide even, continuous-tone colors and smooth textured backdrops that lack noticeable inherent variety. These conditions facilitate recognition of the form and color of individual marker balls. Skylined marker spans would introduce noticeable intermittent patterning that would attract a viewer's attention. In contrast, many land surfaces provide mottled-to-coarse and higher contrasting color patterns. Under these circumstances, foreground to background views of marker balls viewed against a land surface background generally would not result in levels of visual contrast that would attract the casual viewer's attention or result in substantial visual impact.

The Final EIR/EIS identified a low-to-moderate level of visual change that would occur along this portion of the route from the project (when considered without marker balls), which would be consistent with the applicable BLM VRM Class III management objectives. VRM Class III requires retention of existing

landscape character, but allows for a moderate or lower degree of visual change. Activities should not dominate the view of the casual observer and changes should repeat the basic elements in the natural features of the characteristic landscape. Adding marker balls to the spans here would elevate the visual change from its current low-to-moderate level to a moderate level, as documented in Appendix 1. This level of change due to adding marker balls would still meet the VRM Class III management objectives. Therefore, the resulting visual impact of the marked spans in this location would not change the impact conclusions presented in the Final EIR/EIS for this route segment – that the impact would be adverse but less than significant (Class III). It would not involve new significant environmental effects or a substantial increase in the severity of previously identified significant effects.

The distance between JTNP's southern boundary and spans where marker balls would be installed ranges from approximately 1.3 to 2 miles. At these distances, the 36-inch balls would be visible but not a dominant element in the viewscape, including views from JTNP.

Hazard Lights. Tower-mounted red hazard lights would create clearly discernible light sources in the night landscape: a constant red glow from the lower intensity L-810 lights and a rhythmic 20 to 40 flashes per minute from the higher intensity L-864 lights. The night landscape differs substantially from what is observed during daylight. At night there is less visible context, and lights are more likely to command attention and be seen as isolated prominent elements in the night landscape. In areas where there is no night lighting, the night landscape can impress the observer with the intensity of the dark. Ridgelines may be faintly discernible depending on the clarity of skies, the brightness of starlight and moonlight, and any faint backlighting cast by distant urbanized areas. The natural dark-night characteristics in an area can be altered with the introduction of lighting, which may appear inconsistent with viewer expectations of the night landscape and can significantly degrade visual quality. Highly visible lights can disrupt views of the nighttime sky and have the potential to be seen for miles if topography and vegetation do not intervene to block the light. The visual effects of lighted structures can extend through dusk and dawn becoming a part of sunset and sunrise views.

FAA-required hazard lighting is intended to draw a pilot's attention to an obstruction by clearly marking its location in contrast with its surroundings. In terms of value, red lights exhibit less contrast with the night sky than white lights; however, they differ markedly from the subtle colors typically observed in the night landscape. Lights can be visually prominent and have a substantial impact on the visual integrity of the night landscape. Although spaced, the presence of a sequence of red lights identifies the presence of development and can imply the loss of remoteness. The introduction of lighting can alter the perception on the part of the viewer of the surrounding landscape, which can represent a visual impact if that change is perceived as a negative.

To analyze the effect of new night lighting, photographs were taken from two viewpoints. The photographs are of existing night and day conditions in the Chiriaco Summit to Hayfield Road area. Simulations showing night conditions with the hazard lights in operation were prepared from the two viewpoints, as described below. Figure 3-1 indicates the locations of the key viewpoints.

Viewpoint 1 is located near the southern boundary of Joshua Tree National Park, approximately 3.8 miles northeast of the Summit interchange on I-10. This location is approximately 3 miles north of the DPV2 route segment, 1.3 miles northwest of Hayfield Road, and 2.3 miles north-northwest of the Hayfield Road interchange on I-10. Figure 3-1A presents an existing daytime view from Viewpoint 1 looking southwest. The view captures the western portion of Chuckwalla Valley between Chiriaco Summit and Hayfield Road and the portion of the DPV2 route segment (Structures (2409 to 2418) that would traverse the northern flanks of the Orocopia Mountains, south of I-10. Figure 3-1B presents an existing night view of the same area and captures existing light sources that are visible from Viewpoint 1

including vehicle lights along I-10, roadside signage, construction lighting, and the red FAA hazard light on top of a telecommunication tower at Chiriaco Summit, which is approximately 3.65 miles southwest of Viewpoint 1.

Figure 3-1C presents a night visual simulation showing FAA hazard lights added to the DPV2 structures located between Chiriaco Summit and Hayfield Road, parallel to and approximately 0.67 mile south of I-10. Nine lighted structures are visible in the Viewpoint 1 field of view presented in Figure 3-1C. From right to left in Figure 3-1C, Structure 2409 would have three visible lights. Structure 2410 would have two visible lights. Structure 2411 would not be visible because it is screened from view by terrain. Structure 2412 would have three visible lights. Structure 2413 would have one visible light because the two mid-tower lights would be screened from view by an intervening ridge. Structure 2414 would have three visible lights. Structures 2415XX, 2416, and 2417X would have two visible lights, and Structure 2418 would have three visible lights. Structures 2410, 2415XX, 2416, and 2417 would have two visible lights, and Structure 2413 would have three visible lights.

Viewpoint 2 is located near the southern boundary of Joshua Tree National Park, approximately .67 miles north of the Summit interchange and 1.5 miles north-northwest of the DPV2 route segment.

Figure 3-1D presents an existing daytime view from Viewpoint 2 looking southeast. This southeasterly view toward the DPV2 route and the Orocopia Mountains also captures the service facilities and telecommunication tower at Chiriaco Summit. Figure 3-1E presents an existing night view of the same area and captures existing light sources that are visible from Viewpoint 2, including vehicle lights along I-10, roadside signage lights, construction lighting, the FAA hazard light on top of the telecommunication tower, and most prominently, the lights associated with the service facilities at Chiriaco Summit.

Figure 3-1F presents a night visual simulation of the FAA hazard lights that would be added to the DPV2 structures located in the vicinity of and to the east of Chiriaco Summit. Five lighted structures would be visible in the field of view presented in Figure 3-1F. From right to left in Figure 3-1F, Structures 2412 and 2413 would have three visible lights. Structure 2414 would have one visible light because the two mid-tower lights would be screened from view by an intervening ridge. Structures 2415XX and 2416 would have two visible lights.

Lights on the I-10 exit/entrance ramps at Chiriaco Summit and at the adjacent complex of buildings and service areas, as well as the night traffic on I-10, keep this area from being devoid of lights. For highway travelers, the tower lights would be intermittently visible to the south, parallel to the highway in the foothills of the Orocopia Mountains. Motorists on the highway would be travelling parallel to lighted section of towers for approximately 3.2 miles, which at a highway speed of 70 mph is less than 3 minutes. However, some of the lights would be visible to motorists approaching along the highway from the east and west for 10 miles. Figure 3-2a indicates the tower viewshed within which the tower lights would be potentially visible and Figure 3-2b is a detail of this viewshed nearest to JTNP. The viewshed depicts the area within which the towers are theoretically visible based on tower height and topography in the region. It does not account for the effects of distance, haze, vegetation, and structures, which would alter the visibility of the towers. Light intensity diminishes over distance, and at the farther reaches of the viewshed the tower lights would not be a predominant feature in the night sky.

In the context of the existing lighting, the tower hazard lighting would introduce incrementally more light and would be somewhat prominent by being elevated in the night landscape. As defined by BLM, the objective in a VRM Class III area is to partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate or lower. Management activities may attract attention but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape. The hazard

lighting falls within this characterization of VRM Class III. The effects would be adverse but would not involve new significant environmental effects or a substantial increase in the severity of previously identified significant effects on visual resources at this location. Therefore, the resulting visual impact of the marked spans in this location would not change the impact conclusions presented in the Final EIR/EIS for this route segment — that the impact would be adverse but less than significant (Class III).

In addition to direct observation of the lights as elements in the night landscape, there is the issue of how these lights may contribute to a diminution of the dark night sky resource of the area. Unlighted night conditions in Joshua Tree National Park and the vicinity are a valued resource. With development comes night lighting; as a result, fewer and fewer places are remote enough to offer the type of night sky resource now found at the park. The hazard lights would introduce additional night light sources into the Chiriaco Summit vicinity. These lights would be in addition to the existing ramp lights at the Chiriaco Summit interchange on I-10, the numerous lights at the commercial and service facilities adjacent to the interchange, and the headlights and taillights of through highway traffic and trucks and cars navigating in the roadside facilities. Highway ramps and the commercial and service facilities are lighted continuously throughout the night. Night traffic on I-10 passes through the area at a rate of between about 7.5 to 18 vehicles per minute, except between midnight and 5 am when less traffic occurs (Table 2.3-2). Headlights and tail lights from this traffic are visible. The continuous light from the developed facilities and from highway traffic would remain the dominant sources of illumination and would tend to overwhelm output of the hazard lights when viewed from JTNP. In this context, the hazard lights would be a small incremental change. For a viewer in the southern portion of the park, the hazard lights would be seen as a part of the more generally illuminated area of Chiriaco Summit and the highway.

An increase in lighting could potentially diminish the quality of night sky darkness. However, when viewed relative to existing night-lighting conditions (Chiriaco Summit facilities and freeway), the addition of red hazard lights to the towers here does not represent a significant change over existing conditions and is not expected to be significant with regard to affecting the night sky. The hazard lights are approximately 24 miles distant from Pinto Wells, reportedly the darkest location in the park, and are separated by mountains that prevent direct observation of the towers and lights. As shown in Figures 3-2a and 3-2b, the potential visibility any of the towers is limited to the southernmost edge of the park. The existing lights at Chiriaco Summit are visible from much of these same locations as well. The impacts of the tower lights would not involve new significant environmental effects or a substantial increase in the severity of previously identified significant effects.

Impact V-40: Increased structure contrast and skylining when viewing the San Jacinto Mountains from Key Viewpoint 33 on the Pacific Crest Trail in the vicinity of the Snow Creek Village residential community (Class I)

At Snow Creek Village and on the nearby Pacific Crest Trail, residents and hikers would have views of the marker balls proposed. There would be 33 marker balls installed on 5 spans (extending from tower 1031 to 1037). The number of balls per span would range from 5 to 9, depending on the length of the span. The skylined marker spans would introduce noticeable intermittent patterning and colors that would attract attention. The Final EIR/EIS identified a moderate level of visual change and a significant (Class I) visual impact occurring along this portion of the route (without marker balls). The Final EIR/EIS also determined that the new line (without marker balls) would be inconsistent with the applicable VRM Class II management objectives (retain the existing character of the landscape, level of visual change should be low, activities should not attract the attention of the casual observer, changes must repeat the basic elements of the predominant natural features of the characteristic landscape). Adding the markers to these spans would likely elevate the visual change from a moderate level to a moderate-to-

high level and would cause the spans to be more noticeable from Snow Creek Village (.75 to 1.25 miles distant from marked spans) and the Pacific Crest Trail (.5 to .75 miles distant). The spans with marker balls are between towers at higher elevations than the village and trail but would largely be seen against a rocky landscape backdrop. Mitigation measures identified in the Final EIR/EIS would not be applicable to the proposed installation of marker balls. However, the resulting visual impact of the marker spans in this location would not involve new significant environmental effects or a substantial increase in the severity of previously identified significant effects. The overall significant and unmitigable (Class I) impact conclusion and determination of inconsistency with the applicable VRM management objective presented in the Final EIR/EIS are unchanged.

3.4 Noise

3.4.1 Methodology

The analysis of potential noise impacts focuses on any changes in impacts from the approved project (as presented in the DPV2 Final EIR/EIS) with the addition of the proposed tower lights and span marker ball modifications. This analysis compares the impacts of the approved project to the impacts of the approved project with the implementation of the proposed modifications described in Section 2.

The transmission structure lights and marker balls, once installed, as well as engineering refinements to 21 towers would have no effect on operational noise impacts presented in the DPV2 Final EIR/EIS. Therefore, the analysis of noise impacts due to the proposed modifications is limited to construction-phase activities.

3.4.2 Environmental Setting

The setting discussion provided in the Noise section of the DPV2 Final EIR/EIS (Section D.8.1 and Section D.8.2, pp. D.8-1 through D.8-8) and for the Devers-Valley No. 2 Alternative (Section D.8.9.1, p. D.8-42) remains valid.

Noise Environment and Noise-Sensitive Receptors

The discussion of ambient noise levels presented in the DPV2 Final EIR/EIS (Section D.8.2, pp. D.8-4 through D.8-8 and Section D.8.9.1, p. D.8-42) remains valid. Similarly, the descriptions of noise-sensitive land uses, including residences near the DPV2 corridor in the cities of Palm Springs, Banning, and Beaumont, and in the unincorporated Riverside County, where the Project would require aviation lighting and marker ball installation remains valid.

Applicable Regulations, Plans, and Standards

Regulations and policies limiting environmental noise are described in the Final EIR/EIS (Section D.8.4, pp. D.8-12 to D.8-20) and remain applicable to the project. The proposed modifications would require temporary construction activities, including helicopter flights in unincorporated Riverside County. There is a very limited set of potentially applicable regulations for the construction activities of the proposed modifications, and while these construction activities were not evaluated previously, they do not introduce new types of noise sources that would have applicable regulations other than those already documented in the Section D.8.4 of the DPV2 Final EIR/EIS. The following identifies whether there are any newly promulgated regulations that were not in effect at the time of the Final EIR/EIS.

The policies for temporary construction noise identified as part of the Riverside County Noise Element remain applicable in the most recent version of the General Plan (2008), as originally shown in the Final EIR/EIS:

- *Noise Element Policy N.12.1.* Minimize the impacts of construction noise on adjacent uses within acceptable practices.
- *Noise Element Policy N.12.2.* Ensure that construction activities are regulated to establish hours of operation in order to prevent and/or mitigate the generation of excessive or adverse noise impacts on surrounding areas.
- *Noise Element Policy N.12.4*. Require that all construction equipment utilizes noise reduction features (e.g., mufflers and engine shrouds) that are no less effective than those originally installed by the manufacturer.

In 2006, Riverside County updated the applicable noise ordinance (Ordinance No. 847, Chapter 9.52 of the Riverside County Code). The County noise ordinance regulates noise sources on one property that may impact adjacent properties. The noise ordinance sets general noise standards that limit noise levels according to the land use designation of the affected property. However, the following activities are exempt from the limits in the noise ordinance:

- Private construction projects located a quarter mile or more from the nearest inhabited dwelling; and
- Private construction projects located within a quarter mile of an inhabited dwelling provided that construction activities are limited to 6:00 a.m. to 6:00 p.m. during the months of June through September and are limited to 7:00 a.m. to 6:00 p.m. during the months of October through May.

3.4.3 Environmental Impacts and Mitigation Measures

Significance of noise impacts depends on whether the project would increase noise levels above the existing ambient levels by introducing new sources of noise. Noise impacts would be considered significant if:

- The Proposed Project would conflict with applicable noise restrictions or standards imposed by regulatory agencies.
- The Proposed Project would expose persons to or generate excessive ground-borne vibration or ground-borne noise levels.
- Operation of the Proposed Project would result in a substantial permanent increase in ambient noise levels (more than five dBA) above levels existing without the project at sensitive receptor locations.
- The Proposed Project would result in a substantial temporary or periodic increase in ambient noise levels above levels existing without the project at sensitive receptor locations.

Construction Impacts

Impact N-1: Construction noise could substantially disturb sensitive receptors or violate local rules, standards, and/or ordinances (Class II)

Installation of the marker balls and lighting would occur during the construction for the DPV2 project that began in 2011 and is ongoing. Marker balls would be installed along the spans of overhead ground wire using either helicopters or a spacer cart, which would travel along the ground wire. Minimal additional activity would be associated with installation of lighting because it would occur concurrently with

installation of each tower structure. The additional construction activities, including additional helicopter flights and mobilizing the ground-based crews, would affect noise levels primarily in unincorporated Riverside County and possibly also in the nearby cities of Palm Springs, Banning, and Beaumont.

The approved project route encounters many rural residences. The majority of those potentially affected by noise from the proposed modification would be low- to medium-density residential areas in unincorporated Riverside County, including the Cabazon Estates Area, and also residences in the area of East Porter Street in the City of Banning (identified in the 2006 Final EIR/EIS Section D.8.9.1, p. D.8-42). The construction corridor also crosses through noise-sensitive federal natural areas where quiet is a basis for recreational use.

The noise impact caused by installing the marker balls and lighting near sensitive receptors along the construction corridor in unincorporated Riverside County and in the City of Banning would be similar to the impact that would occur under the approved project, with minimal additional helicopter and ground-based crew activity. Table D.8-15 in the DPV2 Final EIR/EIS (Typical Noise Levels for Construction Equipment) identified typical noise levels for project construction equipment, and the light-duty helicopters for stringing activities would generate noise levels of approximately 80 dBA at 200 feet (Final EIR/EIS, p. D.8-24). As modified, project construction would utilize similar or identical construction equipment, the noise levels presented in Final EIR/EIS remain representative of those generated by modified project activities. The modified project would only slightly add to the frequency and duration of construction noise. Noise from helicopter use would affect any nearby sensitive receptors near helicopter staging areas, worksites, and along low flying helicopter flight paths. The construction noise impacts analyzed for the approved DPV2 project were found to be reduced to a less than significant level (Class II) with the implementation of mitigation identified in the DPV2 Final EIR/EIS.

With the mitigation from the Final EIR/EIS, the nominal increase in noise levels from the proposed modifications would be unlikely to substantially disturb receptors or violate local noise rules. Implementing Final EIR/EIS Mitigation Measure L-1a would provide advance notification of the construction noise to the nearest homes, and implementation of Final EIR/EIS Mitigation Measure N-1a would reduce construction noise by requiring use of best practices and restricting construction noise to daytime, weekday hours. With the mitigation, proposed modifications would not substantially increase the severity of noise impacts or change the conclusions of the Final EIR/EIS. Therefore, the project including proposed modifications would continue to cause construction noise at a level that would be potentially significant but mitigated to a level that is less than significant (Class II).

Operational Impacts

Routine maintenance of the marker balls or transmission structure lighting would be limited to visual inspection previously anticipated to occur as part of the approved project. Once installed, the marker balls would not affect noise levels, except during occasions of high winds that could cause noise to emanate from the marker balls and conductors (SCE, 2012). The effects of wind on the marker balls would not be likely to substantially disturb receptors because the noise level would not be greater than the noise generated by the high winds themselves, and the wind noise would tend to mask the project noise. No additional noise impacts would occur as a result of the proposed modifications.

3.5 Air Quality and Greenhouse Gas Emissions

3.5.1 Methodology

The analysis of potential air quality impacts focuses on any changes in impacts from the approved project (as presented in the DPV2 Final EIR/EIS) with the addition of the proposed tower lights and span marker ball modifications. This analysis compares the impacts of the approved project to the impacts of the approved project with the implementation of the proposed modifications described in Section 2.

The transmission structure lights and marker balls, once installed, as well as engineering refinements to 21 towers would have no effect on operational emissions presented in the Final EIR/EIS. Activities related to the proposed modifications would occur exclusively within the jurisdiction of the South Coast Air Quality Management District (SCAQMD), in the South Coast Air Basin and Salton Sea Air Basin, and no additional activity would occur in the Mojave Desert Air Basin. Routine maintenance of the marker balls or transmission structure lighting would be limited to visual inspection previously anticipated to occur as part of the approved project. Therefore, the analysis of project modification emissions is limited to construction-phase activities in the jurisdiction of the SCAQMD.

3.5.2 Environmental Setting

The setting discussion provided in the DPV2 Final EIR/EIS Air Quality section (Section D.11.1 and Section D.11.2, pp. D.11-1 through D.11-20) remains generally valid with certain updates. Changes that have occurred to the regional setting, specifically within the South Coast Air Basin (SCAB) are identified here.

Existing Air Quality

Changes in the attainment status and air quality standards have occurred since the Final EIR/EIS was published in 2006, including:

- The attainment designations for the California Ambient Air Quality Standards (CAAQS) are unchanged, except the SCAB has been redesignated by the California Air Resources Board (CARB) from attainment to nonattainment for nitrogen dioxide (NO_2).
- The attainment designations for the National Ambient Air Quality Standards (NAAQS) are unchanged, except the SCAB has been redesignated by the United States Environmental Protection Agency (USEPA) from severe-17 to extreme nonattainment for ozone (O_3), and the Mojave Desert portion of Riverside County is designated as unclassified for PM10.
- In 2010, the USEPA established new primary NAAQS for 1-hour NO_2 and sulfur dioxide (SO_2) at levels of 0.100 ppm for NO_2 based on the 98th percentile of daily 1-hour maximum concentrations averaged over three years, and 0.075 ppm for SO_2 based on the 99th percentile of the daily 1-hour maximum concentrations averaged over three years. All of California is presently Unclassifiable/Attainment for these new standards, except the SCAB is identified as a Maintenance Area for NO_2 due to its former nonattainment status in regards to the previous primary standard.

Baseline meteorological conditions presented in Final EIR/EIS, Section D.11.1.1, were averaged over a minimum period of 30 years and remain valid. As discussed above, the attainment status for the SCAB has changed since that presented in Final EIR/EIS Table D.11-3. However, the data of ambient air pollutant concentrations (for 1985-2007) within Final EIR/EIS, Section D.11.1.2, and the 2009 EIR Addendum, remain representative of pollutant levels across the project area. Where the project would require

aviation lighting and marker ball installation, the discussion of sensitive receptors presented in Final EIR/EIS, Section D.11.1.3 remains generally valid.

Applicable Regulations, Plans, and Standards

All federal and State laws, regulations, and standards relevant to Air Quality as described in Section D.11.2 of the Final EIR/EIS are applicable to the proposed modifications. There is a very limited set of potentially applicable regulations for the construction activities associated with the proposed modifications, and while these construction activities were not evaluated previously, they do not introduce new types of emissions sources that would have applicable regulations other than those already documented in the Section D.11.2 of the DPV2 Final EIR/EIS. The following identifies whether there are any newly promulgated federal, state, or local regulations that were not in effect at the time of the Final EIR/EIS.

Air Quality Attainment Planning and General Conformity. No new federal regulations specific to the proposed construction emissions sources, or electric transmission lines, have been promulgated. The designation of SCAB as extreme for ozone nonattainment reduced the federal General Conformity Rule applicability thresholds for NOx and VOC from 25 tons per year to 10 tons per year (tpy) for any new proposed action.

Reevaluation of General Conformity. The BLM evaluated the applicability of the General Conformity Rule in light of the 10 tpy threshold as part of the 2011 Record of Decision for Project. General Conformity does not need to be reevaluated for this project, because as noted in Section 93.157 of the regulation General Conformity is "not required to be reevaluated if the agency has maintained a continuous program to implement the action; the determination has not lapsed as specified in paragraph (b) of this section; or any modification to the action does not result in an increase in emissions above the levels specified in §93.153(b)". Implementation of the approved project satisfies this condition.

CARB Standards for In-Use Off-Road Diesel Fueled Fleets. No new State regulations specific to the proposed construction emissions sources, or electric transmission lines, have been promulgated. However, since publication of the Final EIR/EIS, the California Air Resources Board (CARB) has implemented an off-road engine emission reduction program that indirectly affects the Project's emissions through the phasing in of equipment fleets with cleaner off-road engines. This regulation (California Code of Regulations Title 13, Article 4.8, Chapter 9, Section 2449) provides target rates for PM and NOx emissions that reduce over time and are applicable to owners of certain fleets of diesel-fueled off-road vehicles.

SCAQMD Rules and Regulations. South Coast Air Quality Management District (SCAQMD) has promulgated revisions to stationary internal combustion engines (Rule 1110.2) and architectural coating regulations (Rule 1113) that may apply during Project modification construction. However, the effect of these regulation revisions would be very limited for the construction activities proposed. Revisions have not been made to the SCAQMD fugitive dust control regulation (Rule 403) since 2005.

Plans for Reducing Greenhouse Gas Emissions. Global climate change, resulting from anthropogenic emissions of greenhouse gases, may contribute to heat waves, floods, droughts, wildfires, and poor air quality in California. The setting for climate change and the analysis of greenhouse gas (GHG) emissions is defined by worldwide emissions and their global effects. The State of California is leading the nation in managing GHG emissions. The California Natural Resources Agency adopted certain amendments to the State CEQA Guidelines that became effective in early 2010 changing how public agencies review the environmental impacts of GHG emissions.

The 2009 EIR Addendum and the 2011 Supplemental EIR, Section D.6.1, describe the applicability of the California Global Warming Solutions Act of 2006, Assembly Bill 32 (AB 32) and subsequent rules or regu-

lations for reducing GHG. Because GHG emissions contribute, by their nature on a cumulative basis, to the adverse environmental impacts of global climate change, this impact analysis is a cumulative impact assessment of GHG emissions related to the proposed modifications.

3.5.3 Environmental Impacts and Mitigation Measures

Significance of air quality impacts is characterized using location-specific criteria, in this case, from SCAQMD. The criteria originally appear in the Final EIR/EIS, Section D.11.3.1, although some minor changes are applicable to the proposed modifications. Air quality impacts of the Proposed Project would be considered significant if:

- The Proposed Project would be inconsistent with the current approved Air Quality Management Plan.
- The Proposed Project would exceed applicable federal General Conformity Rule (40 CFR Parts 6, 51, and 93) emission *de minimis* thresholds.
- Activities associated with the Proposed Project would generate emissions of air pollutants that would exceed SCAQMD or MDAQMD air quality CEQA thresholds, or create annual emissions within an attainment area greater than the U.S. EPA basic Prevention of Significant Deterioration emission thresholds of 250 tons per year of any pollutant.
- Activities associated with the Proposed Project would cause or contribute to any new violation of NAAQS or CAAQS in the project area; or interfere with the maintenance or attainment of NAAQS or CAAQS; or increase the frequency or severity of any existing violations of NAAQS or CAAQS; or delay the timely attainment of any standard, interim emission reduction, or other air quality milestone promulgated by the U.S. EPA, CARB, or local air quality agency.
- The Proposed Project would expose a substantial number of people to objectionable odors.
- The Proposed Project would expose sensitive receptors to substantial pollutant concentrations.

As noted above, the General Conformity Thresholds for the SCAB have changed since the 2006 DPV2 Final EIR/EIS to reflect extreme ozone nonattainment designation. The current thresholds are shown in Table 3.5-1.

Table 3.5-1. General Conformity Thresholds

Air Basin	NOx and VOC	CO	PM10	PM2.5 and SO_2
Salton Sea Air Basin	50 tons/year	n/a	70 tons/year	n/a
South Coast Air Basin	10 tons/year	n/a	70 tons/year	100 tons/year

Source: 40 CFR 93.153. Note: "n/a" - not applicable.

For activities within the regional jurisdiction of the SCAQMD, thresholds for daily emissions of PM2.5 have been added since the 2006 DPV2 Final EIR/EIS. The current emission thresholds are shown in Table 3.5-2.

Table 3.5-2. Air Quality Regional Thresholds for SCAQMD

Criteria Air Pollutant	Construction (lb/day)	Operation (lb/day)
Carbon monoxide (CO)	550	550
Oxides of nitrogen (NOx)	100	55
Particulate matter (PM10)	150	150

Table 3.5-2. Air Quality Regional Thresholds for SCAQMD

Criteria Air Pollutant	Construction (lb/day)	Operation (lb/day)
Fine particulate matter (PM2.5)	55	55
Oxides of sulfur (SOx)	150	150
Volatile organic compounds (VOC)	75	55

Source: SCAQMD, 2012.

In addition to the regional emission thresholds, the SCAQMD recommends localized significance thresholds (LST) for toxic air contaminants (TACs), odors, and compliance with ambient air quality standards. As discussed in Section 2, aviation lighting and marker ball installation would occur near areas of containing sensitive receptors within the SCAQMD. The current SCAQMD thresholds for these potential impacts are presented in Table 3.5-3.

Table 3.5-3. Localized Significance Thresholds for SCAQMD

Pollutant Type	Toxic Air Contaminants (TACs) and Odor Thresholds
TACs (including carcinogens and non-carcinogens)	Maximum Incremental Cancer Risk ≥ 10 in 1 million Cancer Burden > 0.5 excess cancer cases (in areas ≥ 1 in 1 million) Chronic & Acute Hazard Index ≥ 1.0 (project increment)
Odor	Project creates an odor nuisance pursuant to SCAQMD Rule 402
Pollutant Concentrations	**Ambient Air Quality Standards for Criteria Pollutants**
NO_2	SCAQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards:
1-Hour Average	0.18 ppm (State)
Annual Average	0.03 ppm (State) and 0.0534 ppm (federal)
PM10	
24-Hour Average	10.4 $\mu g/m^3$ (recommended for construction) and 2.5 $\mu g/m^3$ (operation)
Annual Average	1.0 $\mu g/m^3$
PM2.5	
24-Hour Average	10.4 $\mu g/m^3$ (recommended for construction) and 2.5 $\mu g/m^3$ (operation)
CO	SCAQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards:
1-Hour Average	20 ppm (State) and 35 ppm (federal)
8-Hour Average	9.0 ppm (State/federal)

Source: SCAQMD, 2012.

Impact assessment of greenhouse gas emissions is required as a result of 2010 amendments to the CEQA Guidelines. Greenhouse gas emissions would be considered significant if the project meets any of the following criteria:

- Generates greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment; or
- Conflicts with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases.

When evaluating industrial facilities, the SCAQMD recommends using a GHG emission threshold of 10,000 metric tonnes per year (10,000 MTCO2e/yr). No established guidelines from State or local air quality management agencies provide a comparable threshold for determining significance of GHG emissions during construction-phase activities (such as those of the proposed Project modification). The CPUC,

as Lead Agency, has not formally adopted a threshold for what levels of GHG emissions would constitute a significant amount. The 10,000 MTCO2e/yr screening level described in the 2011 Supplemental EIR is used in this EIR Addendum/EA, although this level has not been formally adopted by the CPUC for use in other projects.

Construction Impacts

Impact AQ-1: Construction would generate dust and exhaust emissions (Class I)

Installation of the marker balls and lighting would occur during the construction for the DPV2 project that began in 2011 and is ongoing. Marker balls would be installed along the spans of overhead ground wire using either helicopters or a spacer cart, which would travel along the ground wire. Nearly all of the 36-inch-diameter marker balls would be installed by crews using light-duty helicopters. Individual ball installations by helicopter would take 15 to 20 minutes. During a typical 10-hour workday, a crew can install approximately 20 marker balls by helicopter. At that rate, it would take approximately 20 work-days (200 helicopter flight hours) to install all of the balls. Where a spacer cart is used, between 60 to 90 minutes would be needed to install and remove the spacer cart, and about five marker balls could be installed per day per crew. Most of the safety lights would to be installed by ground-based crews during the course of tower construction, which is ongoing. Minimal additional activity would be associated with installation of lighting because it would occur concurrently with installation of each tower structure. Emissions related to the project modification would overlap with DPV2 project construction-phase emissions in the jurisdiction of the SCAQMD.

Additional helicopter use and mobilizing the ground-based crews that would install the marker balls and lighting would cause incremental increases in air quality impacts in the South Coast Air Basin and Salton Sea Air Basin. Construction emissions for the approved DPV2 project were found to cause significant and unavoidable (Class I) impacts in the DPV2 Final EIR/EIS, Section D.11.4.4. Construction-phase dust and equipment exhaust emissions were found to be significant because the General Conformity threshold for NOx in the SCAB was exceeded, because the SCAQMD regional thresholds for daily emissions were exceeded for NOx, VOC, and PM10, and because the LST was exceeded for PM10 impacts to sensitive receptors located closer than 50 meters to new tower sites.

The proposed modifications would incrementally add to the previously-analyzed impacts. Detailed emission calculations appear in SCE's PFM submitted on September 5, 2012 (Appendix A of PFM Attachment D; SCE, 2012). The SCAQMD-wide regional emissions caused by DPV2 construction originally appeared in the 2006 Final EIR/EIS, Table D.11-19, and as construction details were refined, SCE developed an updated schedule and updated forecast activity data in 2011. The results of updated emission calculations were detailed in a Technical Memorandum (CH2M Hill, 2011) sponsored by SCE to update the basis for mitigation. Table 3.5-4 shows the annual construction emissions previously-analyzed in the 2006 Final EIR/EIS as updated by SCE (CH2M Hill, 2011) along with the emissions related to the proposed Project modification. Emissions related to the proposed Project modification would be nominal compared to the emissions of project construction. The proposed Project modification would not substantially increase the severity of annual air pollutant emissions or change the conclusions of the Final EIR/EIS. The modifications would not involve new significant environmental effects or a substantial increase in the severity of previously identified significant effects.

Table 3.5-4. Worst Case Annual Construction Emissions (tpy) for SCAQMD with Project Modification

Air Basin	NOx	VOC	CO	PM10	PM2.5	SO_2
Salton Sea Air Basin						
DPV2 Project Final EIR/EIS	31.69	4.16	25.82	50.14	5.37	0.05
Proposed marker ball/lighting installation	0.12	0.05	0.09	0.17	0.04	< 0.01
Total with project modification	31.8	4.2	25.9	50.3	5.4	< 0.1
General Conformity threshold for Salton Sea Air Basin	50	50	n/a	70	n/a	n/a
Exceeds? (Yes/No)	**No**	**No**	**—**	**No**	**—**	**—**
South Coast Air Basin						
DPV2 Project Final EIR/EIS	11.48	1.21	8.99	8.15	2.27	0.02
Project updated (CH2M, 2011)	39.30	5.24	29.82	13.18	4.26	0.04
Proposed marker ball/lighting installation	0.22	0.08	0.15	0.31	0.06	< 0.01
Total with project modification	39.5	5.3	30.0	13.5	4.3	< 0.1
General Conformity threshold for South Coast Air Basin	10	10	n/a	70	100	100
Exceeds? (Yes/No)	**Yes**	**No**	**—**	**No**	**No**	**No**

Source: CPUC and BLM, 2006 (Table D.11-19 and Table D.11-28 shown for comparison); CH2M Hill, 2011; SCE, 2012 (Table 3.10-3, 3.10-4).
Note: Indirect emissions are on-road worker commutes, and direct emissions are on-road project crews.

Table 3.5-5 shows the maximum daily construction emissions previously-analyzed in the 2006 Final EIR/EIS along with the peak daily emissions of the proposed Project modification. The Project modification would not substantially increase the severity of daily air pollutant emissions or change the conclusions of the Final EIR/EIS.

Table 3.5-5. Daily Construction Emissions (lb/day) for SCAQMD with Project Modification

	NOx	VOC	CO	PM10	PM2.5	SO_2
DPV2 Project Final EIR/EIS	579	82	468	765	174	1
Marker ball installation, indirect	0.33	0.34	3.22	0.04	0.02	< 0.01
Marker ball installation, direct	20.00	1.87	9.33	0.92	0.79	0.03
Marker ball installation, helicopters	13.59	10.34	10.26	0.74	0.74	0.12
Tower lighting installation	1.31	0.25	2.00	0.06	0.05	< 0.01
Marker ball/lighting, fugitive dust	—	—	—	47.47	8.36	—
Total with project modification	614	95	493	814	184	1
Regional threshold for SCAQMD	100	75	550	150	55	150
Exceeds? (Yes/No)	**Yes**	**Yes**	**No**	**Yes**	**No**	**No**

Source: CPUC and BLM, 2006 (Table D.11-19 shown for comparison); SCE, 2012 (Table 3.10-2).
Note: Indirect emissions are on-road worker commutes, and direct emissions are on-road project crews

Localized impacts would occur where residences and other sensitive receptors are located less than 50 meters of individual construction sites, as described in the Final EIR/EIS (pp. D.11-34 to D.11-35; Table D.11-20). The approved DPV2 Project was found to exceed applicable SCAQMD LST thresholds due to onsite construction emissions in the developed areas of the project route. As discussed in Final EIR/EIS (Section D.11.6.1), the helicopter construction locations are not located near sensitive receptors. Helicopter emissions would not be subject to the LST as they do not occur at the ground level, with the exception of the emissions from helicopter construction staging areas that are also not located near sensitive receptors and this remains unchanged. Although site specific construction emissions of PM10 emissions would have the potential to exceed the localized significance criteria during tower construc-

tion activities, ground level construction activities associated with project modifications (refer to Section 2) would only nominally increase construction emissions at any single site. Therefore, Project modification construction would not substantially increase the severity of localized impacts or change the results of the SCAQMD LST analysis presented in Final EIR/EIS. The localized PM10 impacts for those sensitive receptors located closer than 50 meters to new tower sites would remain significant and unavoidable (Class I) with implementation of existing mitigation adopted with the DPV2 project approvals. There would be no new significant environmental effects or a substantial increase in the severity of previously identified significant effects.

The nominal increase in emissions from Project modification construction activities, even after implementation of all Final EIR/EIS mitigation measures listed above, would remain above the SCAQMD significance thresholds. Implementation of Final EIR/EIS Mitigation Measures AQ-1a through AQ-1i would reduce construction impacts to air quality to the maximum degree feasible but would not eliminate all significant impacts. These mitigation measures would control fugitive dust and exhaust emissions, require use of low-sulfur fuels, limit engine idling, and require use of lower emissions on and off-road vehicles. In addition, EIR/EIS mitigation required use of helicopters to reduce vehicle traffic, scheduling of deliveries to minimize traffic and emissions, and obtaining NOx emissions offsets.

Project modifications would not substantially increase the severity of air quality effects or change the conclusions of the Final EIR/EIS. Therefore, the regional emissions from the project including Project modifications would continue to cause significant and unavoidable impacts (Class I) in the SCAQMD jurisdiction.

Construction GHG Impacts

The approved project and the proposed modifications would generate GHG emissions through fossil fuel use during construction activities and operation. GHGs contribute to the warming of the earth's atmosphere. Use of motor vehicle fuels via combustion causes primarily CO_2, with much lower levels of N_2O and CH_4.

Construction activities associated with the proposed modifications would cause short-term GHG emissions of approximately 88 MTCO2e (SCE, 2012), and these emissions would occur only during the limited phase of marker ball and lighting installation. These emissions would be nominal in light of a 10,000 MTCO2e per year screening level. (When evaluating industrial facilities, the SCAQMD recommends using a GHG emission threshold of 10,000 metric tonnes per year (10,000 MTCO2e/yr).)

The CPUC's 2009 EIR Addendum and the 2011 Supplemental EIR, Section D.6.1, describe the applicability of the California Global Warming Solutions Act of 2006, Assembly Bill 32 (AB 32) and subsequent rules or regulations for reducing GHG. Because the requirement to analyze GHG emissions in CEQA documents did not exist at the time the DPV2 Final EIR/EIS was completed in 2006, the Final EIR/EIS for the DPV2 project did not include any APMs or mitigation measures specifically related to greenhouse gas emissions or climate change. However, APMs and mitigation measures related to air quality may serve to reduce construction-related GHG emissions. Because the incremental daily construction emissions from the proposed Project modification would not substantially increase the GHG emissions related to the approved DPV2 project construction activities, no further analysis would be necessary, and no mitigation measures would be necessary for GHG.

Operational Impacts

Routine maintenance of the marker balls or transmission structure lighting would be limited to visual inspection previously anticipated to occur as part of the approved project. No additional operational impacts to air quality or GHG would occur as a result of the proposed modifications.

3.6 Cumulative Impacts

This section describes the reasonably foreseeable development scenario expected in the project area (Section 2.6.1) and also describes the project's contribution to the cumulative impacts of development defined in the cumulative scenario. Section 3.6.2 presents impact assessment in the four environmental disciplines whose impacts are analyzed in Sections 3.2 through 3.5.

As discussed in Section 3.1.1, for the remaining environmental disciplines, the impacts associated with construction of the tower lights and marker balls are minimal and the proposed modifications would not contribute to cumulative effects with past, present or reasonably foreseeable future actions. Therefore, these issue areas are not discussed further.

3.6.1 Cumulative Scenario

Both CEQA and NEPA require a cumulative impact analysis. The requirements for each are summarized below.

California Environmental Quality Act

Under CEQA Guidelines, "a cumulative impact consists of an impact which is created as a result of the combination of the project evaluated in the EIR together with other projects causing related impacts." 14 Cal Code Regs §15130(a)(1). An EIR must discuss cumulative impacts if the incremental effect of a project, combined with the effects of other projects is "cumulatively considerable." 14 Cal Code Regs §15130(a). Such incremental effects are to be "viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects." 14 Cal Code Regs §15164(b)(1). Together, these projects comprise the cumulative scenario for the cumulative analysis.

There are two different methodologies for identifying what would constitute the cumulative scenario. One is to use a "list of past, present, and probable future projects producing related or cumulative impacts." 14 Cal Code Regs §15130(b)(1)(A). An alternate method of establishing the cumulative scenario for the analysis is to use a "summary of projects contain in an adopted general plan or related planning document, or in a prior environmental document which has been adopted or certified, which described or evaluated regional or areawide conditions contributing to the cumulative impact." 14 Cal Code Regs §15130(b)(1)(B).

National Environmental Policy Act

NEPA identifies three types of potential impacts: direct, indirect, and cumulative. "Cumulative impact" is the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time" (40 CFR §1508.7). Under NEPA, both context and intensity are considered. Among other considerations when considering intensity is "[w]hether the action is related to other actions with individually insignificant but cumulatively significant impacts. Significance exists if it is reasonable to anticipate a cumulatively significant impact on the

environment. Significance cannot be avoided by terming an action temporary or by breaking it down into small component parts" (40 CFR §1508.27(b)(7)).

Approach to Analysis

The approach used for the DPV2 EIR/EIS and for this document is the project list approach. In this approach, a project list is developed to include those projects found within a geographic area sufficiently large to provide a reasonable basis for evaluating cumulative impacts for each environmental discipline. The area within which cumulative impacts are evaluated will vary by resource, because the nature and range of potential effects varies by resource. The geographic area is defined in the first paragraph of each impact discussion in Section 3.6.2.

Reasonably foreseeable projects that could contribute to cumulative impacts are listed in Table 3.6-1. The table indicates the project name and project type, as well as its location and status. As noted in Section 3.1, the baseline for analysis of impacts will be the previously approved DPV2 project (Benton v. Board of Supervisors (1991) 226 Cal.App.3d 1467.). As such, the list of cumulative projects would remain the list presented in the DPV2 Final EIR/EIS, Tables F-1 and F-3. Figures 2-1 to 2-6 in this EIR Addendum/EA were compared with Figures F-1b, F-1c, and F-4 in the DPV2 Final EIR/EIS to locate the cumulative projects that would fall within the geographic scope of the project modifications.

Since the publication of the DPV2 Final EIR/EIS, the objectives of the project were revised to include accessing potential new renewable and conventional gas-fired generation in the Blythe, California area to help enable California to meet its renewable energy goals. A number of utility-sized renewable projects were proposed along the DPV2 corridor. Where the renewable projects could potentially result in cumulative impacts in combination with the proposed modifications, they have been included in the cumulative Table 3.6-1. Projects east of the Desert Center area are not included in the cumulative table, because they are located beyond the area of potential direct or indirect impacts of the proposed tower and span modifications.

Table 3.6-1. Cumulative Project List

Project	Type	Location	Description and Status
CRS-DEVERS TRANSMISSION LINE			
Desert Center to Devers Substation Area			
Interstate 10	Transportation	In California, between Santa Monica, LA County and Blythe, Riverside County.	Existing east-west interstate highway route for trucks delivering goods to and from California. It is a four lane divided highway in the Blythe to Palm Springs segment.
Devers–Palo Verde No. 1 Transmission Line	Energy	Between Devers Substation and the California border	Existing 500 kV transmission line parallel to I-10 between Devers Substation and the Palo Verde Nuclear Generating Station that parallels the proposed DPV2 line. SCE is evaluating aviation-related issues associated with DPV1, and a decision regarding any modifications to the DPV1 components will be made at a later date.
Blythe Energy Project Transmission Line	Energy	Blythe Power Plant to Julian Hinds Substation	Existing 230 kV transmission line (67.4-mile 230 kV transmission line from Buck Substation to Julian Hinds Substation, and the construction of a 6.7-mile 230 kV transmission line from Buck Substation and SCE's DPV 500 kV transmission line).
Chuckwalla Valley Raceway	Private, Recreational	Desert Center Airport	Existing 500-mile race track located on 400 acres of land that used to belong to Riverside County and was used as the Desert Center Airport. APNs 811-142-016, 811-142-006. Small private airstrip kept as part of project.
Desert Southwest Transmission Line Project	Energy	Colorado River Substation to Devers Substation.	Proposed and approved 500 kV transmission line that would extend 118 miles from Colorado River Substation to Devers Substation. Final EIS/EIR completed 10/17/05, BLM Approved in 2006.
Bridge Rehabilitation	Transportation	Ranging from 0.6 miles north to 1.1 miles south of proposed route. Along I-10 from Milepost 62.0 to 115.2.	Existing. Rehabilitation of bridge decks on 106 bridges (Caltrans District 8).
Paradise Valley Development	Residential, Commercial	Traversed by the proposed route. Located in Shavers Valley, approximately 15 miles east of Coachella.	Proposed construction of 8000 dwelling units and retail/commercial on 5,400 acres (Riverside County). The project is planned as a self-contained community with all public and quasi-public services provided. In proposal stage. Has not been approved by Riverside County Planning Commission.
Cactus City Rest Area	Transportation	Less than 0.1 miles south of proposed route. Located along I-10 from Milepost 71.8 to 72.5.	Existing. Upgrades to Cactus City Safety Roadside Rest Area (Caltrans District 8).
Green Energy Express Transmission Line	Energy	The Green Energy Express transmission line would generally parallel the Proposed Project.	Application filed with BLM for a 70-mile double circuit 500 kV transmission line from a new substation near the existing 230 KV Eagle Mountain Substation or the 500 kV Red Bluff Substation to the existing Devers Substation.
Desert Sunlight Solar Farm; CACA 48649	Energy	North of Desert Center, along Kaiser Road. North of Desert Harvest	Construction of a 550 MW solar photovoltaic project located on 4,144 acres began in September 2011, expected to be operational in 2015. Project would tie into the SCE Red Bluff Substation.

Table 3.6-1. Cumulative Project List

Project	Type	Location	Description and Status
Desert Harvest Solar Project, CACA 49491	Energy	North of Desert Center, along Kaiser Road. South of Desert Sunlight	Draft EIS for a 150 MW project on 1,208 acres of land administered by the BLM was published in April 2012. Would tie into the SCE Red Bluff Substation.
Eagle Mountain Pumped Storage Project	Energy	Eagle Mountain Mine, north of Desert Center	Project would be a 1,300 MW pumped storage project designed to store off-peak energy to use during peak hours. The captured off-peak energy would be used to pump water to an upper reservoir. License application filed with FERC in June 2009. FERC Final EIS published in January 2012.
Palen Solar Energy Project	Energy	North of I-10, 10 miles east of Desert Center	Approved by CEC as a parabolic trough plant, purchased by BrightSource in June 2012 and assumed to be a future solar power tower project with 3 700-foot-tall towers based on BrightSource's other current projects. In June 2012, Palen Solar I, LLC filed a petition to transfer ownership of the Final Decision for the Palen Project from Palen Solar I, LLC to Palen SEGS I, LLC, a wholly owned, indirect subsidiary of BrightSource Energy, Inc. In July 2012 the Energy Commission approved the transfer of ownership (Energy Commission, 2012c).
Chuckwalla Solar I	Energy	1 mile northeast of Desert Center	Project would be a 200 MW solar photovoltaic project on 4,082 acres that would be developed in several phases and would tie into the existing SCE 161-kV line crossing the site. Plan of Development submitted to BLM Palm Springs-South Coast Field Office September 2008.
Eagle Mountain Landfill	Industrial	Eagle Mountain; northwest of Desert Center	Class III nonhazardous municipal solid waste landfill and the renovation and repopulation of Eagle Mountain Townsite. The proposal by the proponent includes a land exchange and application for rights-of-way with the Bureau of Land Management and a Specific Plan, General Plan Amendment, Change of Zone, Development Agreement, Revised Permit to Reclamation Plan, and Tentative Tract Map with the County. US Court of Appeals for the Ninth Circuit issued its opinion regarding the EIS for the project in 11/09 and ruled that the land exchange for the project was not properly approved by the administrative agency.
US Solar Holdings LLC Solar Project	Energy	North of I-10, east of Desert Center	Application to Riverside County in October 2010 for a 49.5 MW solar photovoltaic plant on 400 acres.
Eagle Mountain Meteorological Towers	Energy	Eagle Mountain, north of Desert Center	Wind energy testing facility consisting of two meteorological towers. Each tower would be 197 feet high and would passively collect and record data year round. Total disturbance would be 1.13 acres for both towers. Application for met towers dated December 2009
Desert Center 2 Solar Project	Energy	4 miles east of Desert Center	20 MW solar PV project occupying 130 acres of a 260 acre ROW area. The facility would utilize a single-axis tracking system. Transmission infrastructure would be built over a 350 foot span to connect with the existing SCE 161 kV Blythe-Eagle Mountain transmission line. BLM application pending. Application date September 2010
Desert Hot Springs Area			
Three 196-ft Meteorological towers on 253 acres	Energy	N of Ave 16 E of Worsely Rd	Permit effective 11/10/2005

Table 3.6-1. Cumulative Project List

Project	Type	Location	Description and Status
Two 97-ft Meteorological Towers on 331 acres	Energy	N of Ave 16 E of Indian Ave	Permit effective 12/01/2005
Residential Development (50 residences)	Residential/ Recreation	Westerly of Palm Springs and southerly of Highway 111.	400 R-1 lots & 8 R-5 lots with a 7200 sq ft. min. lot size divide 226 acres into 390 residential lots with a 7200 sq ft minimum lot size and 19 golf course lots ea 36020, Cz 6076. A total of 50 building permits for new residences have been issued
Devers-Valley #2 Transmission Line			
Commercial WECS Permit No. 00071 Revised Permit No. 9 and Variance No. 1771:	Energy	Located north of I-10 and west of Whitewater Canyon Rd.	Construction and operation of additional 60 wind turbines (total 219 WECS), and a variance to reduce safety setbacks from 330 ft. to 0 ft. and reduce wind access setbacks from 855 ft. to 0 ft. (Riverside County). Existing
Cabazon Ridge Project	Energy	Between Snow Creek Road and I-10, extending up the western ridgeline of San Jacinto Mountains	Application received by BLM. No recent activity as of 2012.
Mountains View Wind Partners "Section 28"	Energy	North of Palm Springs	Joint EIR/EIS for a repower of 42 to 50 wind turbines on public and private lands with a total of 49 MW was published in 2008, Record of Decision issued in February 2009, project construction nearing completion as of 2012.
Seneca Springs/Empire Homes: 291.5 acres, 224.9 residential	Residential	South of I-10, west of Highland Springs Ave.	City of Beaumont: Homes under construction as of 2012
K. Hovnanian's Four Seasons: 570.6 acres, 423.7 residential	Residential	South of I-10, west of Highland Springs Ave.	City of Beaumont: Homes under construction as of 2012
Construction of 34-acre Telecommunication Site	Industrial	N/o Ramona Expressway E/o First Ave W/o Reservoir Ave	Applied 4/1/2005
Construction on 5 acres of 4 Group Home Units with 9 Children Per Unit	Residential	N/o Esperanza Ave S/o I-10 E/o Almond St W/o Elm St	Applied 9/30/2005
Subdivide 5 acres into 8 LOTS (1/2 MIN)	Residential	S/Esperanza W/Almond St N/Delores Ave	Approved 3/1/2005
38 Lot Residential Subdivision of 4.5 Acres	Residential	N/NW Corner Broadway & Carmon	Applied 10/14/2005
Carri Construction: 7.4 acres	Residential	0.5 mi south of I-10, 0.8 mi north of D-V, west and adjacent to V-90	Approved

Table 3.6-1. Cumulative Project List

Project	Type	Location	Description and Status
C.W. Tefft: 452.7 acres	Residential	0.4 mi south of I-10, 0.5 mi north of D-V, west and adjacent to V-92	Approved
United Pentecostal Church: 2.2 acres	Church	0.6 mi south of I-10, directly north of D-V and V-91	In review as of April 2006
Highland Crossing: 187.3 acres, 158.9 residential	Residential	Southeast corner of SR-79/ Lambs Canyon Rd and California Ave	Pending annexation as of April 2006
Century Crowell: construction of residential buildings on 9.6 acres	Residential	0.3 mi south of I-10, 1.0 mi north of D-V	Under construction as of April 2006
Century Crowell: construction of residential buildings on 6.5 acres	Residential	0.5 mi south of I-10, 0.8 mi north of D-V	Under construction as of April 2006
Century Crowell: construction of residential buildings on 19.1 acres	Residential	0.5 mi south of I-10, 0.8 mi north of D-V, west and adjacent to V-89	Under construction as of April 2006
Stallion Estates: 145 acres	Residential	0.4 mi south of I-10, 0.5 mi north of D-V	Approved
Martin: 4.1 acres	Residential	0.3 mi south of I-10, 0.7 mi north of I-10	Approved
Halem: 10 acres	Residential	0.4 mi south of I-10, 0.5 mi north of D-V	In review as of April 2006
70-ft Monopole W/Slimline Antennas & A 4-ft Dish Ant on 214 acres	Industrial	S/of Gilman Springs Rd W/or Hwy 79	Applied 11/05/2004
Construction of 34-acre Telecommunication Site	Industrial	N/o Ramona Expressway E/o First Ave W/o Reservoir Ave	Applied 4/1/2005
Subdivide 410.7 Ac Into 165 Lots Sched B Map	Residential	E/Sky Mesa Rd W/Jules Rd N/w/Juniper Flats Rd	Applied 4/7/2004
Lost 5 Lots To Due To Sewer Issues Now 43 Not 48	Residential	N/Nuevo Rd S/Corso Alto Ave E/Corso Alto Ave W/Hansen Ave	Applied 11/29/2005

Table 3.6-1. Cumulative Project List

Project	Type	Location	Description and Status
Divide 49.9 Ac Into 85 SFR Lots	Residential	N/Corso Alto Ave S/park Ave E/Gibson Ave W/magnolia Ave	Applied in 2004
Sub-Div 15.00 Ac Into (12) 1.00 Ac Parcels/'Sch B'	Residential	S/o Contour Ave E/o Maurice St W/o Peters Ln (r-a-1 Zone)	Applied 3/24/2005
Divide 12.8 Acres Into 11 1-Acre Lots – Schedule B	Residential	N/contour Ave E/Maurice St W/peters Lane	Applied 4/28/2005
Subdivide 12.5 Ac Into 21 SFR Lots/Sch B	Residential	N/Montgomery Ave S/Park Blvd E/11th W/Hansen Ave	Applied 12/9/2005

Source: CPUC and BLM, 2006; BLM 2012a, 2012b, and 2012c, Beaumont, 2012.

3.6.2 Cumulative Impact Analysis

Biological Resources

Geographic Scope of Analysis. The geographic scope for the analysis of cumulative impacts related to biological resources for SCE's proposed tower and span modifications, is limited to the Chiriaco Summit and the San Gorgonio Pass areas. These locations would have tower lighting, which would cause a minimal increase in direct and indirect impacts to birds and bats. As discussed in Section 3.2.3, the proposed marker balls would not have an adverse effect on birds and therefore would not contribute to cumulative impacts.

Cumulative Impacts. The Final EIR/EIS did not evaluate cumulative impacts of bird collisions with transmission towers or other structures in the Chiriaco Summit and San Gorgonio Pass areas.

The existing, proposed, and pending projects in these areas may cause mortality to birds when birds strike the conductors or towers of transmission lines, or strike various components of other facilities. There are no data on bird mortality associated with the projects evaluated in the Cumulative Projects List (Table 3.6-1). Birds are likely to strike the towers and conductors of other transmission lines and other facilities found in the vicinity of the proposed aviation obstruction lighting installations on the DPV2 towers. However, none of the projects identified in Table 3.6-1 are tall communication towers such as those associated with high rates of bird mortality (see Section 3.2 Biological Resources, Impact B-15). There are multiple wind energy projects in the San Gorgonio Pass area that cumulatively contribute to bird mortality; most of these projects have been in place since the 1980s although some repower projects have recently been proposed and approved.

As described in Section 3.2.3, the installation of marker balls along 50 spans of conductors represents a beneficial impact, because the marker balls would reduce the likelihood of avian collision with the transmission line. The addition of hazard lights on 17 towers has the potential to slightly increase bird collision and resulting mortality. With implementation of Mitigation Measure B-15a (Utilize collision-reducing techniques in installation of transmission lines), the overall project modifications would not result in a significant increase in bird mortalities. Therefore, overall, the proposed project modifications would not contribute incrementally to bird mortalities associated with the DPV2 Project. Therefore, the proposed modifications would not have a new or more severe effect than the project did in the previous analysis.

Visual Resources

Geographic Scope of Analysis. Based on the height of the structures, the geographic scope for the analysis of cumulative impacts on daytime visual resources can extend up to two miles for similarly scaled structures and facilities and approximately 0.7 miles for development projects (residential, commercial and industrial) and transportation projects. This is based on the scale of a project and the diminution of the apparent size of objects at greater distances. Due to elevation, existing night sky conditions, and concerns about impacts to Joshua Tree National Park, the geographic area for cumulative impacts from night lighting extends up to 20 miles within the tower viewshed.

Cumulative Impacts. The DPV2 EIR/EIS recognized that the DPV2 Project and the cumulative projects combined would result in a perceived increase in industrialization of the landscape, diminution of visual quality, and increase in visual contrast. Also, in the cases where there appear to be multiple corridors due to greater separation between facilities, the projects would contribute to a sense of proliferation of energy infrastructure within the I-10 corridor.

It was concluded that the resulting cumulative visual impacts would be substantially greater than those impacts that would occur with the DPV2 transmission line project components alone and they would be significant. This would be the result of a significant change in the character and visual quality of the viewshed.

Although the cumulative impacts would not be reduced to less than significant levels, Mitigation Measure V-3a was recommended to reduce the resulting adverse cumulative visual impacts that would occur among transmission projects. Measure V-3a (which includes the pairing of structures) essentially would require the consolidation of the separate corridors to the extent possible. With such mitigation the cumulative impacts would be reduced, but not to a less than significant level. Therefore, the proposed modifications would not have a new or more severe effect than the project did in the previous analysis.

V-3a **Reduce visual contrast of towers and conductors.** The following design measures shall be applied to all new structures and conductors in order to reduce the degree of visual contrast caused by the new facilities:

- All new and replacement structures are to as closely as possible match the design of the existing structures with which they will be seen.
- All new and replacement structures are to be paired as closely as possible with the existing structure(s) in the corridor in order to avoid or reduce the number of off-setting (from existing structures) tower placements.
- All new and replacement structures are to match the heights of the existing DPV1 structures to the extent possible as dictated by variation in terrain.
- All new and reconductored spans are to match existing conductor spans as closely as possible in order to avoid or reduce the occurrence of unnecessary visual complexity associated with asynchronous conductor spans, particularly at sensitive crossings such as Salome Highway, I-10, U.S. 95, Colorado River, SR 78, Dillon Road, SR 62, Whitewater Canyon Road, and San Timoteo Canyon Road.
- All new conductors are to be non-specular in design in order to reduce conductor visibility and visual contrast.
- To the extent feasible, no new access roads are to be constructed downhill from existing or proposed towers to reduce the potential for structure skylining.

Snow Creek Village/PCT. In the vicinity of Snow Creek Village and the Pacific Crest Trail there are no known proposed projects or development within the foreground and foreground/middleground distance around the spans on which marker balls would be installed. Therefore, there is no cumulative impact consideration for this area.

Chiriaco Summit to Hayfield Road. As indicated in Table 3.6-1, numerous renewable energy projects are being constructed or planned for the Mojave Desert. Indeed, the DPV2 project is planned to provide transmission capacity to deliver the power generated at these facilities to load centers nearer the coast. The DPV2 transmission line under construction is one of three planned; the others are the Green Energy Express transmission line and the Desert Southwest transmission line, both of which would be in the I-10 corridor and parallel the DPV1 and DPV2 lines, and connect to the Devers Substation. Although FAA has not determined obstruction safety requirements for these projects, it is reasonable to assume that they will require some safety devices in the Chiriaco Summit to Hayfield Road vicinity.

The FAA Advisory Circular regarding hazard marking and lighting (FAA, 2007) includes a provision that reads:

> *55. GROUP OF OBSTRUCTIONS. When individual objects, except wind turbines, within a group of obstructions are not the same height and are spaced a maximum of 150 feet (46m) apart, the prominent objects within the group should be lighted in accordance with the standards for individual obstructions of a corresponding height. If the outer structure is shorter than the prominent, the outer structure should be lighted in accordance with the standards for individual obstructions of a corresponding height. Light units should be placed to ensure that the light is visible to a pilot approaching from any direction. In addition, at least one flashing beacon should be installed at the top of a prominent center obstruction or on a special tower located near the center of the group.*

The FAA advisory also provides for multiple wire situations, stating:

> *34. MARKERS.*
>
> *2. Installations.*
> *(a) Spacing. …. Where there is more than one wire at the highest point, the markers may be installed alternately along each wire if the distance between adjacent markers meets the [200-foot] spacing standard….*

FAA evaluates aviation obstructions based on their height and in the context of the local terrain and other salient factors. If FAA determines the hazard lighting and marker balls are required for a future transmission line, the owner may petition the FAA to reconsider and change its requirements based on other factors, such as the proximity of a similar or taller obstruction (e.g., tower or span) that already has lights or marker balls. FAA would take this information under advisement and inform the transmission line owner of their findings. FAA approval of such petitions to alter requirements is on a case-by-case basis.

Therefore, the number of marker balls and hazard lights may increase with construction of additional transmission lines. However, the number of lights and marker balls may be less than what would be on the DPV2 line, if FAA determines that adequate visibility is achieved when the DPV2 devices are considered as well. In any event, although the number and location of additional marker balls and lights introduced by these other projects are unknown, it is likely to be greater than with DPV2 alone. As noted in the DPV2 EIR/EIS, cumulative impacts of multiple transmission lines would result in a significant change in the character and visual quality of the viewshed. Implementation of Mitigation Measure V-3a, including the pairing of structures, would reduce by not eliminate this level of impact.

A number of large renewable energy projects are under construction or in advanced planning for land north and east of Desert Center, approximately 18 miles east of Chiriaco Summit. These projects are not within the viewshed of the Chiriaco Summit to Hayfield Road towers. One project, the Palen Solar Power project acquired by BrightSource, is considering use of technology that would focus sunlight on boilers mounted on two 760-foot towers. Figure 3-3 shows the potential viewshed for the DPV2 transmission line lights and the Palen project, both of which involve night obstruction hazard lighting. The Palen viewshed is based on the planned 760-foot tower heights. The tall tower structures envisioned for the Palen project would be prominent and would need to meet FAA requirements for both night and day hazard lighting. Very tall structures require lights at various heights on the vertical obstruction. Towers between 701 and 1,050 feet above ground level require red flashing L- 864 lights at the top and at two lower positions on the structure. Red constant L-810 lights would be positioned intermediately between the flashing lights. For daylight safety, structures this tall would also require L-856 type lights. These are

200,000 candela flashing high-intensity white strobe lights. As with the flashing red lights, the strobes would be installed at two positions between the ground and the tower top, as well as the top. For full circular (360 degree) visibility, three strobes would be installed at each level. (FAA, 2007)

Figure 3-3 shows the potential viewsheds of the Chiriaco Summit to Hayfield Road area tower lights and the Palen project tower lights, and where they overlap. It is important to note that that light intensity drops off with distance from the source. Therefore, while the DPV2 lights might be discernible at the farther reaches of the viewshed, they would be faint.

Figure 3-4 shows the locations and viewshed for two sizable solar photovoltaic projects (Desert Solar and Desert Harvest) as well as for the Palen project and the towers near Chiriaco Summit.

Although they cover extensive acreage, once in operation the renewable energy projects do not require large workforces or non-emergency night work. Lighting at these facilities can be minimized and managed, consistent with safety and security requirements. There would not be lighted outdoor work areas or parking lots during operations. Depending on the conditions imposed by project approval documents, there may be night work during construction. In addition to renewable energy projects, a large residential and commercial project is proposed west of Chiriaco Summit, near Cactus City. As discussed in the following section, the latter project would introduce extensive new night lighting into the park vicinity.

Dark Skies. Due to the project locations within a nationally significant dark sky resource area, any night lighting that diminishes the quality of this resource is undesirable. However, because projects in this area would fall under the jurisdiction of the BLM or the County, it is possible to manage how and where most of the lighting is used. For example, project proponents could be required by the relevant jurisdiction to prepare a lighting management plan that incorporates such requirements as:

- Consulting with Joshua Tree National Park, BLM, and Riverside County on light-limiting strategies.
- Limiting security lighting to a minimum and using low-wattage, shielded, motion-activated light fixtures so lighting does not illuminate areas unnecessarily and does not spill skyward.
- Limiting nighttime maintenance to emergencies.
- Using low-pressure sodium (LPS) or amber light-emitting diode (LED) lighting and avoiding white lighting (metal halide)

These and other more project-specific requirements would minimize the new-light contribution from the renewable projects. Unlike residential or retail/commercial projects, which can have a considerable activity requiring evening and night lighting, the renewable energy projects in the vicinity do not required night operations and can be managed to ensure that a minimum of new light is introduced in the area. Specifically, lighting required at the renewable energy facilities can be managed and requirements imposed as conditions of approval, keeping in check the diminution of the night sky resource by lights at these facilities.

Paradise Valley is a residential and business development long proposed for the Shaver Valley area. The site is 12 miles west of Chiriaco Summit along I-10, in the vicinity of the Cactus City rest stop and adjacent to JTNP. As proposed, the project calls for construction of approximately 8,000 dwelling units plus retail/commercial facilities on a 5,400 acre site. In contrast to the renewable energy projects, where lighting can be managed through the permitting and approval process and where night-light requirements are modest, the Paradise Valley project could introduce extensive light sources that would be managed and operated by various entities, including home and business owners. Street lights, lights on dwellings and spilling from windows, parking lot lights, and retail/commercial building lighting and

signage would be introduced on a large scale. In addition, compared to existing conditions, there would be a large increase in motor vehicle traffic, with attendant headlight illumination. This type of development would pose a significant challenge to maintaining the dark sky resource in the region.

Literature from the Paradise Valley project proponent, GLC Enterprises, LLC, states:

> *Preservation of the dark night sky to perpetuate an unobstructed view of the stars is not only a valuable community resource but a desire of Joshua Tree National Park. To that end, every effort will be made to minimize light pollution and unnecessary glare from the community, such as designing and installing outdoor lighting in a manner that confines the light rays to the property upon which the lighting is installed.*
>
> *Paradise Valley outdoor lighting is aimed to adhere to the International Dark Sky Lighting Standards created by the International Dark Sky Association (IDA), a non-profit organization.* (Paradise Valley, 2012)

It is not clear exactly which standards the Paradise Valley project would adhere to. The final lighting plan and the lighting impacts after implementation are unknown. Assuming there is strict control of lighting, the project could introduce less light than a standard project of equal size, but it is not possible to know how much less or whether this would be sufficient to avoid significantly damaging the dark sky resource.

The proposed DPV2 tower lighting would make a very small contribution to night lighting in the context of the existing lighting at Chiriaco Summit and is not by itself expected to have a discernible adverse effect on night sky darkness. Chiriaco Summit and I-10 are located between the park and the transmission line, and much of the area in the park from which the towers would be visible also offers views of the Chiriaco Summit facilities. Figure 3-1B shows the existing hazard light on the Chiriaco Summit telecommunications tower, which is similar to the 7 L-864 lights that would be installed on the more distant towers. Figure 2-1C illustrates the same night scene with the DPV2 lights simulated. Given the reduction of light energy over distance, the fact that the viewsheds of the respective energy projects do not overlap with the DPV2 viewshed within the park, and the distance between the Chiriaco Summit transmission tower lights and the cumulative projects identified in the Cactus City and Desert Center areas, little to no cumulative effect is expected to be observed from the DPV2 lights. Installation of lighting would not create new significant environmental effects or a substantial increase in the severity of previously identified significant effects.

Noise

Geographic Scope of Analysis. The geographic scope of potential cumulative impacts from noises from construction activities is the area within one-quarter mile of the proposed modifications. The proposed tower and span modifications would affect ambient noise levels in the immediate proximity of construction, and the extent of cumulative noise impacts would be localized. At distances greater than one-quarter mile, project-related construction noise would fade into quiet backgrounds.

Cumulative Impacts. Modified Project construction would result in temporary but substantial increases to ambient noise levels and would disturb nearby sensitive receptors. Similarly, construction activities associated with new nearby cumulative projects could occur at the same time, and this would cumulatively increase temporary noise levels. Few sensitive receptors would be located adjacent to multiple construction sites or experience temporary noise impacts above those created by only the proposed modified Project activities. If modified Project construction activities and other nearby projects occur concurrently, the combined effect of construction noise would be cumulative. However, project mitigation would limit the noise impacts of the modified Project. The limited likelihood of project noise

impacts occurring simultaneously with other construction would ensure that project construction noise is not cumulatively considerable. The modified project would not involve new significant environmental effects or a substantial increase in the severity of previously identified significant effects.

Air Quality and Greenhouse Gas Emissions

Air Quality

Geographic Scope of Analysis. For air quality, the potential geographic scope of the cumulative impact analysis covers the two air basins, the Salton Sea Air Basin (SSAB), and the South Coast Air Basin (SCAB), within which the proposed modifications would occur along DPV2. While air quality is a regional phenomenon, with regionally cumulative impacts could extend over entire air basins and beyond, the identification of cumulative projects for air quality often ranges from one to six miles or more from a proposed project. Construction impacts are localized and of short duration. Therefore, only projects within one mile of the proposed modifications and only projects that are scheduled to be constructed concurrently in the same area are considered as projects that could contribute to cumulative impacts.

Cumulative Impacts. Only new cumulative projects with construction emissions that would occur at the same time as modified Project construction are considered as part of this cumulative analysis; existing emission sources are considered part of the existing ambient background cumulative condition. Few if any cumulative projects would be located within one mile of modified Project activities. However, given any of these projects could be constructed concurrently with the modified Project in the SCAQMD, where the regional emissions from the project including Project modifications would cause significant and unavoidable impacts (Class I), the combined effect of construction emissions from the modified Project and construction of other projects would be cumulatively significant during the limited duration of construction. The marginal increase in emissions associated with modified Project activities would not substantially increase the severity of cumulative air quality effects or change the cumulative construction emission impact determination identified in the Final EIR/EIS. Therefore, the proposed modifications would not have a new or more severe effect than the project did in the previous analysis.

Greenhouse Gas Emissions

Geographic Scope of Analysis. The analysis for greenhouse gas (GHG) emissions is a cumulative impact assessment because GHG emissions contribute, by their nature, on a cumulative basis, to the adverse environmental impacts of global climate change. The proposed modifications would cause greenhouse gas emissions, and past projects that have also caused increased greenhouse gas emissions include most development within Riverside County. All of the present and reasonably foreseeable projects identified in the cumulative scenario would require construction activities that would also result in increased greenhouse gas emissions.

Cumulative Impacts. This impact of GHG emissions due to the proposed Project modifications is considered in a globally cumulative context. Therefore, because the incremental daily construction emissions from the proposed Project modification would not substantially increase the GHG emissions related to the approved DPV2 project construction activities, no additional analysis of the cumulative impact is necessary. The proposed modifications would not create a new or more severe effect than the project did in the earlier environmental analysis.

4. Agencies and Persons Consulted

The BLM and CPUC seek comments from and works closely with other regulatory agencies that administer laws, regulations, and standards that may be applicable to the Proposed Action. The following agencies were consulted during preparation of this document, as summarized below:

- United States Department of Agriculture Forest Service
- United States National Park Service

4.1 U.S. Department of Agriculture Forest Service, San Bernardino National Forest

The CPUC and BLM coordinated with the United States Department of Agricultural Forest Service (U.S. Forest Service), because several affected towers and spans that would require hazard marking by the FAA would be located on the San Bernardino National Forest (SBNF). Sensitive views from the Pacific Crest Trail (PCT) descending from Mt. San Jacinto are also located on SBNF.

Of the 12 DPV2 structures located within SBNF (Towers 1037-1048), three of the spans would require marker balls by the FAA, as determined in its response to Forms 7460-1 submitted by SCE. SCE proposes to mark the spans according to FAA regulations described in Sections 1.2.1 and 2 of this EIR Addendum/EA.

Spans 1042-1043 and 1043-1044 are located entirely within the U.S. Forest Service SBNF, and Span 1036-1037 is located partially on SBNF. Markers on Span 1036-1037 would be visible from the PCT on SBNF. Markers on Spans 1042-1043 and 1043-1044 would not be readily visible from the PCT, because of screening by intervening ridges. Also, there would be very limited visibility of markers on Spans 1042-1043 and 1043-1044 from other SBNF lands due to screening by intervening ridges. No tower lighting would be required on SBNF.

The U.S. Forest Service is in the process of preparing a Supplemental Impact Report to address the addition of marker balls on SBNF and it is also considered a Cooperating Agency for this document under NEPA. In addition, impacts related to the aforementioned spans on SBNF are addressed in the environmental analysis in Sections 3.2 to 3.6 of this document.

4.2 U.S. National Park Service, Joshua Tree National Park

Several of the affected towers and spans would be nearby to Joshua Tree National Park (JTNP), namely in the area of Chiriaco Summit to Hayfield Road, and lights would be visible from the southern flanks of the Eagle Mountains. In this area, 7 towers would be topped with L-864 flashing lights; 4 towers would be topped with L-810 steady glowing lights. Therefore, BLM and CPUC coordinated with National Park Service (NPS) and the staff of the JTNP and discussed SCE's proposed modifications on October 1, 2012.

The NPS identified JTNP and the vicinity as an internationally known dark-sky area and expressed concerns over the introduction of any additional light in the area that could contribute to a reduction in the quality and integrity of the night sky resource. At the request of NPS, the potential cumulative light contribution from projects in the region was considered, even when they fell outside of the viewshed for the towers in the Chiriaco Summit area. NPS also requested the consideration of alternative lighting technologies to address its direct and cumulative dark skies concerns.

Visual and cumulative impacts (including dark skies) related to the aforementioned towers and spans near JTNP are addressed in the environmental analysis in Sections 3.3 and 3.6, respectively. Two exiting daylight and night views were photographed and simulations prepared from viewpoints located northwest and northeast of the Chiriaco Summit area (see Figure 3-1A through 3-1F). The simulations show the red hazard lights in the area between Chiriaco Summit and Hayfield Road (see Figure 3-1A through 3-1F), illustrating the effect on night skies in the area.

Alternative lighting technologies are considered in Section 2.3 and the No Project/Action Alternative is discussed in Section 2.4 of this document.

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Appendix 1: Visual Contrast Rating Data Sheet

Visual Contrast Rating Data Sheet

Devers-Palo Verde 2 Transmission Line Project – FAA Hazard Marker Ball Analysis

KEY VIEWPOINT DESCRIPTION

Key Viewpoint 11	
Location Eastbound Interstate 10, approximately 0.9 mile west of Hayfield Road, viewing to the southeast.	
VRM Class III	
Analyst Michael Clayton	
Date October 9, 2012	

CHARACTERISTIC LANDSCAPE DESCRIPTION

	LANDFORM / WATER	VEGETATION	STRUCTURES
Form	Horizontal valley floor to angular and rugged for mountains and ridges	Complex, continuous, and irregular with clumps	Geometric and complex to simple linear
Line	Horizontal (valley floor) to diagonal and irregular/jagged (ridges)	Horizontal as defined by Valley floor and alluvial fans to irregular and indistinct	Vertical, horizontal, and diagonal for structures/poles, curvilinear for conductors
Color	Tan to lavender and bluish hues at distance	Tans to pale yellow for grasses and muted to dark greens for shrubs	Light gray to bluish at distance (structures), dark gray to brown for poles
Texture	Smooth to granular and coarse	Matte	Smooth

PROPOSED ACTIVITY DESCRIPTION

	LANDFORM / WATER	VEGETATION	STRUCTURES
Form	Same	Same	Geometric and complex to simple linear and repeating round forms for marker balls
Line	Same	Same	Vertical and diagonal for structures, curving for marker balls, curvilinear for conductors
Color	Same	Same	Light gray to bluish at distance for towers, orange, white and yellow for marker balls
Texture	Same	Same	Smooth

DEGREE OF CONTRAST

	LANDFORM / WATER				VEGETATION				STRUCTURES			
	NONE	WEAK	MODERATE	STRONG	NONE	WEAK	MODERATE	STRONG	NONE	WEAK	MODERATE	STRONG
Form	4				4						4	
Line	4				4					4	4	
Color	4				4						4	4
Texture	4				4					4		

LEVEL OF CHANGE & VRM CLASS CONSISTENCY

Term: ☐ Short ☒ Long | **Level of Change:** (Moderate) ☐ Very Low ☐ Low ☒ Moderate ☐ High

Does the Project Design Meet VRM Objectives? ☒ Yes ☐ No

Maps and Illustrations

Following this page are these figures:

- Figure 2-1. Map 2A: Valley Substation to Devers Substation
- Figure 2-2. Map 2B: Devers Substation to Colorado River Substation
- Figure 2-3. Map 2C: Devers Substation to Colorado River Substation
- Figure 2-4. Map 2D: Devers Substation to Colorado River Substation
- Figure 2-5. Map 2E: Devers Substation to Colorado River Substation
- Figure 2-6. Map 2F: Devers Substation to Colorado River Substation
- Figure 3-1. Viewpoints for Visual Simulations
- Figure 3-1A through 3-1F. Day and Night Photos and Night Simulations from Two Viewpoints
- Figure 3-2a. Viewshed for Tower Lights at Chiriaco Summit/Hayfield Road
- Figure 3-2b. Detail of Viewshed for Tower Lights at Chiriaco Summit/Hayfield Road
- Figure 3-3. Nighttime Viewsheds of Tower Lights
- Figure 3-4. Daytime Viewsheds of Project Structures

Figure 2-1. Map 2A: Valley Substation to Devers Substation

Figure 2-2. Map 2B: Devers Substation to Colorado River Substation

Figure 2-3. Map 2C: Devers Substation to Colorado River Substation

Figure 2-4. Map 2D: Devers Substation to Colorado River Substation

Figure 2-5. Map 2E: Devers Substation to Colorado River Substation

Figure 2-6. Map 2F: Devers Substation to Colorado River Substation

Figure 3-1. Viewpoints for Visual Simulations

Figure 3-1A. Day and Night Photos and Night Simulations from Two Viewpoints

Figure 3-1B. Day and Night Photos and Night Simulations from Two Viewpoints

Figure 3-1C. Day and Night Photos and Night Simulations from Two Viewpoints

Figure 3-1D. Day and Night Photos and Night Simulations from Two Viewpoints

Figure 3-1E. Day and Night Photos and Night Simulations from Two Viewpoints

Figure 3-1F. Day and Night Photos and Night Simulations from Two Viewpoints

Figure 3-2a. Viewshed for Tower Lights at Chiriaco Summit/Hayfield Road

Figure 3-2b. Detail of Viewshed for Tower Lights at Chiriaco Summit/Hayfield Road

Figure 3-3. Nighttime Viewsheds of Tower Lights

Figure 3-4. Daytime Viewsheds of Project Structures

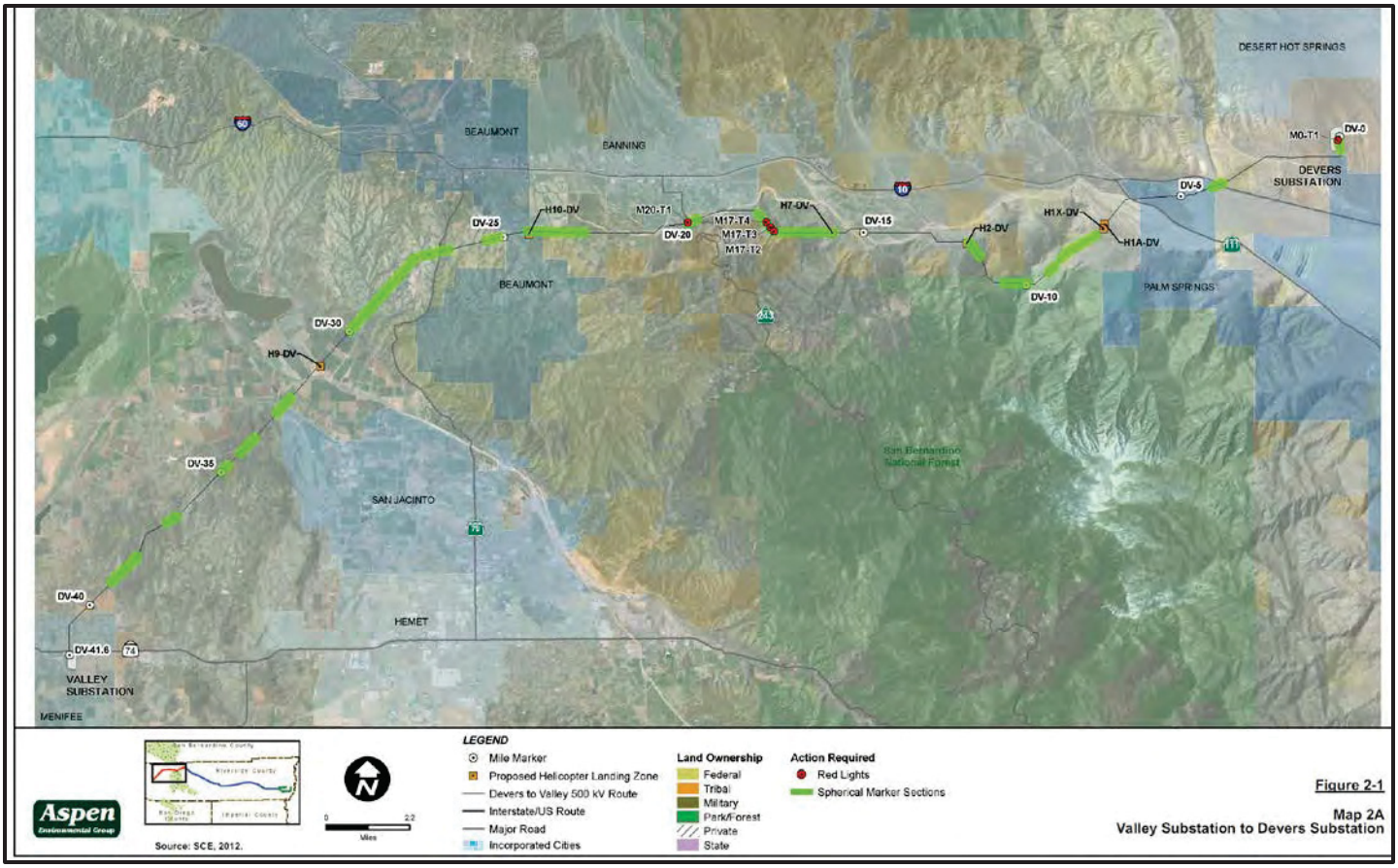


Figure 2-1

Map 2A
Valley Substation to Devers Substation

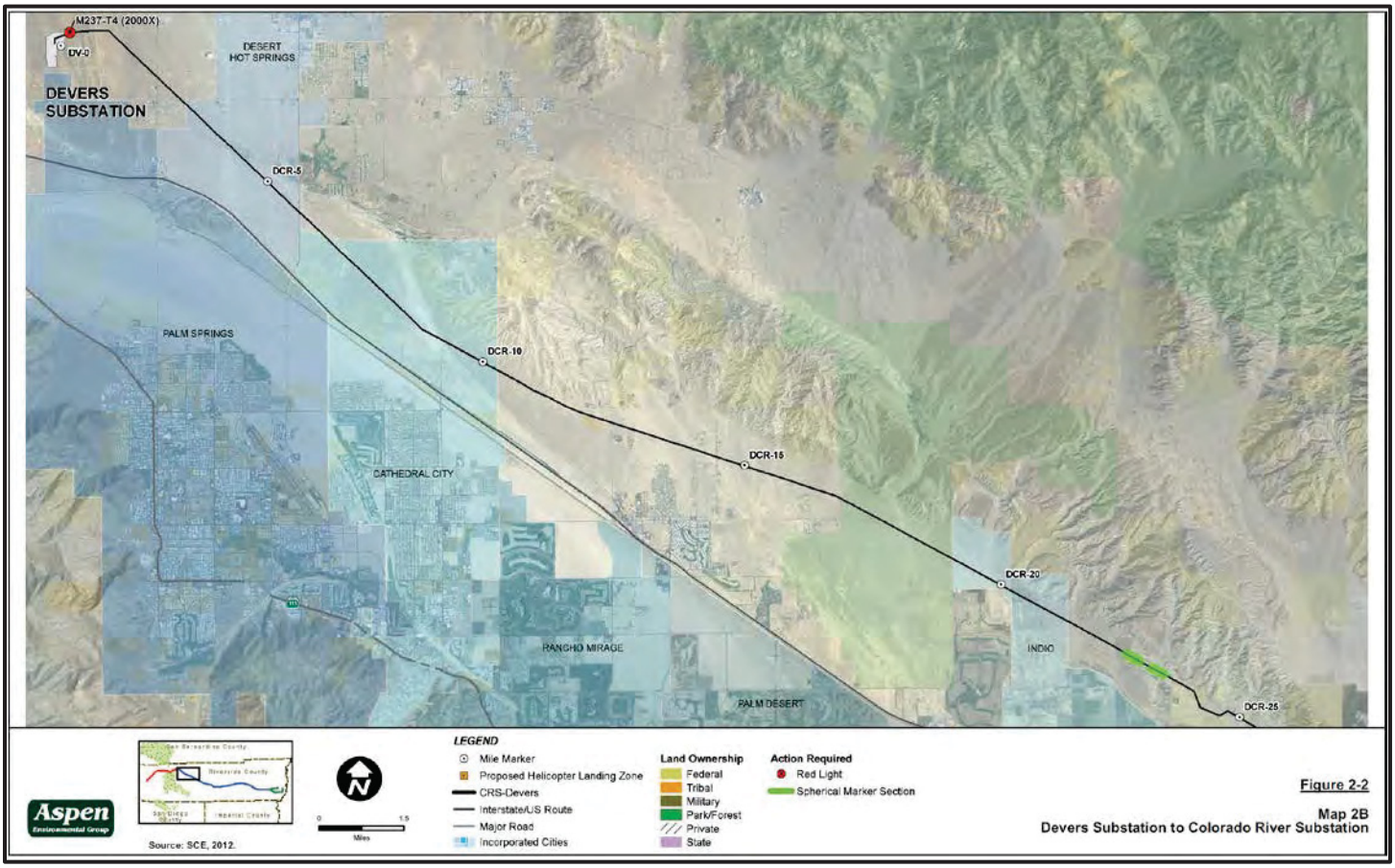


Figure 2-2

Map 2B
Devers Substation to Colorado River Substation

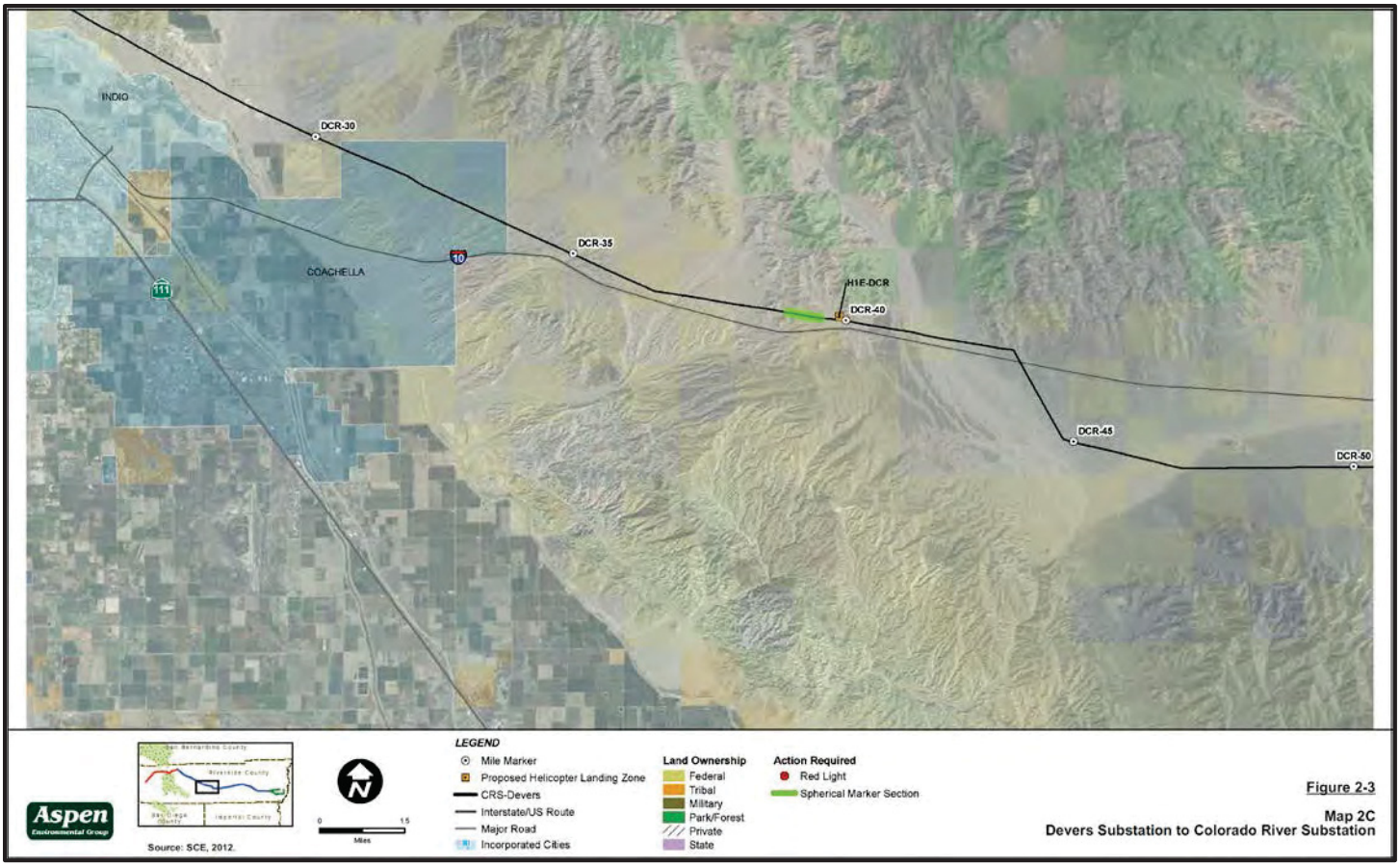


Figure 2-3

Map 2C
Devers Substation to Colorado River Substation

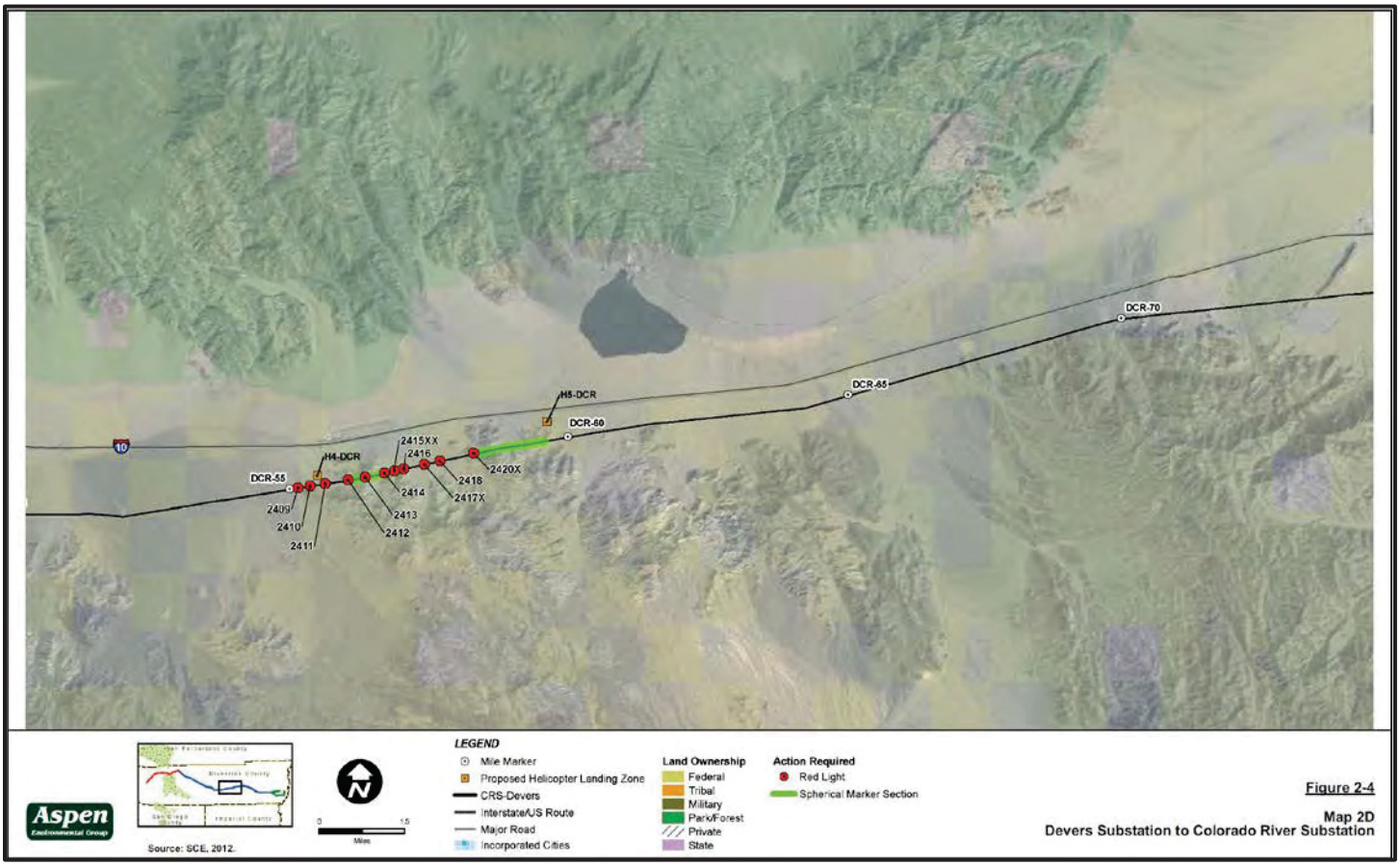


Figure 2-4

Map 2D
Devers Substation to Colorado River Substation

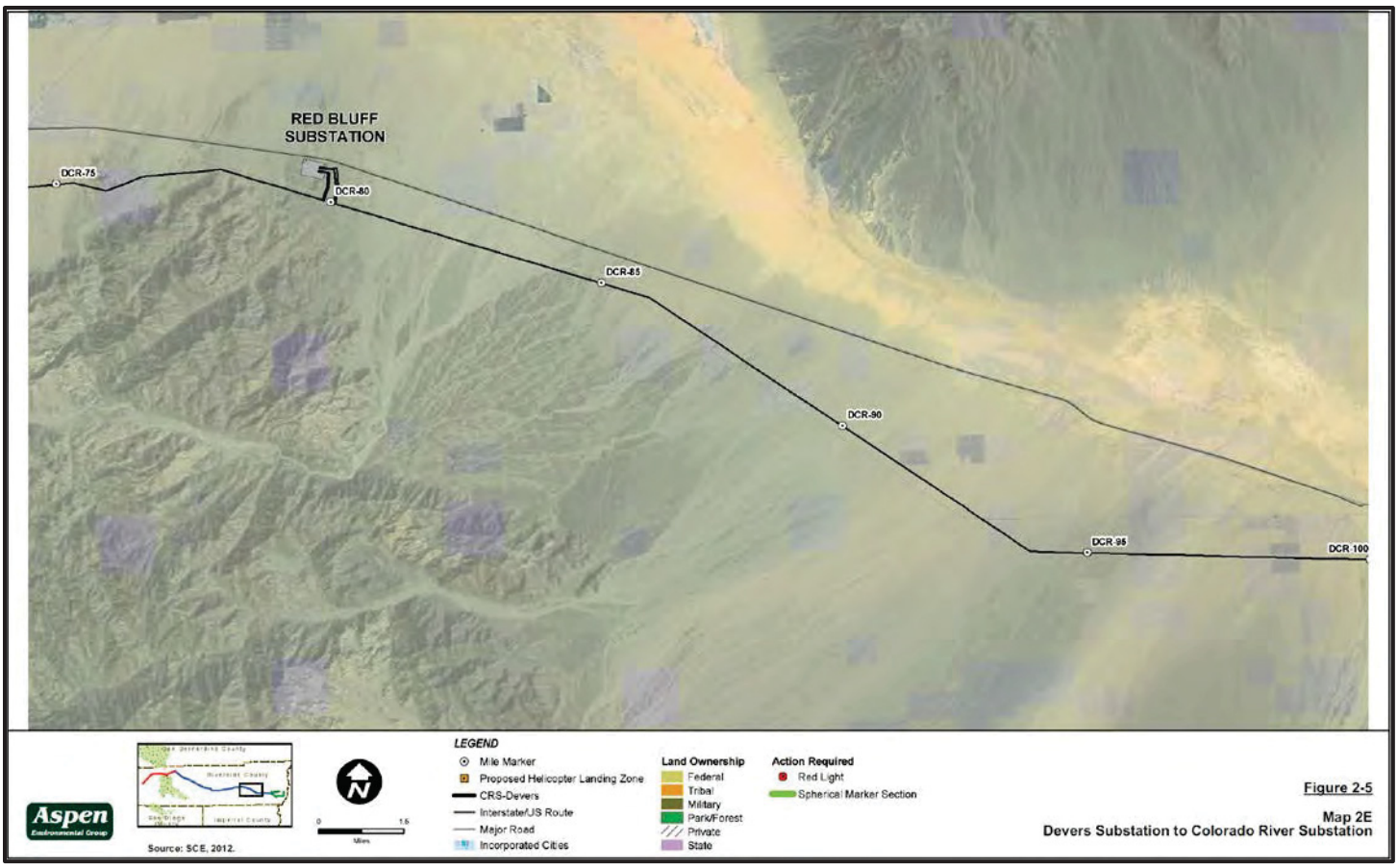


Figure 2-5

Map 2E
Devers Substation to Colorado River Substation

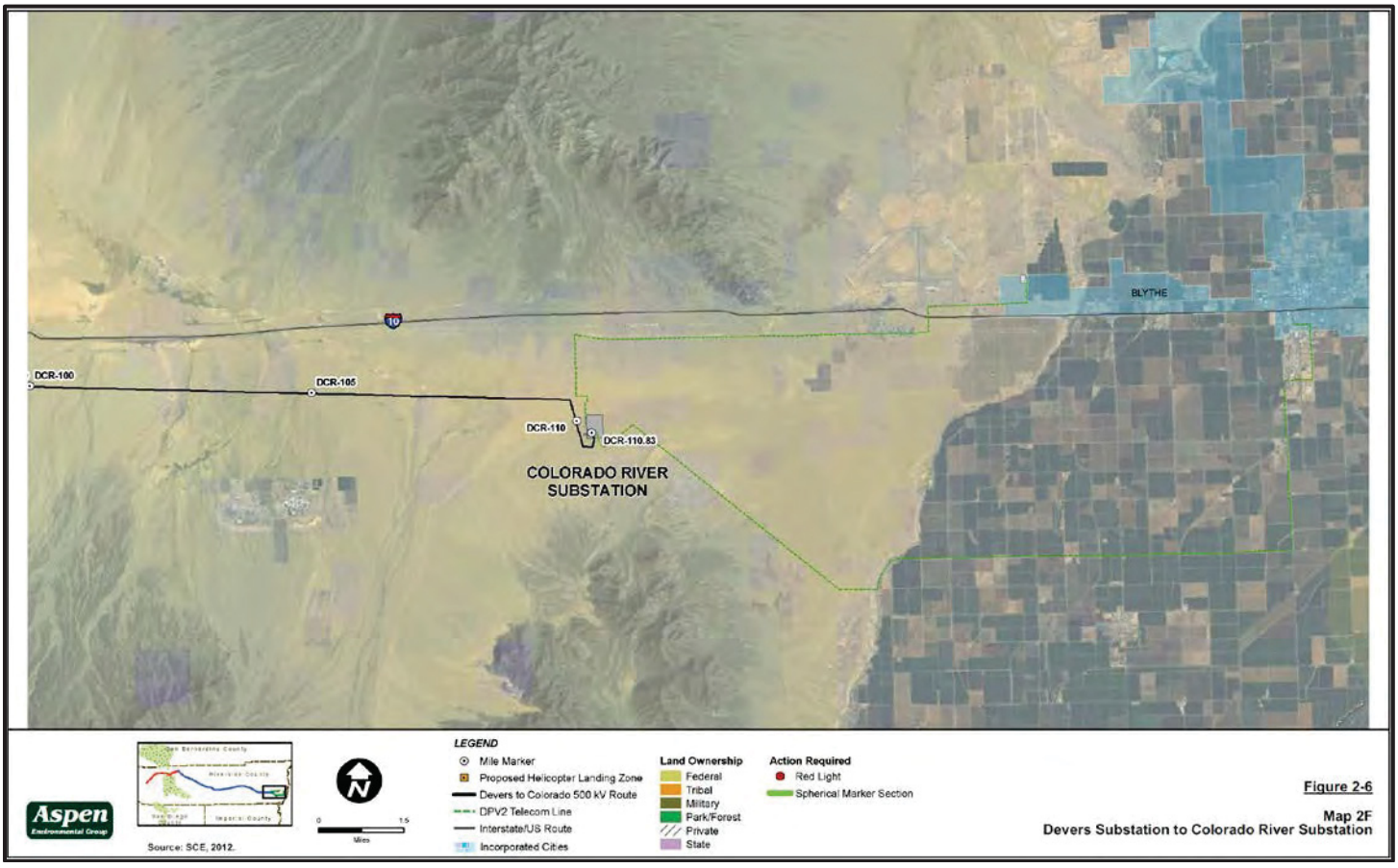
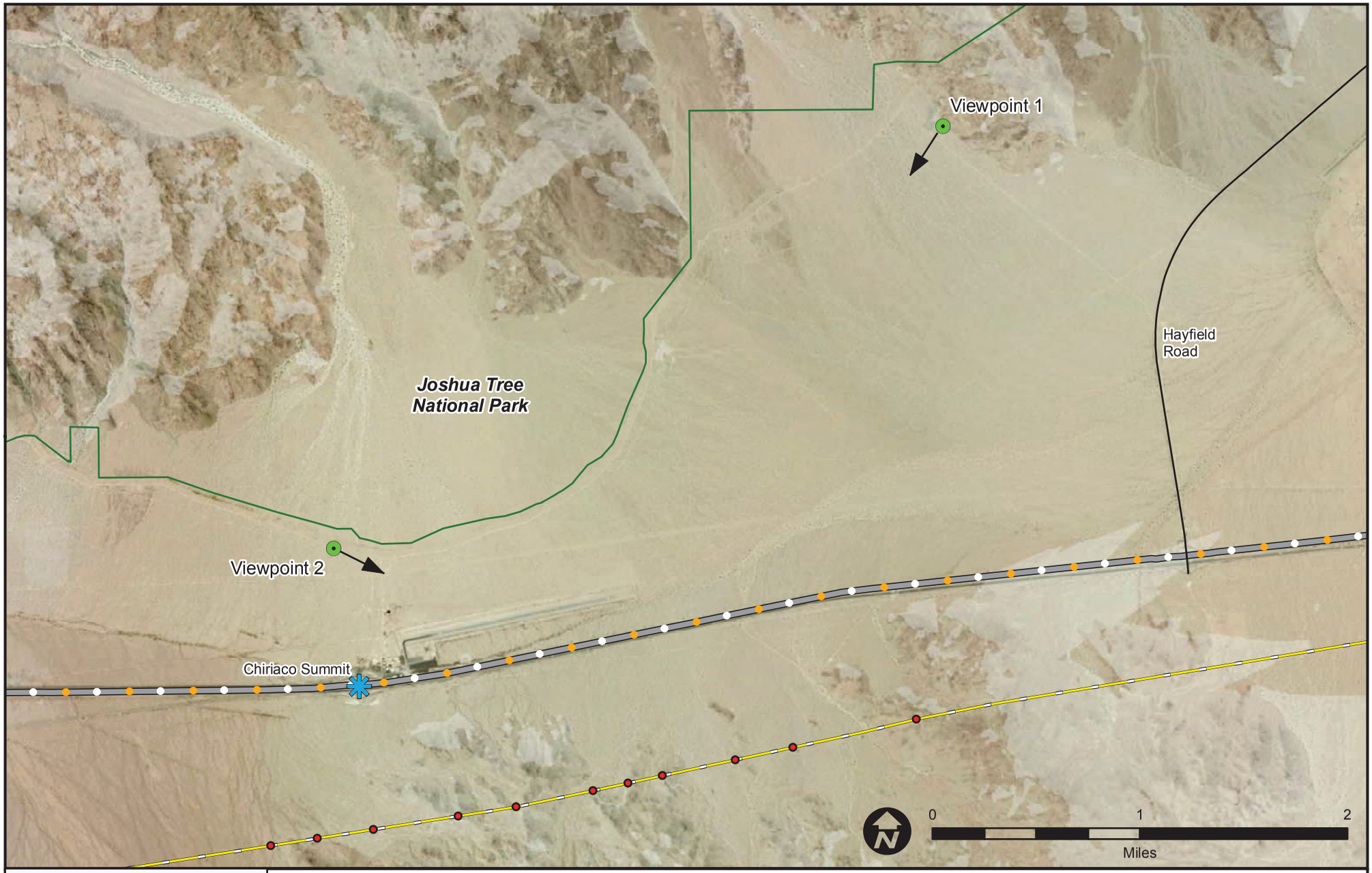
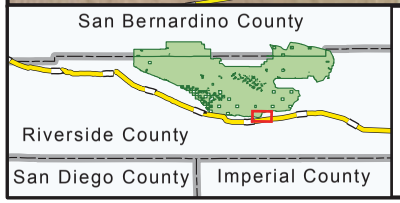


Figure 2-6

Map 2F
Devers Substation to Colorado River Substation





Aspen Environmental Group

Source: Aspen 2012, Bing Maps 2012, CPAD 2012, ESRI 2011, SCE 2012

Viewpoints
Transmission Tower Lights
DPV2 Alignment
Interstate 10
Joshua Tree National Park

Figure 3-1
Viewpoints for Visual Simulations

This image presents an **Existing Daylight View** of the western portion of Chuckwalla Valley between Chiriaco Summit and Hayfield Road, and the DPV2 route segment (Structures 2409 to 2418), that would traverse the northern flanks of the Orocopia Mountains. Viewpoint 1 is located near the southern boundary of Joshua Tree National Park, approximately three miles north of the route segment, and approximately 1.3 miles northwest of Hayfield Road. Nine structures would be visible in this field of view and would have FAA hazard lights.	**Viewpoint 1** **Chuckwalla Valley** **Near Hayfield**	**Devers-Palo Verde No. 2** **PMR FAA Visual Analysis** **Figure 3-1A** **Existing Daylight View**

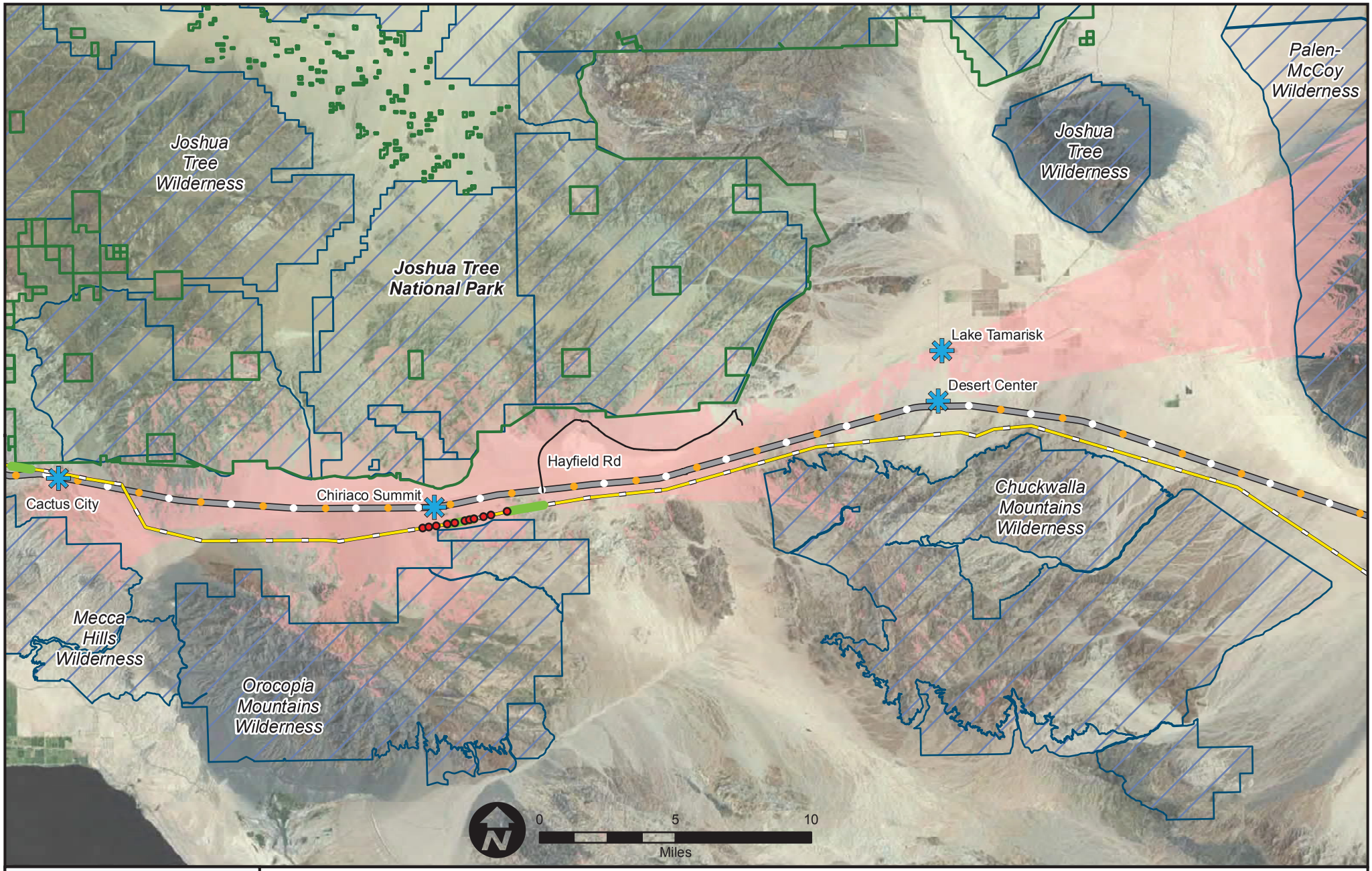
This image presents an **Existing Night View** of the Interstate 10 (I-10) corridor in the western Chuckwalla Valley between Chiriaco Summit and Hayfield Road, and the DPV2 route segment shown in the previous Figure 3-1A. From Viewpoint 1, visible lights include vehicles on I-10, some construction lighting south of I-10, and the red FAA hazard light on top of the telecommunication tower at Chiriaco Summit (distance of 3.65 miles). The horizontal to irregular ridgeline of the Orocopia Mountains is discernible in the center of the image.	**Viewpoint 1** **Chuckwalla Valley** **Near Hayfield**	**Devers-Palo Verde No. 2** **PMR FAA Visual Analysis** **Figure 3-1B** **Existing Night View**

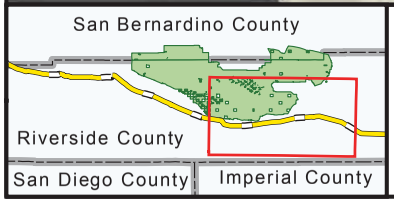
This image presents a **Visual Simulation** of the FAA hazard lights to be added to the DPV2 structures located between Chiriaco Summit and Hayfield Road along the northern flanks of the Orocopia Mountains, approximately 0.67 mile south of Interstate 10. Nine lighted structures would be visible in the Viewpoint 1 field of view presented above. Structures 2409, 2412, 2414, and 2418 would have three visible lights. Structures 2410, 2415XX, 2416, and 2417X would have two visible lights. Structure 2413 would have one visible light.	**Viewpoint 1** **Chuckwalla Valley** **Near Hayfield**	**Devers-Palo Verde No. 2** **PMR FAA Visual Analysis** **Figure 3-1C** **Hazard Lights Simulation**

This image presents an **Existing Daylight View** of the DPV2 route segment (Structures 2412 to 2417X), that would traverse the northern flanks of the Orocopia Mountains, between Chiriaco Summit and Hayfield Road. Viewpoint 2 is located near the southern boundary of Joshua Tree National Park, approximately 1.5 miles north-northwest of the route segment, and approximately 0.67 mile north-northwest of the Chiriaco Summit service area. The five structures that would be visible in this field of view would have FAA hazard lights.	**Viewpoint 2** **Chuckwalla Valley** **Near Chiriaco Summit**	**Devers-Palo Verde No. 2** **PMR FAA Visual Analysis** **Figure 3-1D** **Daylight View**

This image presents an **Existing Night View** of the Interstate 10 (I-10) corridor in western Chuckwalla Valley in the vicinity of Chiriaco Summit, and the DPV2 route segment shown in the previous Figure 3-1D. From Viewpoint 2, visible lights include the Chiriaco Summit service facilities, vehicles on I-10, roadside signage lights, and the red FAA hazard light on top of the telecommunication tower at Chiriaco Summit.	**Viewpoint 2** **Chuckwalla Valley** **Near Chiriaco Summit**	**Devers-Palo Verde No. 2** **PMR FAA Visual Analysis** **Figure 3-1E** **Existing Night View**

This image presents a **Visual Simulation** of the FAA hazard lights to be added to the DPV2 structures located between Chiriaco Summit and Hayfield Road along the northern flanks of the Orocopia Mountains, approximately 0.67 mile south of Interstate 10. Five lighted structures would be visible in the Viewpoint 2 field of view presented above. Structures 2412 and 2413 would have three visible lights. Structure 2414 would have one visible light (of three lights). Structures 2415XX and 2416 would have two visible lights.	**Viewpoint 2** **Chuckwalla Valley** **Near Chiriaco Summit**	**Devers-Palo Verde No. 2** **PMR FAA Visual Analysis** **Figure 3-1F** **Hazard Lights Simulation**



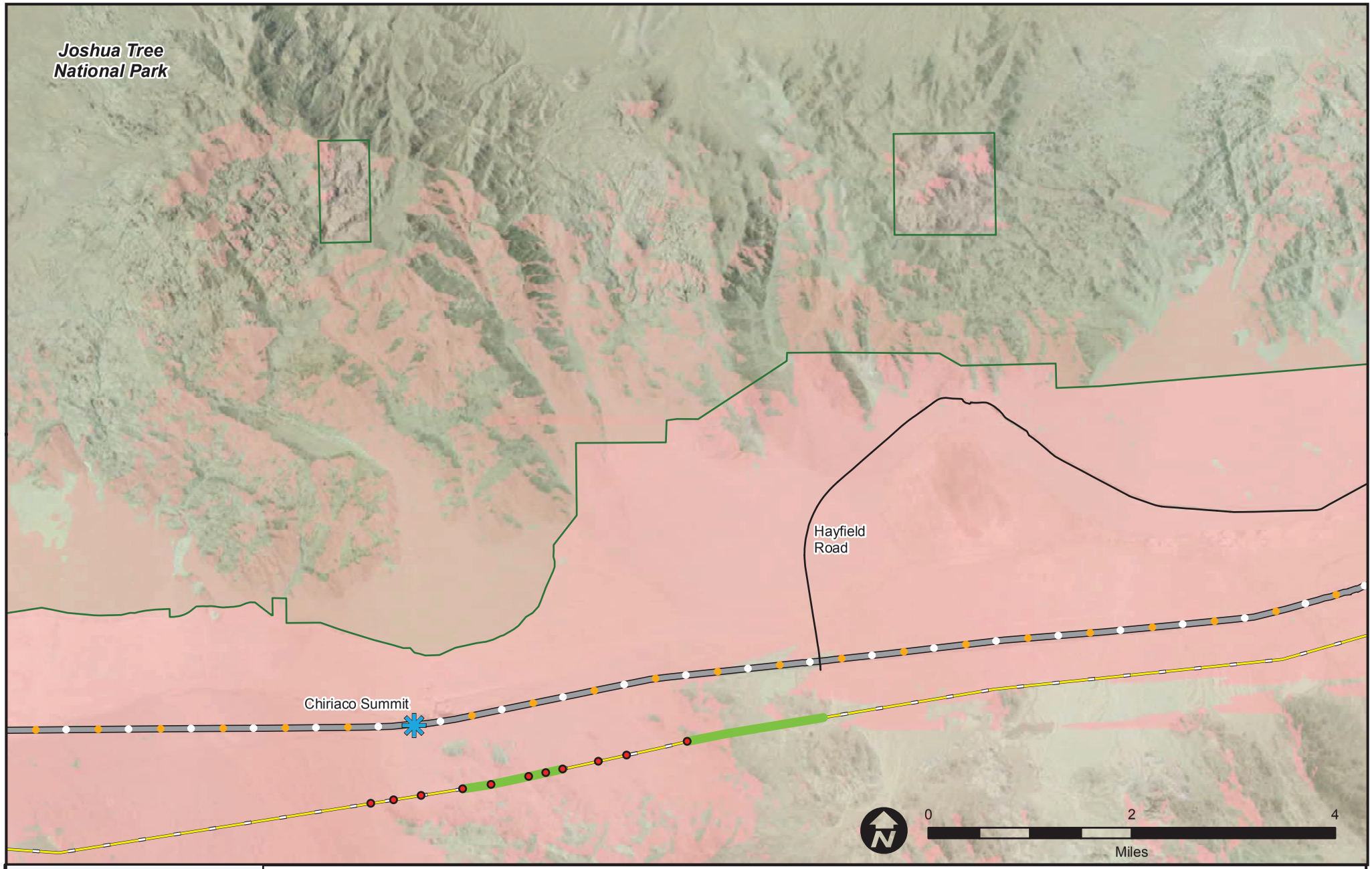


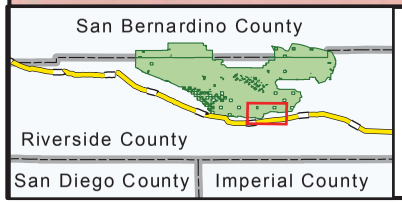
Aspen Environmental Group

Source: Aspen 2012, Bing Maps 2012, BLM 2012, CPAD 2012, Gesch 2007, SCE 2012

- Transmission Tower Lights
- Spherical marker segments
- DPV2 Alignment
- Interstate 10
- Tower Lights Visible
- Joshua Tree National Park
- Wilderness Areas

Figure 3-2a
Viewshed for Tower Lights at Chiriaco Summit/ Hayfield Road

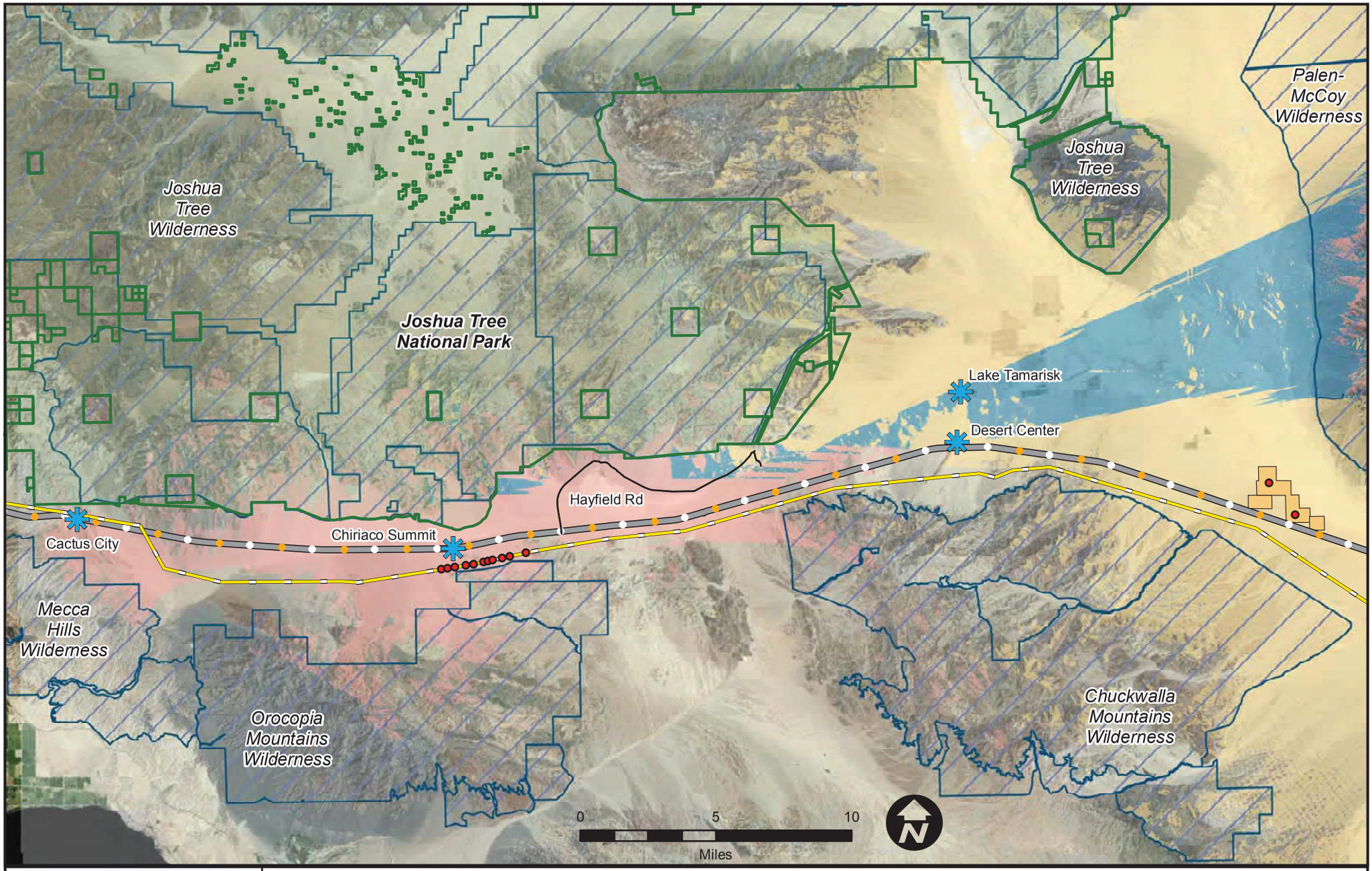


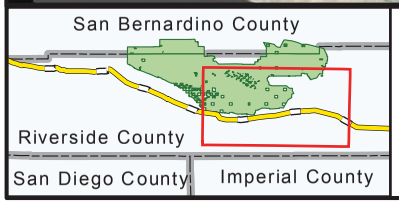


Source: Aspen 2012, Bing Maps 2012, CPAD 2012, ESRI 2011, SCE 2012

Transmission Tower Lights
Spherical marker segments
DPV2 Alignment
Interstate 10
Tower Lights Visible
Joshua Tree National Park

Figure 3-2b
Detail of Viewshed for Tower Lights at Chiriaco Summit/ Hayfield Road





Aspen Environmental Group

Source: Aspen 2012, Bing Maps 2012, CPAD 2012, Gesch 2007, SCE 2012

- Tower Lights
- Palen Solar Power Project
- DPV2 Alignment
- Interstate 10

Project Viewsheds

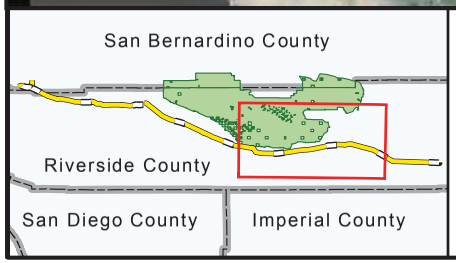
- Transmission Tower Lights (TTL)
- Palen Solar Power Project (Palen)
- TTL and Palen Overlap

- Joshua Tree National Park
- Wilderness Areas

Figure 3-3

Night Time Viewsheds of Tower Lights

Joshua Tree Wilderness
Joshua Tree National Park
Joshua Tree Wilderness
Palen-McCoy Wilderness
Lake Tamarisk
Desert Center
Hayfield Rd
Chiriaco Summit
Cactus City
Mecca Hills Wilderness
Orocopia Mountains Wilderness
Chuckwalla Mountains Wilderness
0 5 10
Miles
N



Aspen Environmental Group

Source: Aspen 2012, Bing Maps 2012, CPAD 2012, Gesch 2007, SCE 2012

Spherical markers
Tower Lights
DPV2 Alignment
Interstate 10
Palen Solar
Desert Harvest/Desert Sunlight

Project Viewsheds
National Park (NPS)
Wilderness Areas

Spherical Markers
Desert Sunlight/Harvest (DH/DS)
Palen Solar Power Project (Palen)
Spherical Markers and DH/DS
Spherical Markers and Palen
Palen and DH/DS
All Projects Visible

Figure 3-4

Daytime Viewsheds of Project Structures